

Years 2/3

Mixed Age Schemes of Learning

WhiteRoseMaths

Welcome

Welcome to the White Rose Maths' new, more detailed schemes of learning for 2017-18.

We have listened to your feedback and as a result of this, we have made some changes to the previous WRMH primary schemes. *We believe the new schemes are bigger, bolder and more detailed than before.*

White Rose Maths' new schemes still have the *same look and feel* as the old WRMH ones, but we have tried to provide more detailed guidance. We have worked with enthusiastic and passionate teachers from up and down the country, who are experts in their particular year group, to bring you additional guidance. *These schemes have been written for teachers, by teachers.*

We hope we can help make a difference to maths education in this country. *We all believe that every child can succeed in mathematics.* Thank you to everyone who has contributed to our work. It is only with your help that we can make a difference.

We hope that you find the new schemes of learning helpful. As always, if you or your school want support with any aspect of teaching maths please do not hesitate to get in touch

If you have any feedback on any part of our work, do not hesitate to get in touch. Follow us on Twitter and Facebook to keep up-to-date with all our latest announcements.

White Rose Maths Team

#MathsEveryoneCan

What's New?

This release of our schemes includes

- New overviews, with subtle changes being made to the timings and the order of topics.
- New small steps progression. These show our blocks broken down into smaller steps.
- Small steps guidance. For each small step we provide some brief guidance to help teachers understand the key discussion and teaching points. This guidance has been written for teachers, by teachers.
- A more integrated approach to fluency, reasoning and problem solving.
- Answers to all the problems in our new scheme.
- This year there will also be updated assessments.
- We are also working with Diagnostic Questions to provide questions for every single objective of the National Curriculum.

Teaching notes and examples

Recognise Equal Groups

Notes and Guidance

At this stage, children are describing equal groups using stem sentences to support them. It is important that children know which groups are equal and which are unequal. The addition or multiplication symbol is not used within this small step but this language will support them in understanding repeated addition and multiplication. The examples included, refer to the multiplication facts Y2 children need to know.

Mathematical Talk

Varied Fluency

1 Are these equal groups? How do you know?



2 Complete the stem sentence



Improved ordering and timing

	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 (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation	
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50) (Multiples of 2, 5 and 10 to be included)					Measurement: Length and Height			Measurement: Weight and Volume
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10)		Number:		Geometry: Area and Perimeter	Number:		Measurement: Mass		Number: Place Value (within 100)			

Small Steps Guidance

Overview

Small Steps

- Sort objects
- Count objects
- Represent objects
- Count, read and write forwards from any number 0 to 10
- Count, read and write backwards from any number 0 to 10
- Count one more
- Count one less
- One to one correspondence to start to compare groups
- Compare groups using language such as equal, more/greater, less/fewer
- Introduce =, > and < symbols
- Compare numbers
- Order groups of objects
- Order numbers
- Ordinal numbers (1st, 2nd, 3rd ...)
- The number line

NC Objectives

Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number.

Count, read and write numbers to 10 in numerals and words.

Given a number, identify one more or one less.

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

Meet the Team

The schemes have been put together by a wide group of passionate and enthusiastic classroom practitioners. The development of the schemes has been led by the following people who work across Trinity MAT.



Kelsey Brown



Beth Smith



Caroline Hamilton



Stephen Monaghan



Julie Matthews



Jenny Lewis

Special Thanks

The WRM Team would like to say a huge thank you to the following people who came from all over the country to contribute their ideas and experience. We could not have done it without you.

Year 2 Team

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How to use the Small Steps

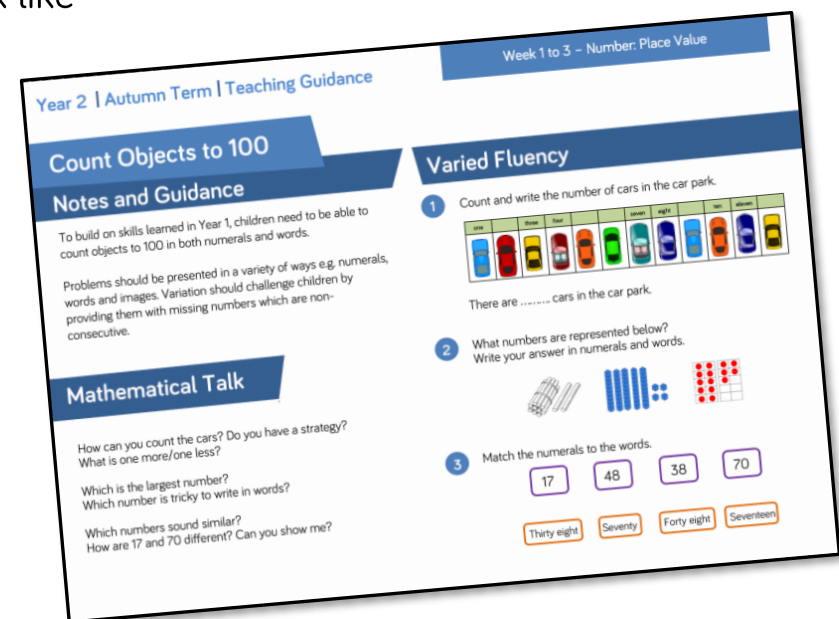
We are regularly asked how it is possible to spend so long on particular blocks of content and National Curriculum objectives. We know that breaking the curriculum down into small manageable steps should help children understand concepts better. Too often, we have noticed that teachers will try and cover too many concepts at once and this can lead to cognitive overload. In our opinion, it is better to follow a small steps approach.

As a result, for each block of content we have provided a “Small Step” breakdown. ***We recommend that the steps are taught separately*** and would encourage teachers to spend more time on particular steps if they feel it is necessary. Flexibility has been built into the scheme to allow this to happen.

Teaching Notes

Alongside the small steps breakdown, we have provided teachers with some brief notes and guidance to help enhance their teaching of the topic. The “Mathematical Talk” section provides questions to encourage mathematical thinking and reasoning, to dig deeper into concepts.

We have also continued to provide guidance on what varied fluency, reasoning and problem solving should look like



Assessments

Alongside these overviews, our aim is to provide an assessment for each term's plan. Each assessment will be made up of two parts:

Part 1: Fluency based arithmetic practice

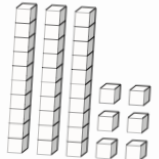
Part 2: Reasoning and problem solving based questions

Teachers can use these assessments to determine gaps in children's knowledge and use them to plan support and intervention strategies.

The assessments have been designed with new KS1 and KS2 SATs in mind. **New assessments will be released over the course of next year.**

For each assessment we will aim to provide a summary spreadsheet so that schools can analyse their own data. We hope to work with Mathematics Mastery to allow schools to make comparisons against other schools. Keep a look out for information next year.


16 Here are some cubes.



2 boys receive 8 cubes each.
The rest of the cubes are shared equally between 4 girls.
How many cubes does each girl receive?

Show your method

12 Marla spends $\frac{2}{7}$ of her weekly wage on a £120 bag.



How much does she earn in a week?

Show your method

2 marks

Teaching for Mastery

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

The overviews:

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

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

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

Concrete – Pictorial – Abstract

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

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

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

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

We have produced a CPD unit for teachers in schools;

<https://www.tes.com/teaching-resource/the-importance-of-concrete-professional-development-11476476>

Additional Materials

In addition to our schemes and assessments there are a range of other materials that you may find useful.

KS1 and KS2 Problem Solving Questions

For the last two years WRMH have provided a range of KS1 and KS2 problem solving questions in the run up to SATs. There are over 150 questions on a variety of different topics and year groups.

Shopping and Baking

1 These items are sold in a shop.

Ray buys three items.
Two of them were the same item.
He spent £23
Which items does he buy?

2 Erik bakes 5 trays of muffins.
Each tray contains 6 muffins.

He sells 16 muffins and eats 5
How many muffins does he have left?

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Other schemes of learning

As well as having schemes for Y1-Y6 we developed a range of other schemes of learning

- Schemes for reception
- Mixed aged schemes
- Year 7 – 9 schemes for secondary

Calculation policy/guidance

We also have our calculation policy for the four operations. This can be found on our TES page.

Use of place value counters to add HTO + TO, HTO + HTO etc. once the children have had practice with this, they should be able to apply it to larger numbers and the abstract

Children to represent the counters e.g. like the image below

If the children are completing a word problem, draw a bar model to represent what it's asking them to do

243
+368

611
1 1

Fluency variation, different ways to ask children to solve 21+34:

Sam saved £21 one week and £34 another. How much did he save in total?

21+34=55. Prove it! (reasoning but the children need to be fluent in representing this)

21
+34

21 + 34 =
= 21 + 34

What's the sum of twenty one and thirty four?

Always use missing digit problems too:

Our Partnerships

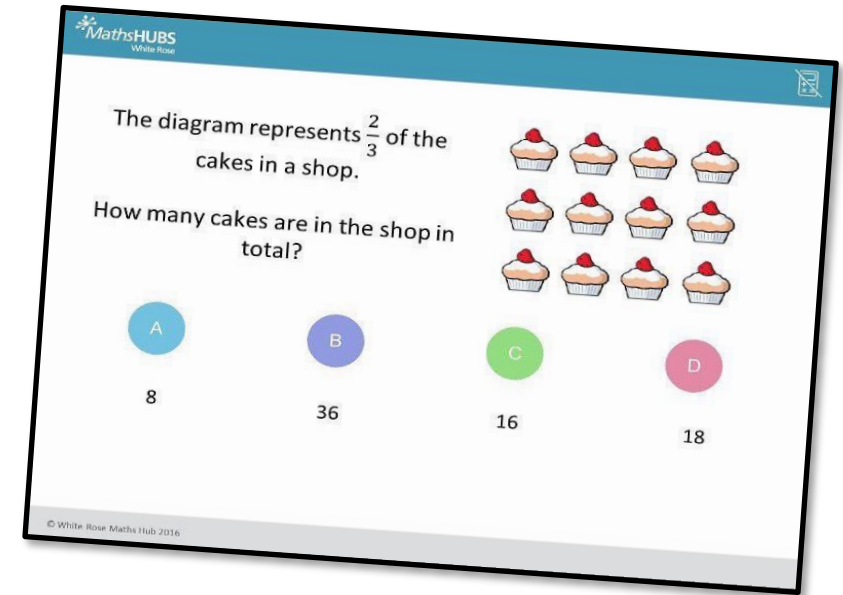
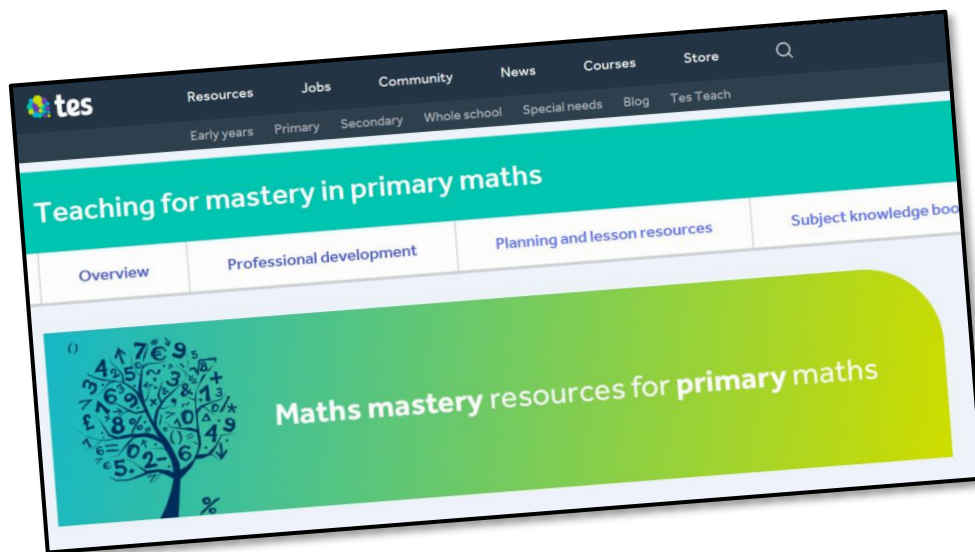
tes

www.tes.com



Over the last 12 months we have developed a partnership with tes. Working with Mathematics Mastery we have created a detailed breakdown of the National Curriculum. Watch this space for exciting developments.

<https://www.tes.com/teaching-resources/teaching-for-mastery-in-primary-maths>



Diagnostic Questions

www.diagnosticquestions.co.uk



From September 2017, we have written two sets of questions for every National Curriculum objective from Y1 to Y6. These are hosted free of charge on @mrbartonmaths Diagnostic Questions website.

Training

White Rose Maths offers paid for training to schools regionally, nationally and internationally. Over the last year we have delivered training to over 150 schools and have had over 1,000 people attend our face to face training.

As part of our 'Jigsaw' package we offer the following twilight courses:

- CPA
- Bar Modelling
- Reasoning and Problem Solving
- Mathematical Talk and Questioning
- Variation and Depth

If you would like any more information about our courses then email the team.

License Partners

We also work with a growing number of Teaching Schools around the country to deliver our training. All of our providers have been specially selected and they are as passionate about improving maths education as we are. All our providers offer our twilight bar modelling training course. If you want to see who your local provider is or would like to become a license partner then please just get in touch.



Bar Modelling Deeper Learning Event

FAQs

We have bought one of the new textbook schemes, can we still use these curriculum plans?

Many schools are starting to make use of mastery textbooks used in places like Singapore and China. The schemes have been designed to work alongside these textbooks. We recommend that you follow the textbook order and use our materials for additional support and guidance.

If we spend so much time on number work, how can we cover the rest of the curriculum?

Children who have an excellent grasp of number make better mathematicians. Spending longer on mastering key topics will build a child's confidence and help secure understanding. This should mean that less time will need to be spent on other topics.

In addition, schools that have been using these schemes already have used other subjects and topic time to teach and consolidate other areas of the mathematics curriculum.

Should I teach one small step per lesson?

Each small step should be seen as a separate concept that needs teaching. You may find that you need to spend more time on particular concepts. Flexibility has been built into the curriculum model to allow this to happen. This may involve spending more than one lesson on a small step, depending on your class' understanding.

Will you be providing grade boundaries for your assessments?

No, we will not be releasing guidance on grade boundaries. We suggest the assessments are used to find out what children can and cannot do, which will help inform future planning.

FAQs continued ...

How do I use the fluency, reasoning and problem solving questions?

The questions are designed to be used by the teacher to help them understand the key teaching points that need to be covered. They should be used as inspiration and ideas to help teachers plan carefully structured lessons.

What is same day intervention?

A growing number of schools are doing different types of same day intervention. Some schools are splitting a lesson into two parts and other schools are working with small groups of students at other times during the day. The common goal is to keep up, rather than catch up.

#MathsEveryoneCan

At White Rose Maths we believe that everyone can succeed in Maths. We encourage anyone who uses our schemes to share in this belief and do all that they can to convince the children they teach that this is the case.

How do I reinforce what children already know if I don't teach the topic again?

The scheme has been designed to give sufficient time for teachers to explore concepts in depth, rather than covering it superficially and then coming back to it several times.

We understand though that schools will rightly want to ensure that students revisit concepts and ensure fluency in number.

The schemes interleave prior content in new concepts. For example when children look at measurement we recommend that there are lots of questions that practice the four operations and fractions. This helps children make links between topics and understand them more deeply.

We also recommend that schools look to reinforce number fluency throughout the year. This could be done as mental and oral starters or in additional maths time during the day.

Year 2/3 – Yearly Overview

	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					Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division		Measurement: Money		Statistics		Measurement: Length, Height and Perimeter		Number: Fractions			Consolidation
Summer	Geometry: Properties of Shape and Position and direction				Year 2: SATS Year 3: Fractions		Measurement: Time			Measurement: Mass, Capacity and Temperature		Consolidation

Year 2/3 – Autumn Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<u>Number – Place Value</u> Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward. Count from 0 in multiples of 4, 8, 50 and 100 Read and write numbers to at least 100 in numerals and words. Read and write numbers up to 1,000 in numerals and in words. Recognise the place value of each digit in a two digit number (tens, ones) Recognise the place value of each digit in a 3-digit number. Identify, represent and estimate numbers to 100 using different representations including the number line. Identify, represent and estimate numbers using different representations. Compare and order numbers from 0 up to 100; use <, > and = signs. Order and compare numbers to 1000. Find 10 or 100 more or less than a given number. Use place value and number facts to solve problems. Solve number problems and practical problems involving these ideas.			<u>Number – Addition and Subtraction</u> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two digit number and ones; a two digit number and tens; two two digit numbers; adding three one digit numbers. Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Estimate the answer to a calculation and use inverse operations to check answers.					<u>Multiplication and Division</u> Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.			Consolidation

Year 2/3 – Spring Term














Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<p><u>Number: Multiplication and Division</u> Recall and use multiplication and division facts for the 2, 5 and 10 times tables,. Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <p>Calculate mathematical statements for multiplication and division and write them using the multiplication (x), division (÷) and equals (=) sign. Write and calculate mathematical statements for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p>		<p><u>Measurement: Money</u> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</p> <p>Find different combinations of coins that equal the same amounts of money.</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Add and subtract amounts of money to give change, using both £ and p in practical contexts.</p>		<p><u>Statistics</u> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Interpret and present data using bar charts, pictograms and tables.</p> <p>Ask answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask and answer questions about totalling and comparing categorical data.</p> <p>Solve one-step and two-step questions (for example, ‘How many more?’ and ‘How many fewer?’) using information presented in scaled bar charts and pictograms and tables.</p>		<p><u>Measurement: Length, Height and Perimeter</u> Choose and use appropriate standard units to estimate and measure <u>length/height in any direction (m/cm)</u>; mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, <u>using rulers, scales, thermometers and measuring vessels</u></p> <p><u>Compare and order lengths, mass, volume/capacity and record the results using >, < and =</u> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p> <p>Measure the perimeter of simple 2D shapes.</p>		<p><u>Number: Fractions</u> Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</p> <p>Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators.</p> <p>Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>Solve problems that involve all of the above.</p>		Consolidation	

Year 2/3 – Summer Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<u>Geometry: Properties of Shape and Position and Direction</u> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. Recognise 3-D shapes in different orientations and describe them. Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.] Draw 2-D shapes and make 3-D shapes using modelling materials. Compare and sort common 2-D and 3-D shapes and everyday objects. Order and arrange combinations of mathematical objects in patterns and sequences Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).				<u>Year 2: SATS</u> Year 3: Fractions Compare and order unit fractions, and fractions with the same denominators. Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] Solve problems that involve all of the above.		<u>Measurement: Time</u> Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks. Estimate and read time with increasing accuracy to the nearest minute. Know the number of minutes in an hour and the number of hours in a day. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare and sequence intervals of time. Record and compare time in terms of seconds, minutes and hours. Compare durations of events [for example to calculate the time taken by particular events or tasks]. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.			<u>Measurement: Mass, Capacity and Temperature</u> <u>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</u> <u>Compare and order lengths, mass, volume/capacity and record the results using >, < and =</u> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).		Investigations

Overview

Small Steps

Year 2	Year 3	
 Representing Numbers	Numbers to 1,000	 Representing Numbers
 Tens and Ones (1)	100s, 10s, 1s (1)	
 Tens and Ones (2)	100s, 10s, 1s (2)	
 Place Value Charts	Number line to 1,000	
 Counting in 2s, 5s, 10s	Hundreds	 Counting and Multiples
 Counting in 3s	Count in 50s	
	1, 10, 100 more or less	More or less
 Comparing objects	Comparing objects	 Compare and Order
 Comparing numbers	Comparing numbers	
 Ordering numbers	Ordering numbers	

Represent Numbers

Notes and Guidance

Children need to be able to represent numbers to 100 using a range of concrete materials.

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

Mathematical Talk

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

Which part of the resource represents tens/ones?

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

Varied Fluency

- 1 Here is part of a bead string.



Complete the sentence.

There are tens and ones.

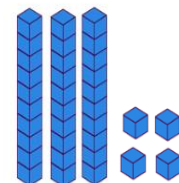
The number is

Represent 45 on a bead string.

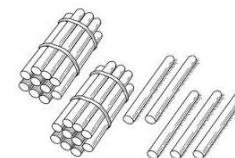
- 2 Match the number to the correct representation.



Three tens
and four ones



Twenty five



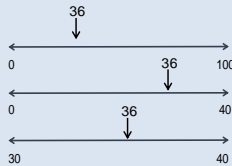
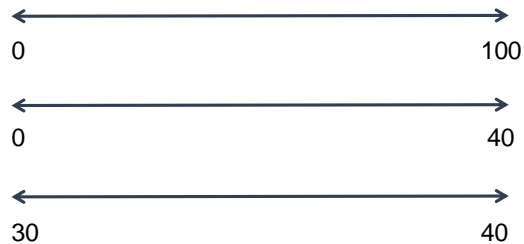
33

- 3 Represent 67 in **three different** ways?

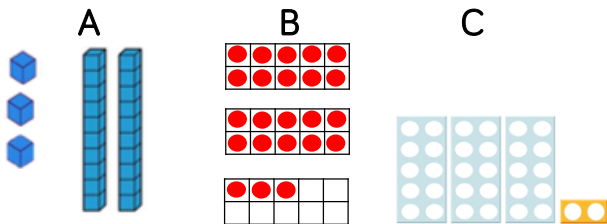
Represent Numbers

Reasoning and Problem Solving

Place 36 on each of the number lines below:

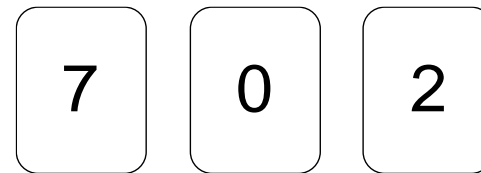


One of these images **does not** show 23. Can you explain the mistake?



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

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



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

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

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

70
20
72
27

The largest number is 72

The smallest number is 20.

Numbers to 1,000

Notes and Guidance

Using Base 10 primarily, introduce children to any number up to 1,000. Base 10 will show the children the difference in size so they can clearly see that tens are bigger than ones.

Children need to see numbers with zeros in different columns and show them with concrete and pictorial representations.

They will not use the place value grid in this step but will focus on it in the next step.

Mathematical Talk

Does it matter which order you build the number in?

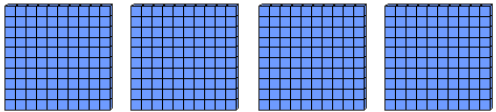
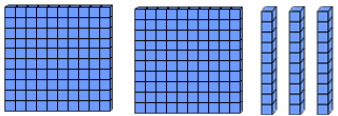
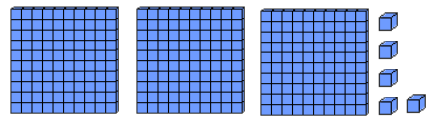
Can you have more than 9 of the same object? E.g. 11 tens

Do you prefer using the Base 10 or drawing the Base 10? Why?

Can you create a part-whole model using or drawing Base 10 in each circle?

Varied Fluency

- 1 Write down the number represented with Base 10 in each case.

Representation	Number
	
	
	

- 2 Use Base 10 to represent the following numbers.

- 700
- 120
- 407
- 999

- 3 Sanjay is drawing numbers. Can you complete them for him?

246



390



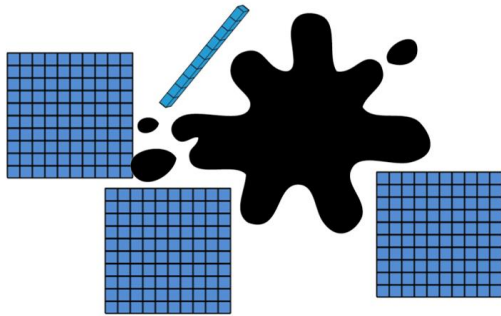
706



Numbers to 1,000

Reasoning and Problem Solving

David has 420 in Base 10 but some are covered.



Work out the missing amount.

How many different ways can you make 420 with Base 10?

110 is the missing part.

Possible answers:

1 hundred and 1 ten

110 ones

11 tens

10 tens and 10 ones

50 ones and 6 tens

Which child has made the number 315?

Ben: A diagram showing three blue square blocks representing hundreds, one blue rod block representing a ten, and five blue unit blocks representing ones.

Amir: A diagram showing two blue square blocks representing hundreds, ten blue rod blocks representing tens, and fifteen blue unit blocks representing ones.

Ben and Amir have both made the number 315 but represented it differently.

3 hundreds, 1 ten and 5 ones is the same as 2 hundreds, 10 tens and 15 ones.

Tens and Ones (1)

Notes and Guidance

Children now partition numbers and need to have an understanding of what each digit represents.

It is important that children can partition numbers in a variety of ways, not just as tens and ones. For example, 58 is made up of 5 tens and 8 ones or 4 tens and 18 ones, or 20 and 38, etc.

Mathematical Talk

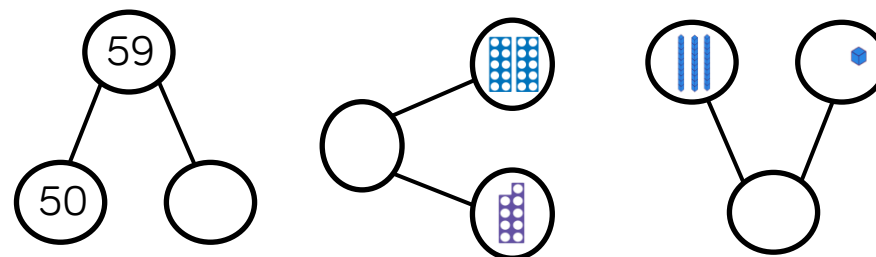
Which part do we know? How can we use the whole and part to work out the missing part?

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

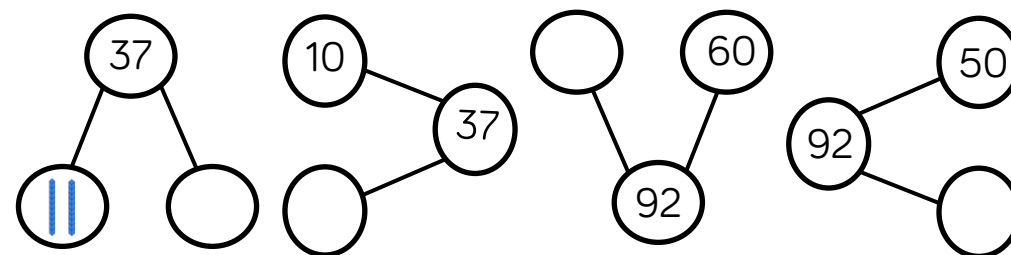
How can you rearrange the counters to help you count the lemon and strawberry cupcakes?

Varied Fluency

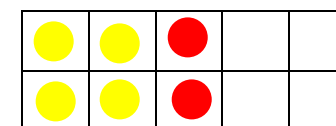
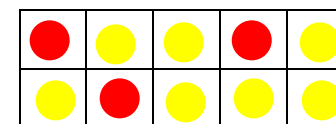
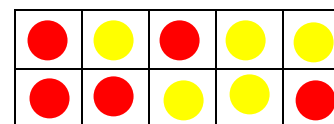
- 1 Complete the part whole models.



- 2 Complete the part whole models.



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



Tens and Ones (1)

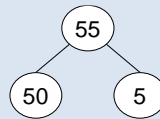
Reasoning and Problem Solving

Charlotte says:



In a part whole model you cannot use the same digit twice

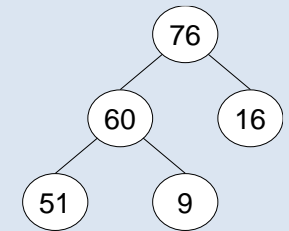
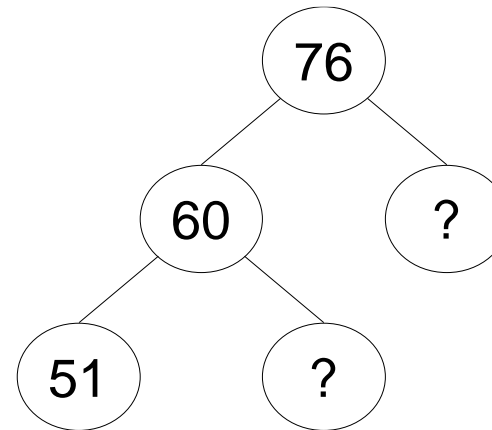
Disagree- you can use the same digit in a part whole model. i.e



Do you agree with Charlotte?

Explain your reasoning.

Complete the extended part whole model:



100s, 10s, 1s (1)

Notes and Guidance

Children should understand that a 3 digit number is made up of 100s, 10s and 1s.

They can read numbers shown in different representations on a place value grid and be able to write them in numerals. They should be able to represent different 3 digit numbers using a variety of methods such as Base 10 or numerals.

Mathematical Talk

What is the value shown on the place value chart?

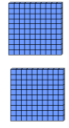


Why is it important to put the values into the correct column on the place value chart?

How many more is needed to complete the place value chart?

Can you make your own numbers for a friend using arrow cards?



Varied Fluency

- 1 What is the value of the number represented in the place value chart?

Hundreds	Tens	Ones
		

Write it in numerals and words.

- 2 Complete this place value chart so that it shows 354

Hundreds	Tens	Ones
		

- 3 What number would this make?



100s, 10s, 1s (1)

Reasoning and Problem Solving

Hundreds	Tens	Ones

Steph



The place value grid shows 467

Do you agree?

Explain your reasoning.

What do you notice about the number shown?

I disagree because there are six hundreds in the hundreds column, four tens in the tens column and 7 ones in the ones column.

The number that is shown is 647

I notice that 647 and 467 have the same digits but the digits are worth different values.

5 0 3

Using each digit card, which numbers can you make?

Use the place value grid to help.

100s	10s	1s

Check your answer with a partner.

The numbers that can be made are:

530
350
503
305
53
35

Tens and Ones (2)

Notes and Guidance

Children will build on previous learning on the part whole model and how tens and ones can be partitioned and recombined to make a total.

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

Mathematical Talk

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

What number completes the part-whole model?

What is the same and different about the calculations?

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

Varied Fluency

- 1 Match the number sentences to the correct number.

$20 + 19$

$10 + 4$

$40 + 0$

$80 + 1$

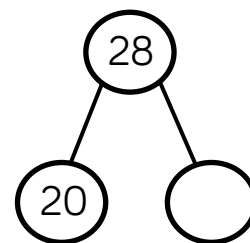
40

14

81

39

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



_____	+	_____	=	_____
_____	+	_____	=	_____
_____	=	_____	+	_____
_____	=	_____	+	_____

- 3 Hattie has 20 sweets and Noah has 15 sweets. Represent the total number of sweets:

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

Tens and Ones (2)

Reasoning and Problem Solving

Joel thinks that:



$$40 + 2 = 402$$

Explain the mistake he has made.

Can you show the correct answer using concrete resources?

$40 + 2 = 42$
Joel has combined the
numbers to make 402

Fill in the missing numbers:

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

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

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

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

What would the next number in the pattern be?

1 ten + 3 ones = 13
2 tens + 3 ones = 23
3 tens + 3 ones = 33
4 tens + 3 ones = 43

5 tens + 3 ones = 53

100s, 10s, 1s (2)

Notes and Guidance

Building on previous learning, children should now use place value counters to represent different numbers and understand how a number is made.

Their work with Base 10 should help them understand that the hundreds counter is worth more than the tens counter and the tens counter is worth more than the ones counter.

Mathematical Talk

Why do we not call this number 300506?

Why is it important to put the values into the correct column on the place value grid?

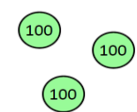
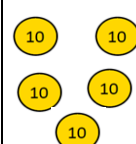
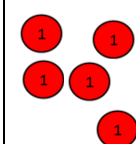
How much is shown?

Can you find all the possibilities?

Can you write a number sentence for Q3?


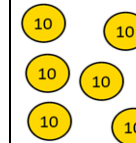
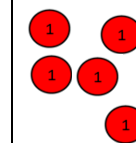
Varied Fluency

- What number is shown in the place value chart?




Hundreds	Tens	Ones
		

If one more  is added. What number would be shown?




- True or false?
The place value grid shows 615

Hundreds	Tens	Ones
		




- Put $<$, $>$ or $=$ in the circles to make the statement correct.

100s	10s	1s
		

○

100s	10s	1s
		

○

100s	10s	1s
		

Reasoning and Problem Solving



Three colored circles are arranged in a triangle. The top-left circle is green and contains the number 100. The top-right circle is red and contains the number 1. The bottom-center circle is yellow and contains the number 10.




Possible answers:
 $100 + 100 + 100 +$
 $100 + 10 + 10 + 10 +$
 $10 + 10$

$$100 + 100 + 100 + 10 \\ + 10 + 10 + 10 + 10 + \\ 10 + 10 + 10 + 10 + 10 \\ + 10 + 10 + 10 + 10 + \\ 10$$



Alice

A cartoon drawing of a girl with blonde hair in pigtails, large blue eyes, and a small smile. She is wearing a yellow shirt.

Alice is incorrect
because you could
make 800 instead of
611

100s	10s	1s
		

Do you agree?
Prove your answer.

100s	10s	1s
		



The place value chart shows 607

Helen is correct because there are six counters in the hundreds column, zero counters in the tens column and seven counters in the ones.

If it was 670 there would be seven counters in the tens column and no counters in the ones column.



I think it shows 670

Who is correct?

Explain your reasoning.

Place Value Charts

Notes and Guidance

To build on skills previously taught, children are now formally presenting their work in the correct place value columns to aid understanding of place value.

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

Mathematical Talk

How many tens are there?

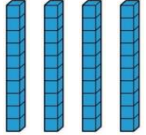

How many ones are there?

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



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

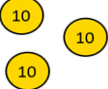

Varied Fluency

- 1 What number is represented in the place value chart?

Tens	Ones
	

- 2 Complete the place value charts using Base 10 and place value counters to represent the number 56.

Tens	Ones
	

Tens	Ones
	

- 3 What number is represented in the place value chart?

Tens	Ones
9	1

Write two different number sentences for this number.

$$\begin{array}{rclcl} \underline{\quad} & + & \underline{\quad} & = & \underline{\quad} \\ \underline{\quad} & = & \underline{\quad} & + & \underline{\quad} \end{array}$$

Place Value Charts

Reasoning and Problem Solving

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

Tens	Ones

Tens	Ones

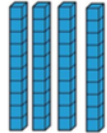

Tens	Ones

Possible answers:

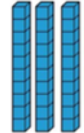

11
22
33
44
55
66
77
88
99

Are these two place value charts of equal value?

A

Tens	Ones
	

B

Tens	Ones
	

What is the same?

What is different?

Yes they are of the same value-41.

$$40+1=41$$

$$30+11=41$$

Same: Both A and B show 41

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

Number line to 1,000

Notes and Guidance

Children are expected to estimate, work out and write numbers on a number line.

Number lines can be shown with or without start and end numbers or with numbers already placed on it.

Mathematical Talk

Which side of the number line did you start from? Why?

When estimating where a number should be placed, what facts can help you?

Can you draw a number line when 600 is the starting number and 650 is half way?

What value can A definitely not be? How do you know?

Varied Fluency

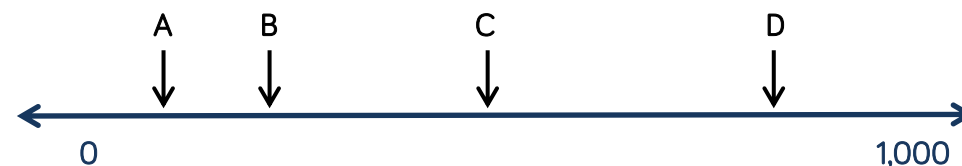
- 1 Draw an arrow to show the number 800



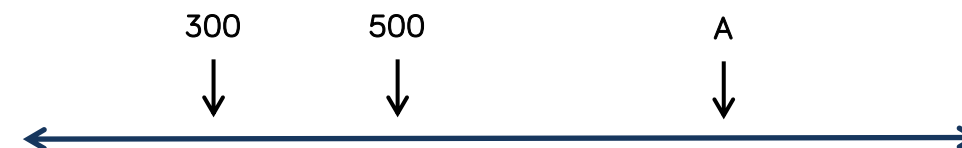
- Draw an arrow to show the number 560



- 2 Which letter is closest to 250?



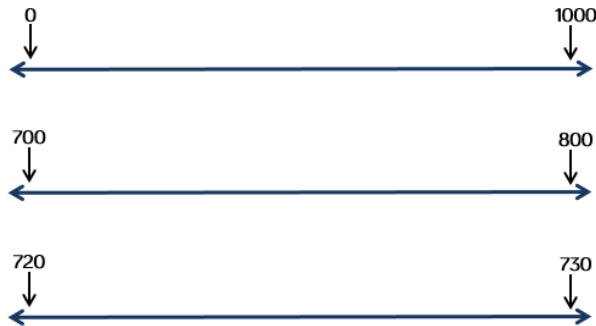
- 3 Estimate the value of A.



Number line to 1,000

Reasoning and Problem Solving

Place seven hundred and twenty five on each of the number lines below.



Explain why seven hundred and twenty five is not at the same place on each number line.

725 is in different places because each line has different numbers at the start and end so the position of 725 changes.

The first line would have 500 at half way so 725 is on the right of the line but the second line has 750 at half way so 725 is on the left of the line.

If the number on the line is 780, what could the start and end numbers be?

Find three different ways and explain your reasoning.



Example answers:

Start 0 end 1000
because 500 would be in the middle and 780 would be further along than 500

Start 730 end 790

Start 700 end 800

Count in 2s, 5s, 10s

Notes and Guidance

Children now need to count on and back in 2s, 5s and 10s.

It is important that children do not always start from zero, however they should start on a multiple of 2 or 5 when counting in 2s and 5s but can start from any number when counting in 10s. For example when counting in 2s they should not start at 3.

Encourage children to look for patterns as they count.

Mathematical Talk

What do you notice? Are the numbers getting larger or smaller?

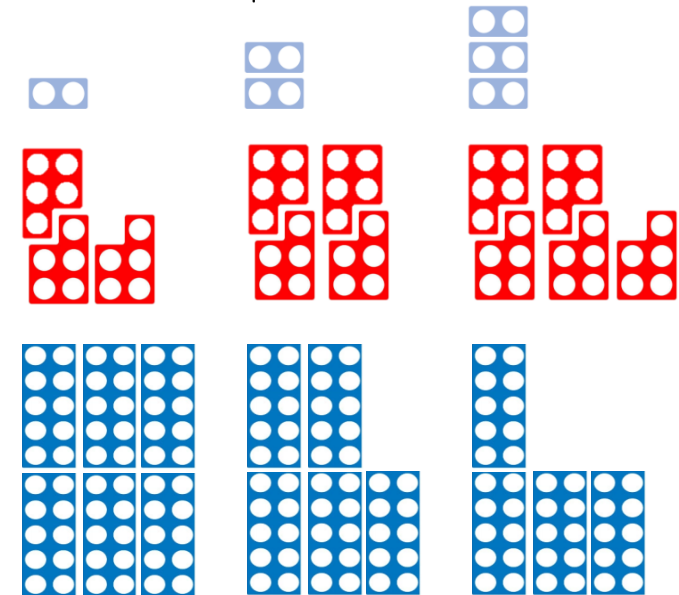
Are the numbers getting bigger or smaller each time? By how much?

Can you spot a pattern?

Why is it the odd one out? Can you correct the mistake?

Varied Fluency

1 Continue each number sequence.



2 Circle the odd one out in each number pattern.

- 2, 4, 6, 8, 9, 10, 12.....
- 0, 5, 10, 20, 30, 40.....
- 35, 30, 25, 20, 12, 10.....

3 Count forwards and backwards in jumps of ten from:

- Fifty seven
- $40 + 1$

Count in 2s, 5s, 10s

Reasoning and Problem Solving

Alfie says:

If you count in 5s from any number in the five times table your numbers have to end in 5 or 0.



Do you agree with Alfie?

Prove it.

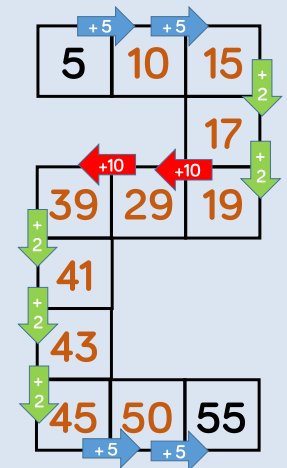
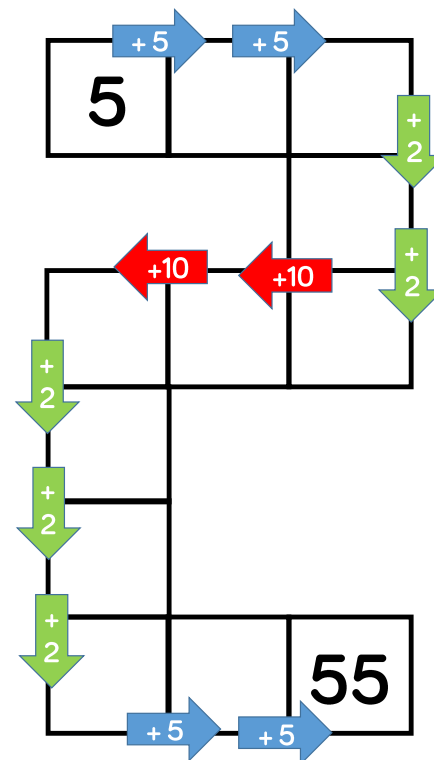
Agree.

Each number in the 5 times tables does end in a 5 or 0.

5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

Using these numbers, travel from 5 to 53 adding 2s, 5s and 10s:

10, 29, 43, 15, 17, 48, 39, 19, 41





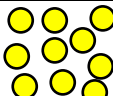


Notes and Guidance

Mathematical Talk

What's the same and what's different between 900 and 1,000?

Varied Fluency

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

Hundreds

Reasoning and Problem Solving

If I count in 100s from zero, all of the numbers will be even.
Convince me.

Yes, they will always be even because I am starting with a zero in ones and adding to the hundreds. I do not add anything to the ones so it will always end in a zero which is odd.

Sort these statements into always, sometimes or never.

- When counting in hundreds, the ones column changes.
- The hundreds column changes every time you count in hundreds.
- To count in hundreds we use 3 digit numbers.


When counting in hundreds, the ones column changes.
(never)

The hundreds column changes every time you count in hundreds.
(always)

To count in hundreds we use 3 digit numbers. (sometimes)

Sarah thinks the place value grid is showing the number eight.

Do you agree?
Explain.

Hundreds	Tens	Ones
		

Using all the counters, what is the smallest number you can make with the counters?

I disagree with Sarah because the eight counters are in the hundreds column which shows eight hundreds.

The smallest number I can make is eight.

Count in 3s

Notes and Guidance

Children now need to count on and back in 3s from any multiple of 3.

Encourage children to look for patterns as they count and use resources such as a number track, a counting stick and concrete representations.

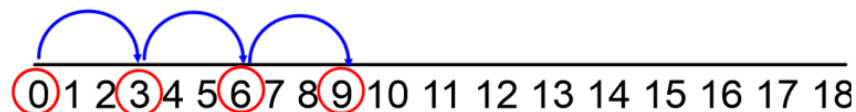
Mathematical Talk

What do you notice? Are the numbers getting larger or smaller?

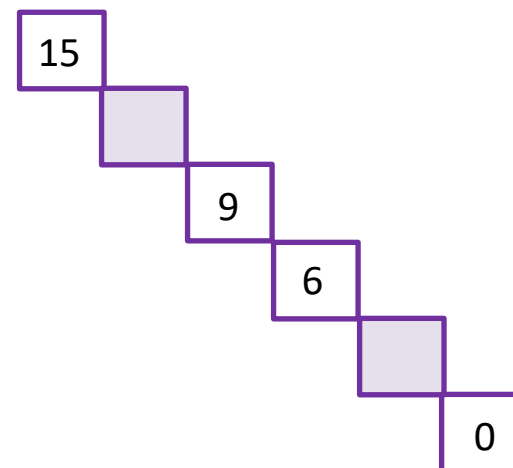
Can you spot a pattern?

Varied Fluency

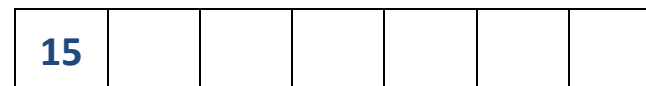
- 1 What do you notice about the numbers that are circled? Continue the pattern.



- 2 Complete the number sequence.



- 3 Sid has 15 stickers. He collects 3 more each day. Complete the number track to show how many he will have in 6 days.



Count in 3s

Reasoning and Problem Solving

True or False

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

False, If I count in 3s I go: 3, 6, 9, 12, 15

Sid is counting in 2s, Luke is counting in 3s.

Sid	2	4	6	8
Luke	3	6	9	12
+				

Sid says:



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

What pattern do they make?

What happens if both Sid and Luke count in 5s?

If Sid and Luke add their numbers together they will be counting in 5s.

If Sid and Luke both count in 5s they will be counting in 10s.

Count in 50s

Notes and Guidance

Children use their knowledge of the patterns in the 5 times table to count in steps of 50.

Children should start from a multiple of 50 and be able to count forwards and backwards.

Mathematical Talk

Can you notice a pattern as the numbers increase?

Explain how you have ordered the numbers.

Why is correct place value important when ordering numbers in a sequence?

What relationship do you notice between the 5 times table and 50 times table?

Varied Fluency

1 Complete the number tracks.

50		150	200			350		450	
----	--	-----	-----	--	--	-----	--	-----	--

	750	700	650			500			350
--	-----	-----	-----	--	--	-----	--	--	-----

2 Circle the mistake in each sequence.

50, 100, 105, 200, 250, 300.....

990, 950, 900, 850, 800.....

3 Look at the number patterns.
What do you notice?

5	10	15	20	25	30
---	----	----	----	----	----

50	100	150	200	250	300
----	-----	-----	-----	-----	-----

Count in 50s

Reasoning and Problem Solving

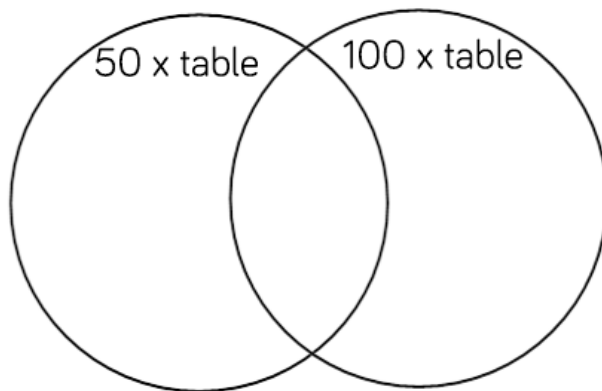
Circle the odd one out.

100, 150, 200, 215, 300

Explain how you know.

The odd one out is 215 as it is not in the 50 times table and the next number in the sequence should be 250

Create calculations for your friends to sort into the diagram



Possible answers:
Double 25
Half of 200
 $300 - 150$
 $400 + 100$
Double 150

Sort these statements into always, sometimes or never.

- When counting in 50s, the numbers are even.
- There are only two digits in a multiple of 50
- Only the hundreds and tens column changes when counting in 50s.

When counting in 50s, the numbers are even (always)

There are only two digits in a multiple of 50 (sometimes)

Only the hundreds and tens column changes when counting in 50s (sometimes)

Which is quicker: counting to 50 in 10s or counting to 150 in 50s?

Explain your answer.

It is quicker to count to 150 in 50s as it would only be 3 steps. It would be 5 steps to count in 10s to 50

1, 10, 100 more or less

Notes and Guidance

Building on children's learning in Year 2 where they explored finding 1 more/less. Children now move onto finding 10 and 100 more or less than a given number.

Show children that they can represent their answer in a variety of ways. For example, as numerals or words or with concrete resources.

Mathematical Talk

What is 10 more than/less than?

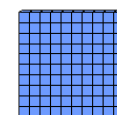
What is 100 more than/less than?
Which column changes?

What happens when I subtract 10 from 209?

Explain why you have chosen to represent your answer. E.g. I have used an image to show my answer because.....

Varied Fluency

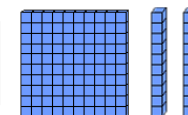
1 Put the correct number in each box.



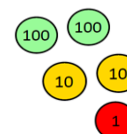
10 less



Number



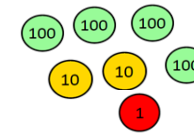
10 more



100 less



Number



100 more

2 Show ten more and ten less than the following numbers using Base 10 and place value counters.

- 550
- 724
- 302

3 Complete the table.

100 less	Number	100 more

1, 10, 100 more or less

Reasoning and Problem Solving

10 more than my number is the same as 100 less than 320

What is my number?

Explain how you know.

Write your own problem similar to describe the original number.

The number described is 210. I know this because 100 less than 320 is 220, which means 220 is 10 more than the original number.

A similar problem could be; 10 less than my number is the same as 100 more than 100

I think of a number and add 10, subtract 100 and subtract 1

My answer is 256

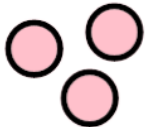

What number did I start with?

What can you do to check?

The start number was 345

To check I can start at 345 add 10 which is 355, subtract 100 which is 255 and add 1 which is 256

A counter has dropped off the place value chart.

Hundreds	Tens	Ones
		

What number could it have been?

If a counter fell from the ones, the number would be 302

If a counter fell from the ten, the number would be 311

If a counter fell from the hundreds, the number would be 401

Compare Objects

Notes and Guidance

Once children are secure with tens and ones and how to place numbers on a place value chart, comparing objects can be introduced.

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

Mathematical Talk

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

Do groups of ten help you count? Why?

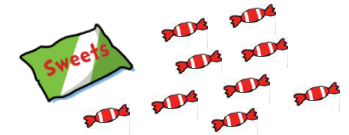
Varied Fluency

- 1 A packet of sweets contain 10 sweets.

Helena's sweets



Zak's sweets

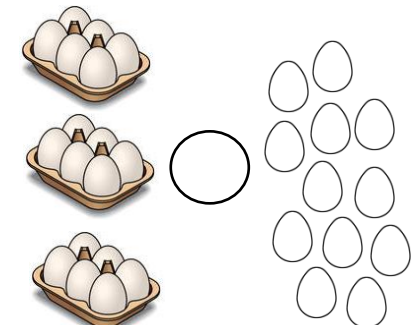
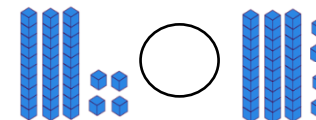
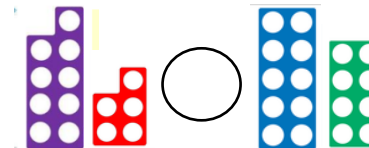


Who has the most sweets?

- 2 Use cubes to show that:

- Eleven is less than fifteen.
- 19 is greater than 9.
- 2 tens is equal to 20.

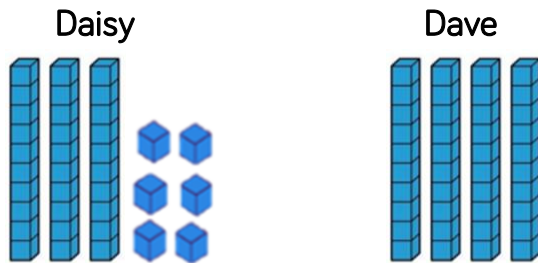
- 3 Put $<$, $>$ or $=$ in each circle.



Compare Objects

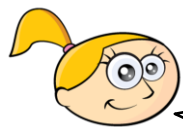
Reasoning and Problem Solving

Daisy and Dave are comparing numbers that they have made.



Daisy is incorrect because Dave has 4 tens which makes 40 and Daisy has 3 tens and 6 ones which makes 36. Therefore Dave has more.

Daisy

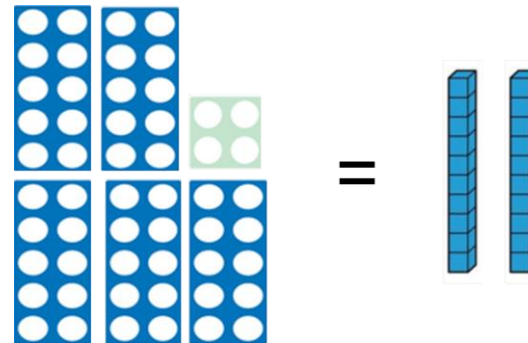


My number is greater because I have more objects.

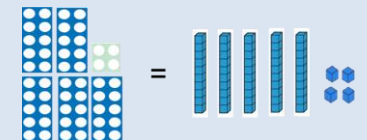
Is Daisy correct?

Explain your answer.

Use Base 10 to make A and B equal:



How could you make B more than A?



B can be greater than A if you add more than 34 to it.

Compare Objects

Notes and Guidance

Children continue to use objects to represent numbers to 1,000.

When given two numbers represented by objects, they use comparison language and symbols to determine which is greatest and which is smallest. Children can build up the numbers using concrete manipulatives and draw them pictorially.

Use stem sentences to ensure the correct vocabulary is being used e.g. ____ is greater than ____

Mathematical Talk

Do you start counting the hundreds, tens or ones first? Why?

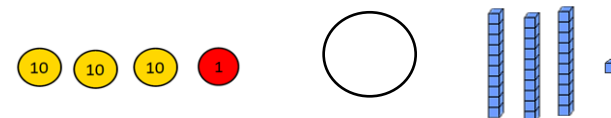
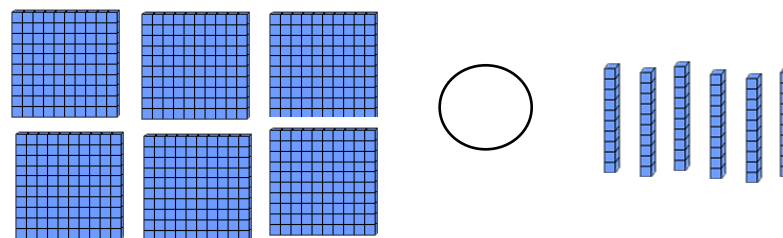
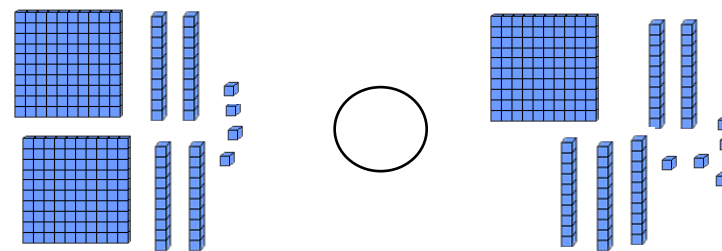
What strategy did you use to compare the two numbers? Is this the same or different to your partner?

Are the Base 10 and place value counters showing the same amount? How do you know?

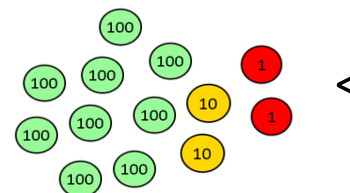
Is there only one answer?

Varied Fluency

1 Fill in the circle with $<$, $>$ or $=$



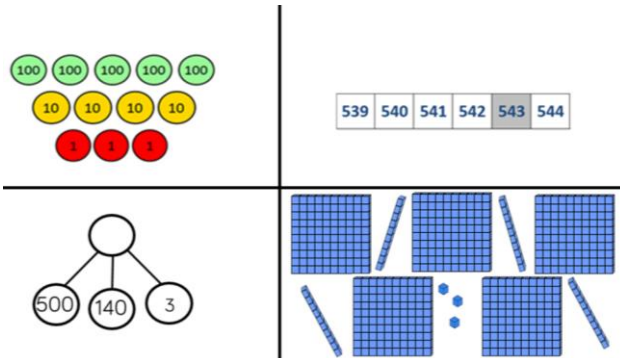
2 Draw objects to make the statement true.



Compare Objects

Reasoning and Problem Solving

Which image is the odd one out?



Explain why.

How else can you represent the number?

The part whole model is the odd one out because it shows 643. All the other images show 543.

Children could show 543 in a part whole model correctly; in Base 10 a different way or with place value counters a different way.

True or false?
Explain.



What could you do to make the image correct?

The image is not correct because the number 244 is represented on both sides of the inequality symbol.

An equals sign should have been used.

To make it correct I could add something to the number on the left or take away something from the right.

Compare Numbers

Notes and Guidance

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

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

Mathematical Talk

Can you prove your answers using concrete resources?

Can you prove your answers by drawing a diagram?

Is there more than one answer?

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

Varied Fluency

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

42 is _____ 46

81 is _____ $60 + 4$

$30 + 8$ is _____ thirty eight

- 2 Complete the number sentences.

4 tens and 9 ones $>$ _____

_____ $<$ $70 + 5$

eight tens = _____

- 3 Put $<$, $>$ or $=$ in each circle.

28 ○ 30

90 ○ $70 + 28$

$30 + 23$ ○ $40 + 13$

$20 + 14$ ○ 24

Compare Numbers

Reasoning and Problem Solving

How many different numbers can go in the box?

$$13 < \square < 20$$

14,15,16,17,18,19

True or False:

One ten and twelve ones is bigger than two tens.

Explain how you know.

True:
One ten + twelve ones
= 22
Two tens = 20

Fill in the missing numbers using 1,2,4 and 7

	<	<	8
5	<	6	>
5	<	6	>
	<	9	>

4	<	7	<	8
5	<	6	>	3
2	<	9	>	1

Compare Numbers

Notes and Guidance

Children will be given numbers as digits rather than objects. They need to be encouraged to use previous learning to choose an efficient method to compare the numbers.

For example, children may:

- Place numbers on a number line
- Make the numbers using a concrete representation and compare each column
- Draw the numbers in a place value chart and compare each column

Mathematical Talk

What was your strategy to compare the two numbers?

Which column is the greatest? Why?

Which column do you start comparing from? Why?

Varied Fluency

- 1 Circle the greatest amount in each case.

Nine hundred and two 920

500 and 63 568

7 hundreds and 6 ones 76 tens

- 2 Fill in the circle with $<$, $>$ or $=$

399 501

800 80 tens

- 3 Complete the statements.

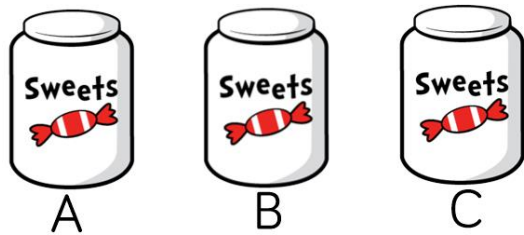
$600 + 70 + 4 > 600 + \dots + 4$

Two hundred and five $< \dots$

Compare Numbers

Reasoning and Problem Solving

Patryk has 3 jars of sweets.



A has 235 sweets.
C has 175 sweets.

A has the most and C
has the least.



Patryk

How many sweets could be in B?

Explain how you know.

B could be anything
between and including
176 to 234

*Discussion point:
Can it be 235 or 175?*

*It cannot because it
would have to be
phrased 'A and B have
the least'.*

I am thinking of a number.

It is between 300 and 500

The digits add up to 14

The difference between the greatest
digit and smallest digit is 2

What could my number be?

Is there only one option?

Explain your method of working it out.

446 or 464

Possible method:
Only options for
hundreds column are 3
and 4
Start with 3 and have 11
left to make 14
There are no pairs of
numbers to make 11
with a difference of 2
Start with 4 and have 10
left to make. 6 and 4
have a difference of 2

You cannot use any
other pairs to 10
because the difference
between the greatest
and smallest would be
more than 2

Order Numbers & Objects

Notes and Guidance

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

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

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

Mathematical Talk

How does the number line help you order the numbers?

How does Base 10 prove that your order is correct?

Varied Fluency

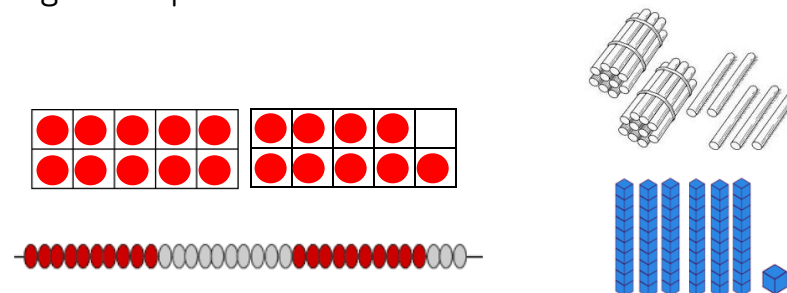
- 1 Circle the numbers 48, 43 and 50 on the number line.



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

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

- 3 The diagrams represent different numbers.



Circle the greatest number.

Circle the smallest number.

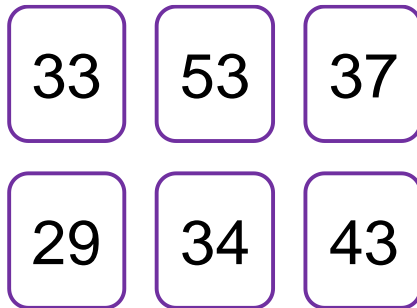
Complete the number sentence _____ $>$ _____

Order Numbers & Objects

Reasoning and Problem Solving

If you ordered the numbers below, which would be the fourth?

Explain how you ordered them.



37 would be the fourth number

I ordered them from smallest to largest:

29, 33, 34, 37, 43, 53

Bill has written a list of 2 digit numbers.

The digits of each number add up to 5.

None of the digits are 0.

Can you find all the numbers Bill could have written?

Write the numbers in order from smallest to largest.

14, 23, 32, 41

Order Numbers

Notes and Guidance

Children explore ordering a set of numbers from smallest to greatest and greatest to smallest.

They need to be able to explain their reasoning for their choices.

At this point children are introduced to the words ascending and descending.

Mathematical Talk

Which has the fewest/most?

Which number is greater?

Which number is the least?

Why have you chosen to order the numbers this way?

Varied Fluency

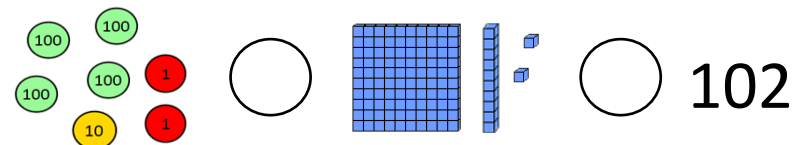
1 Here are three digit cards.





What is the greatest number you can make?

What is the smallest number you can make?

2 Add the symbols $<$, $>$ or $=$ to make the statement correct.



3 Jenny put some numbers in ascending order then ink spilt onto her page covering two of the numbers.

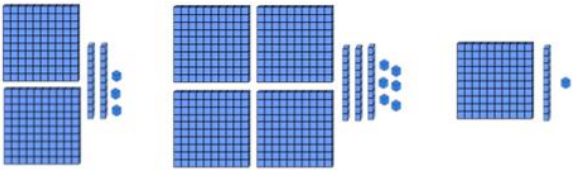
214,  243, 256,  289

What could the numbers be?

Order Numbers

Reasoning and Problem Solving

The numbers are ordered from smallest to greatest.



Is this correct?

Explain your answer.

It is incorrect because the Base 10 are showing (from L-R) 223, 436, 111

They should be ordered 111, 223, 436

True or false?

You must look at the highest place value column first when ordering any numbers.

True because columns on the left are made up from columns on the right. There this will tell you the greatest value.