Autumn 1 Year 3

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Links to prior learning/ objectives:	**Resources:**	**Vocabulary:**
• Number bonds • Addition and subtraction • One more/ one less	base 10, place value counters, cubes, number lines, digit cards, rulers, scales, measuring cylinders and jugs, 2D shapes	Digit, hundred, tens, ones, compare, order, greater than, less than, number line, in between, more, less, estimate, calculate, inverse, relationship, more/less, hundreds boundary Measure, length, weight, mass, capacity, millimetres, centimetres, metres, grams, kilograms, litres, millilitres, approximately Perimeter, distance, shape, 2D
	Mastery: (where to find some resources) • Teaching for Mastery • White Rose **New and old documents** • Mastery maths stickers • Nrich (curriculum mapping)	

Objectives and Teaching

Week 1

Barriers to ARE (misconceptions):

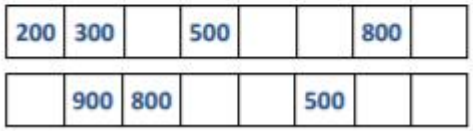
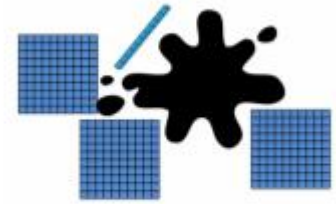
Recognising numbers, understanding the value of each digit, understanding language of greater than and less than, comparisons of numbers to represent on a number line

Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)

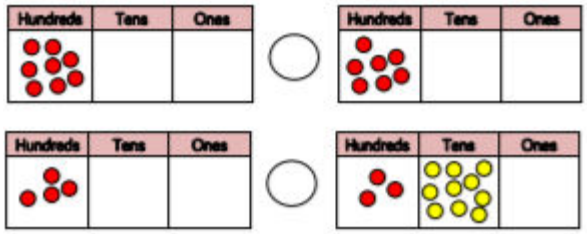
- To know how to recognise hundreds, tens and ones in a number
- To understand the value of each digit in a 3 digit number

Compare and order numbers up to 1000.

- To know how to compare numbers using symbols
- To know how to order numbers using knowledge of place value

Fluency	**Problem Solving**	**Reasoning**
There are 100 sweets in each jar. How many sweets are there altogether?  Complete the number tracks.  	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?	If I count in 100s from zero, all of the numbers will be even. Convince me.

Use <, > or = to compare the place value grids.



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.

Week 2

Barriers to ARE (misconceptions):

Recognising numbers, understanding the value of each digit, understanding language of greater than and less than, comparisons of numbers to represent on a number line

Read and write numbers up to 1000 in numerals and in words.

- To know how to read numerals to 1000
- To know how to write numerals to 1000
- To know how to read words to 1000
- To know how to write words to 1000

Identify, represent and estimate numbers using different representations.

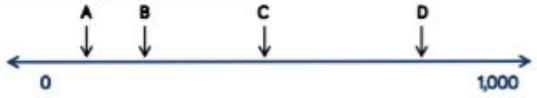
- To know how show and estimate a number on a number line
- To know how to show numbers in a variety of ways

Fluency

Draw an arrow to show the number 800

Draw an arrow to show the number 560

Which letter is closest to 250?



Estimate the value of A.

Problem Solving

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

Find three different ways and explain your reasoning.

Reasoning

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.

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Week 3

Barriers to ARE (misconceptions):

Place value of numbers
Counting on and back from a number
Understanding of key vocabulary- estimate, inverse
Visual representation and understanding of the inverse

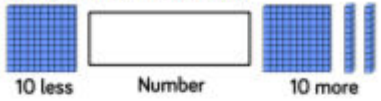
Find 10 or 100 more or less than a given number.

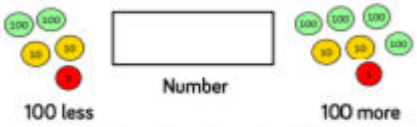
- To know how to recognise the digits that change when adding or subtracting 10 or 100.
- To know how to find 10/ 100/ more/ less than a given number
- To know how to find 10/ 100 more and less when bridging the tens/ hundreds barriers

Add and subtract numbers mentally, including:
~ a three-digit number and ones,
~ a three-digit number and tens,
~ a three-digit number and hundreds.

Fluency

Put the correct number in each box.





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

- 550
- 724
- 302

Complete the table.

100 less	Number	100 more
		
		

Problem Solving

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?

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

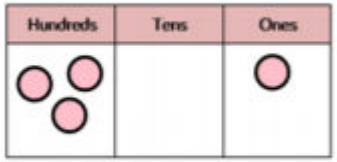
What is my number?

Explain how you know.

Write your own problem similar to describe the original number.

Reasoning

A counter has dropped off the place value chart.



What number could it have been?

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Week 4

Barriers to ARE (misconceptions):

Place value of numbers
Counting on and back from a number
Understanding of key vocabulary- estimate, inverse
Visual representation and understanding of the inverse

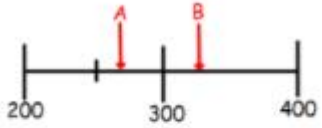
Estimate the answer to a calculation and use inverse operations to check answers.

- To know how to estimate the answer for a calculation
- To understand how to find the inverse
- To understand how to show the inverse

(Repeat/apply these skills when completing written addition and subtraction in Autumn 2)

Fluency

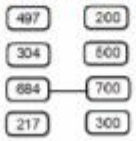
Estimate the position of arrows A and B on the number line.



Which of these is a sensible estimation to the number of sweet in a jar?

602 597 600

Match each number to it's 'near number'.



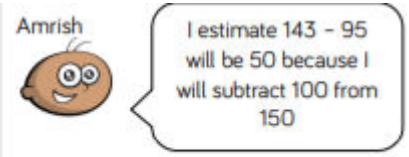
Problem Solving

Use the number cards to make different calculations with an estimated answer of 70

121 33 48 41

398 328 255

Reasoning



Is this a good estimate? Why?

Week 5

Barriers to ARE (misconceptions):

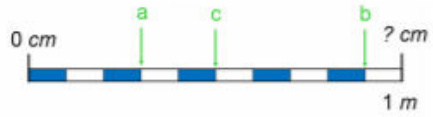
Using equipment correctly, development of addition and subtraction skills
Understanding of key language (perimeter)
Recognition of 2D shapes

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/ capacity (l/ml)

- To know how to measure length.
- To understand equivalent lengths – m and cm.
- To understand equivalent lengths – cm and mm.
- To know how to compare lengths.
- To know how to add and subtract lengths.

Fluency

Use the metre stick to help you fill in the blanks.



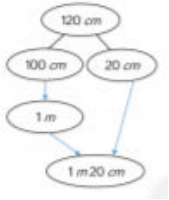
1 m = ___ cm a = ___ cm
b = ___ cm c = ___ cm

Can you match up the equivalent measurements?

100 cm	9 m
5 m	200 cm
300 cm	500 cm
2 m	1 metre
900 centimetres	3 m

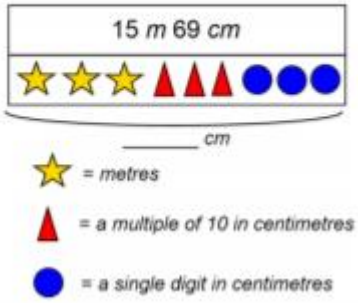
Use this method to convert:

- 230 cm
- 470 cm
- 1 m and 60 cm
- 178 cm
- 569 cm

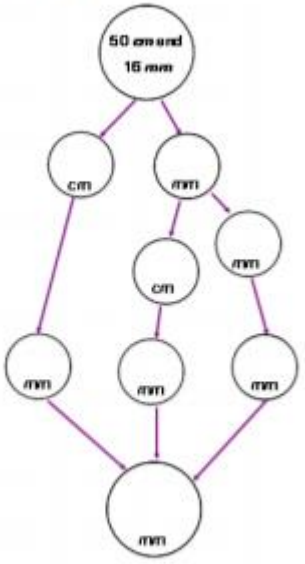


Problem Solving

Can you work out what each symbol represents?



Complete the diagram by converting between mm and cm



Can you make a similar question for your partner?

Reasoning

Max and Anna each have a skipping rope

Ann

Agree or Disagree?

mm lengths are smaller than cm lengths.

Max

My skipping rope is the longest because it is 220 cm and 220 is a bigger number.

Who is correct? Explain your answer.

Week 6	Measure the perimeter of simple 2D shapes

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Barriers to ARE (misconceptions):

Using equipment correctly, development of addition and subtraction skills
Understanding of key language (perimeter)
Recognition of 2D shapes

- To understand what perimeter is
- To know how to measure perimeter
- To know how to calculate perimeter

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/ capacity (l/ml)

- To know how to measure the mass of objects
- To know how to compare mass.
- To know how to add and subtract mass.
-

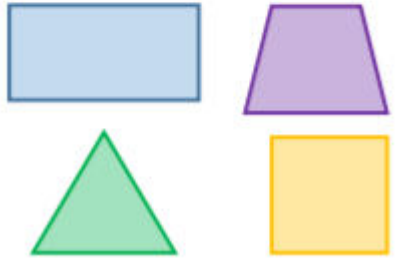
Fluency

Using your finger, show me the perimeter of the table, your book, your whiteboard etc.

Tick the images where you can find the perimeter.

Explain why you can't find the perimeter of some of the shapes.

Predict then measure the perimeter of the shapes.

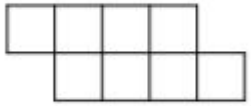


Use a variety of scales, discuss what's the same, what's different about the scales. Using different weights (kilograms and grams) explore which weights are heavier. Discuss what things would be measured in grams and in kilograms.

How much does each item weigh?

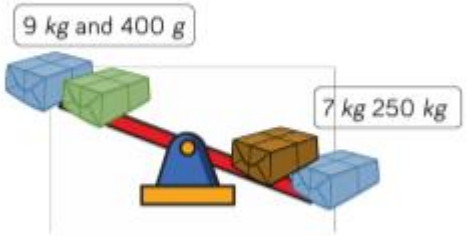
Problem Solving

Here is a shape made from centimetre squares.
Find the perimeter of the shape.



Can you use 8 centimetre squares to make different shapes? Find the perimeter of each one.

The green parcel weighs 5 kg.
Can you work out what the blue and brown parcel weigh?

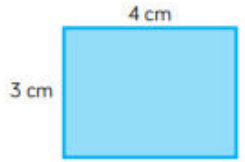


How much would the green and brown parcel weigh altogether?

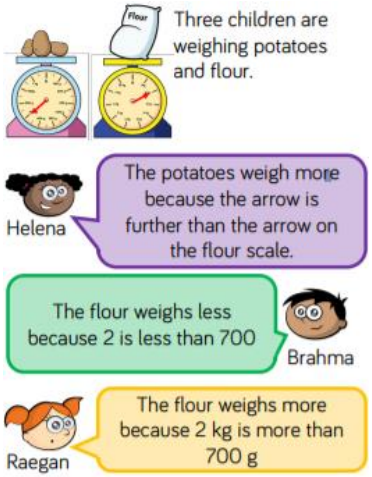
Reasoning

Aaron is measuring the shape below. He says the perimeter is 7 cm

Can you spot his mistake?



Emily is measuring the perimeter of a square. She says she only needs to measure one side of the square. Do you agree? Explain your answer.

		
Week 7 **Barriers to ARE (misconceptions):** Using equipment correctly, development of addition and subtraction skills Understanding of key language (perimeter) Recognition of 2D shapes	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/ capacity (l/ml) • To know how to measure the capacity of objects • To know how to compare capacity • To know how to add and subtract capacity.	
Fluency	**Problem Solving**	**Reasonin g**

Use a variety of scales, discuss what's the same, what's different about the scales. Using different containers explore which measurement (litres or millilitres) would be used to measure the liquid inside. Discuss what things would be measured in litres and in millilitres.

Use the sentence stem to describe the capacity and volume of each container.

The volume of liquid is____ The capacity of the container is____

Identify what the scale is going up in to find out the volume in each container. Use the stem sentence.

The increments are in ____
The volume is ____

Use the clues to work out who has which container.

I have exactly half a litre.

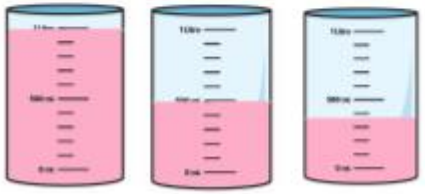
Lacey

I have 1,000 ml.

Mobin

I have more than 300 ml but less than 400 ml.

Mia



A B C

Raj and Eva work out the capacity of the pot by filling it with water, then pouring the water into the measuring cylinders.

The capacity of the pot is 3 l and 300 mL

Raj

The capacity of the pot is 2 l and 300 mL

Eva

Who do you agree with?
Explain why.

True or False?

The tallest container has the largest capacity.

Use containers to decide whether the statement is true or false

Record the capacity of the different containers in a table.