A Lesson that counts
Year 1-3

Number – Number and Place Value

Year 1

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- given a number, identify 1 more and 1 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
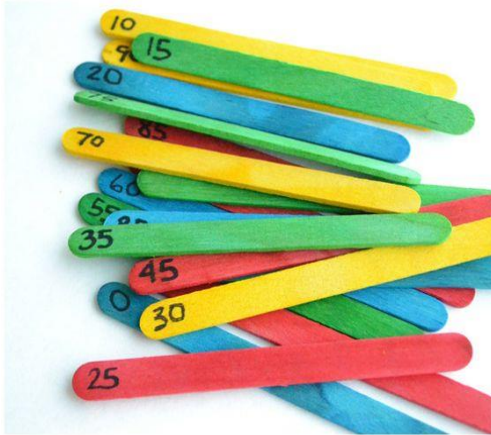
Year 2

- read and write numbers from 1 to 20 in numerals and words
- count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- recognise the place value of each digit in a two-digit number (10s, 1s)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use <, > and = signs
- read and write numbers to at least 100 in numerals and in words
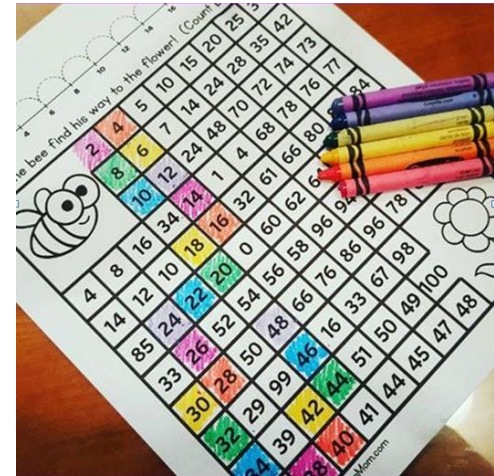- use place value and number facts to solve problems

Year 3

- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- recognise the place value of each digit in a 3-digit number (100s, 10s, 1s)
- compare and order numbers up to 1,000
- identify, represent and estimate numbers using different representations
- read and write numbers up to 1,000 in numerals and in words
- solve number problems and practical problems involving these ideas
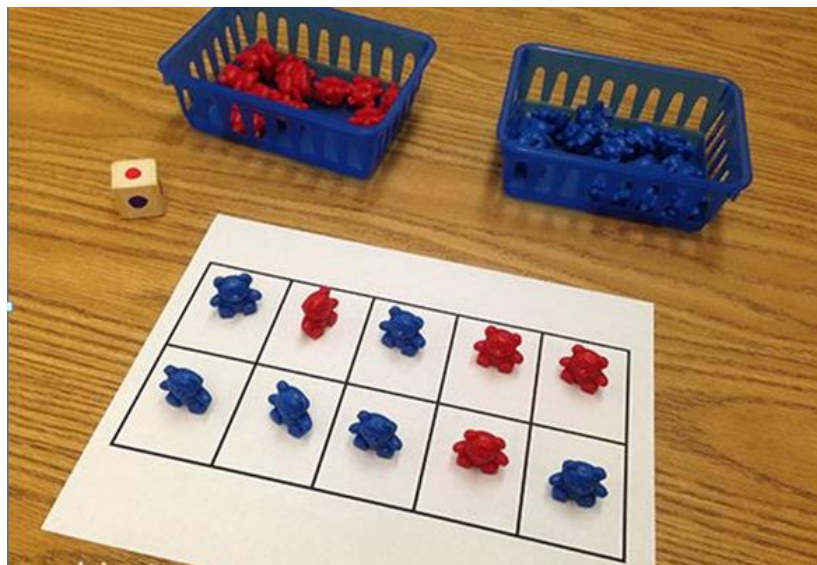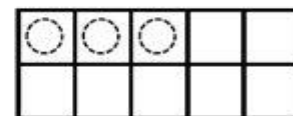
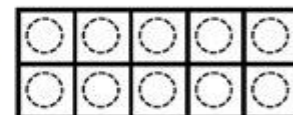# Count in multiples of 2's 5's and 10's

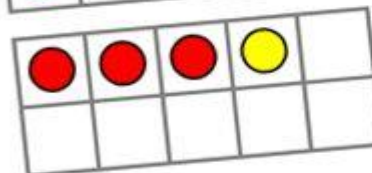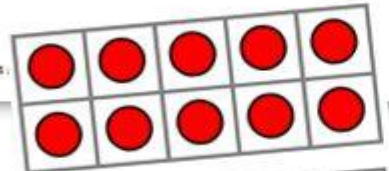# Given a number – identify one more or one less

Build 13 on your ten frame.
Add 1.
One more than 13 is _____.

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Ways to use a hundred square

Ways to use a Hundred Square

These activities are not presented in any particular order. Many of them can be adapted for children of different abilities and ages. Some of the activities can be carried out using different sized grids (e.g. 8 by 8) or grids with different numbers (eg. 100-199, 0.1-10 etc.)

Jigsaw: Cut up into pieces to make a jigsaw for the children to reassemble. Increase the number of pieces to make it harder. Cut along the lines, not through the numbers.

Cover-up: Child 1 covers up one or more squares using counters. Child 2 has to guess which numbers are hidden under the counters.

Race to 100: Give the children a copy of a blank 100 square. Time how long it takes them to fill in the numbers. Repeat on a regular basis to see if they can improve on their time.

Missing numbers: Provide children with pieces of the 100 square with only some of the numbers filled in. They have to think about the patterns to fill in the empty spaces.

Number swap: Using a hundred square with pockets, swap over two of the numbers. Children have to spot the numbers in the wrong places. Make the activity more difficult by asking children to calculate the total of or the difference between the two swapped numbers.

4 in a row: (a game for 2 or 3 players) Throw three 0 – 9 dice. Use the numbers and any operation to make one of the numbers on the hundred square. If all the players agree that the calculation is correct, cover the number with one of your counters. The aim is to get four of your counters in a row.

Squares:
0 0 1 1 12 Fulbridge Academy 1 1 12 14.0 96 800x600 Normal 0 false false false EN-GB JA X-NONE

3	4
13	14

Draw a 2 by 2 square on the hundred square.
Add the numbers in opposite corners.
What do you notice? Is it the same for different 2 by 2 squares?
Now multiply the numbers in opposite corners. What do you notice this time? Is it always true?

Differences: Choose two 0 – 9 cards and write down the two 2-digit numbers you can make (with 3 and 7, you can make 37 and 73). Find the difference between your two numbers and colour your answers on a hundred square. Explain any patterns you can see.

Predictions: Cover the multiples of 3 up to 30. Use the pattern to predict whether the number 52 will be in the sequence. Try predicting other numbers. How do you know? How could you check your answer? Repeat the activity using different multiples.

Total 100: Find pairs of numbers on the hundred square that total 100. How many different pairs can you find? How could you organise your answers so that you know you have found all of the possible ways? Which are the two 'unhappy' numbers because they do not have a partner.

Digit sums: Use red counters to cover numbers on the hundred square whose digits add up to 10. Explain the patterns that you notice? Use a different colour counter to cover numbers whose digits add up to 9, 8, 7 etc. Can you explain what is happening each time?

Consecutive numbers: Circle three numbers next to each other in a row. Find their total. Repeat for other groups of three consecutive numbers. What do all of the answers have in common? Try to explain why this happens.

Ways to use a hundred square

Make a track: Cut a hundred square into rows, and then stick it together as a number track. Can you decide where to cut it to turn it back into a hundred square? Explain why you know.

Hidden numbers: Cover the numbers 1 to 99 on a hundred square with counters. Spin two 0 – 9 dice and make a 2-digit number. Work out which counter the number is hidden under. If you are right, keep the counter. If you are wrong, put the counter back down. How many counters can you collect in 5 minutes? Play again and try to beat your record.

Spirals: Fill in the numbers on a blank hundred square in a spiral pattern. Cover up some of the numbers. Can a partner tell you which numbers are covered? Can you make a different spiral pattern next time?

L–shapes:
0 0 1 2 16 Fulbridge Academy 1 1 17 14.0 96 800x600 Normal 0 false false false EN-GB JA X-NONE

22	
32	
42	43

Draw an L-shape on the hundred square (3 down, 2 across). Find the difference between the two shaded numbers. Repeat with other L-shapes on the hundred square. What do you notice about the differences?
Can you explain why?

Palindromic Numbers: Colour the palindromic numbers on a hundred square (numbers the same backwards as forwards e.g. 55). Describe the pattern made. Can you explain why the pattern is diagonal? Is it diagonal on different 100 squares?

Pathways: Use a hundred square with 1 to 10 on the bottom row. Choose a start and finish number. Write a list of instructions to move from the start number to the finish number e.g. Start on 17. Add 30, subtract 4, add 10, add 6. Read your instructions to a partner. Do they finish on the correct number? Can they tell you how to get back to the start number in just two moves?

Square numbers: Predict how many square numbers you think there are on a hundred square. Circle them to find out how close your estimate is. Describe any patterns you see. Which two square numbers have a difference of 20, 40, 60? Do you think there is a pair of square numbers with a difference of 80?

Coordinates: Each child needs a hundred square. Label the columns of the grid A–H and the rows 1–10. Child 1 puts crosses on their grid to make a letter or shape e.g. H, and they then read out the coordinates. Child 2 marks the squares with a cross. Check to see if the same pattern is made on both squares.

Common multiples: Circle the multiples of 3 and cross the multiples of 4. What do you notice about the numbers that are circled and crossed? What do these numbers have in common? Do you know what the next few numbers in the pattern would be?

Crosses:
0 0 1 3 19 Fulbridge Academy 1 1 21 14.0 96 800x600 Normal 0 false false false EN-GB JA X-NONE

|	4	
13	14	15
	24	

Draw a 3 by 3 cross on the hundred square.
Add the four numbers around the edge. Can you see a relationship to the middle number? Repeat for other crosses. Explain what you have noticed to a friend.

Number puzzles: Devise a set of calculations. The answers (when covered on the grid) should make a shape or letter. Children complete the calculations and cover the answers. Teachers can quickly see whether the answers are correct. Can you make up a similar puzzle for your friend to complete?
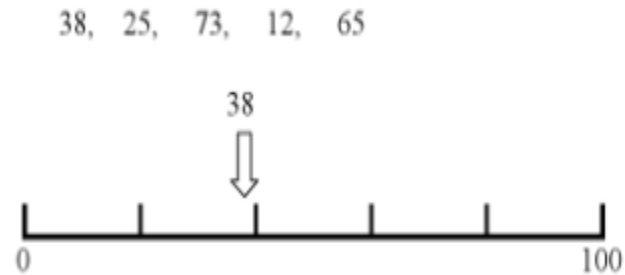
Favourite numbers: Choose your favourite number from the hundred square. Make up 5 statements about it e.g. it is a multiple of 5, it is a square number etc. Can someone else guess your number correctly? If not, let them ask a question to help them.
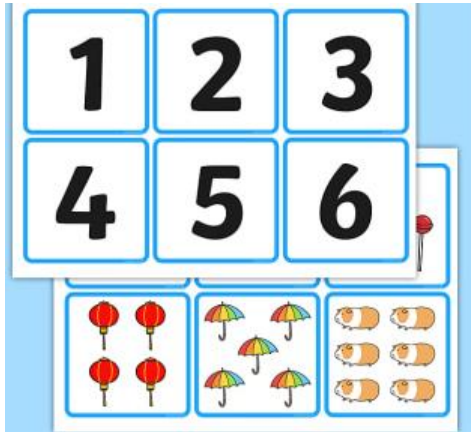
Equal to

More than

Less than/ fewer

Most/least

1 2 3
4 5 6

38,   25,   73,   12,   65

38

0   100

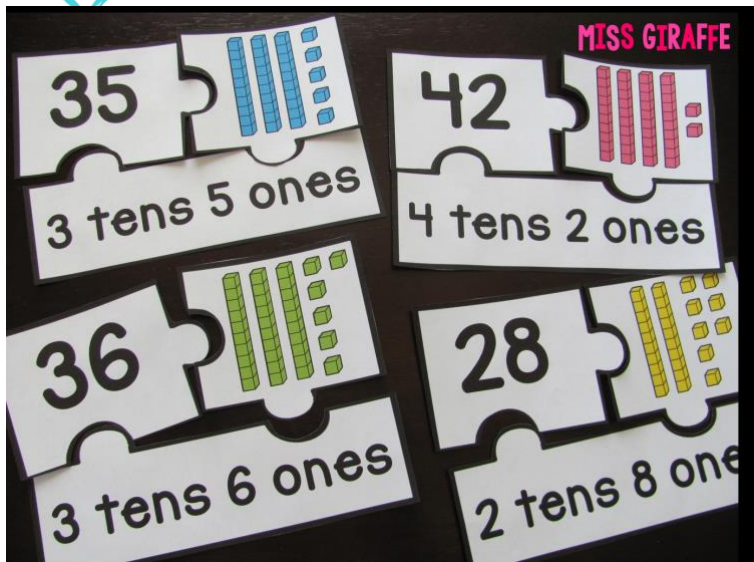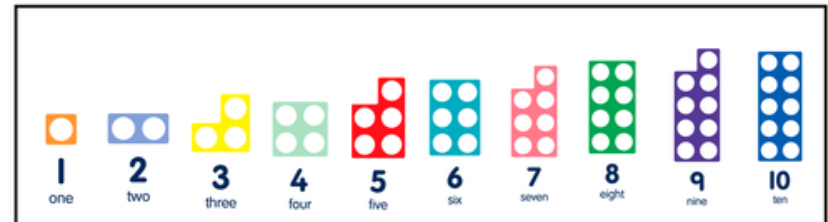**Count in steps of 2,3 and 5 from 0 and in 10's from any number, forward and backward.**
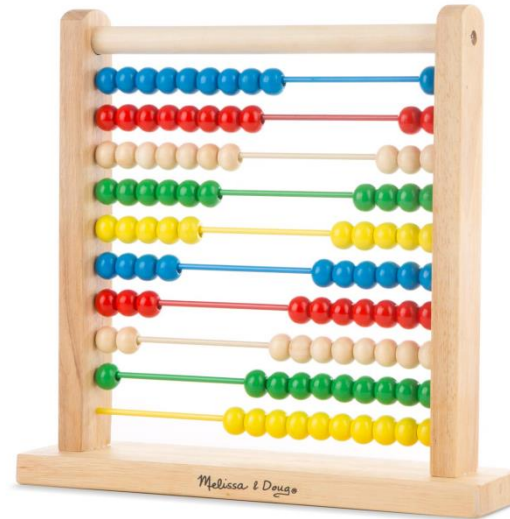
Recognise the place value of each digit in a 2 digit number.
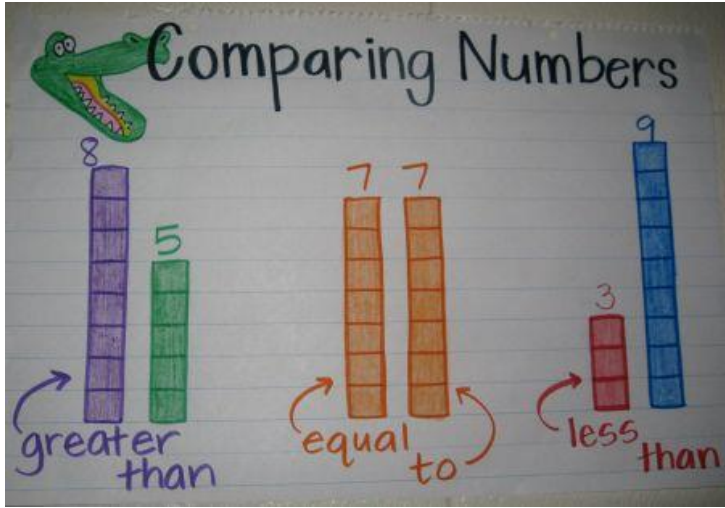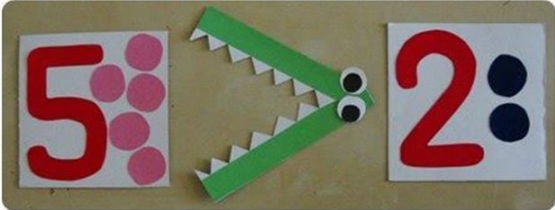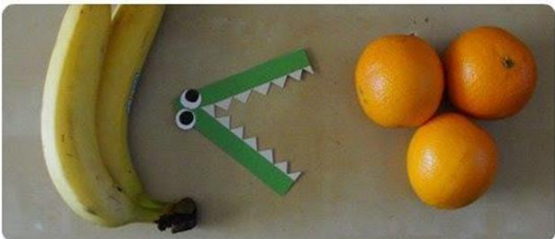

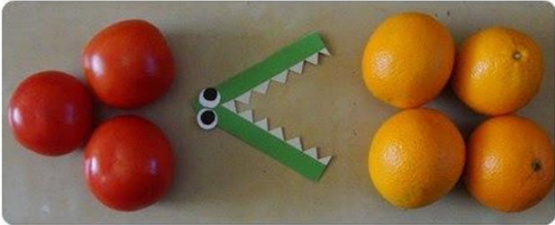

https://www.youtube.com/watch?v=wx2gI8iwMCA

Solving missing number problems

https://www.youtube.com/watch?v=5ZMHdtGySvI

Compare and order numbers from 0 up to 100, use >,<, = signs

Use place value and number facts to solve problems Y2

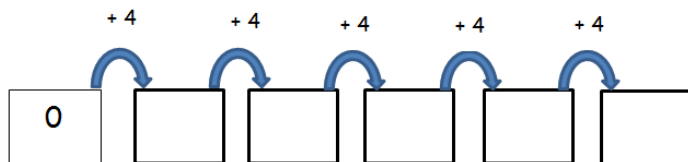| Number and Place Value	
Selected National Curriculum Programme of Study Statements Pupils should be taught to: ■ compare and order numbers from 0 up to 100 ■ use place value and number facts to solve problems ■ use < > and = signs correctly ■ count in steps of two, three, and five from 0, and in tens from any number, forward and backward	
The Big Idea The position (place) of a digit in a number determines its value. Hence the term *place value*.	
Mastery Check Please note that the following columns provide indicative examples of the sorts of tasks and questions that provide evidence for mastery and mastery with greater depth of the selected programme of study statements. Pupils may be able to carry out certain procedures and answer questions like the ones outlined, but the teacher will need to check that pupils really understand the idea by asking questions such as 'Why?', 'What happens if …?', and checking that pupils can use the procedures or skills to solve a variety of problems.	
Mastery	**Mastery with Greater Depth**
Put a circle around the larger number. 1) 50 48 2) 77 81 3) 78 87	Write all the 2-digit numbers greater than 40 using these digits. 2 4 6 6 How do you know you have them all? Prove it.
Use coins to make the amount. 196p 	100s	10s	1s	 £1 10p 1p	Jo has £2·29. She only has £1 coins, 10p coins and 1p coins. How many of each coin does she have? Can you suggest a different answer?

Use place value and number facts to solve problems Y3

National Curriculum Statement	All students		
	Fluency	**Reasoning**	**Problem Solving**

Place Value — Recognise the place value of each digit in a three digit number (hundreds, tens, ones).	• Write the value of each underlined digit.
	    3<u>1</u>8, 9<u>2</u>, <u>9</u>21
	
	• 512 is made of __ hundreds, __ ten and ___ ones.
	
	• Find the value of ▲ in each of these statements.
	
	    ▲ = 500 + 70 + 4
	
	    628 = ▲ + 20 + 8
	
	    703 = 700 + ▲ + 3
		• Explain the value of 4 in the following numbers: 546, 473, 894
		
		• 543 is made of 5 hundreds, 4 tens and 3 ones. It is also made of 54 tens and 3 ones. It is also made of 543 ones. Can you express 627 in the same way?
		
		• What is the same about these numbers and what is different?
		    375 357
			• Henry thought of a number. He thought of a two-digit number less than 50. The sum of its digits was 12. Their difference was 4. What number did Henry think of?
			
			• Use the clues to find the missing digits:
			
			    ▢ ▢ ▢
			
			The hundreds digit is double the tens digit. The tens digit is 5 less than 2 x 8. The ones digit is 2 less than the hundreds digit.
			
			• Claire, Libby and Katie are holding three digit numbers. Claire and Libby have given clues below:
			Claire- My number has the smallest amount of ones.
			Libby- The tens in my number are 2 less Claire and Katie's added together.
			    345 247 368
			Can you work out which number is which?

Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.

+ 4   + 4   + 4   + 4   + 4

0					

b) Count on in multiples of 8

0					

c) Count on in multiples of 50

0					

g) Count back in multiples of 8 from 56

					56

h) Count back in multiples of 50 from 550

					550

i) Count back in multiples of 100 from 1100

					1100

Recognise the place value of each digit in a 3 digit number.
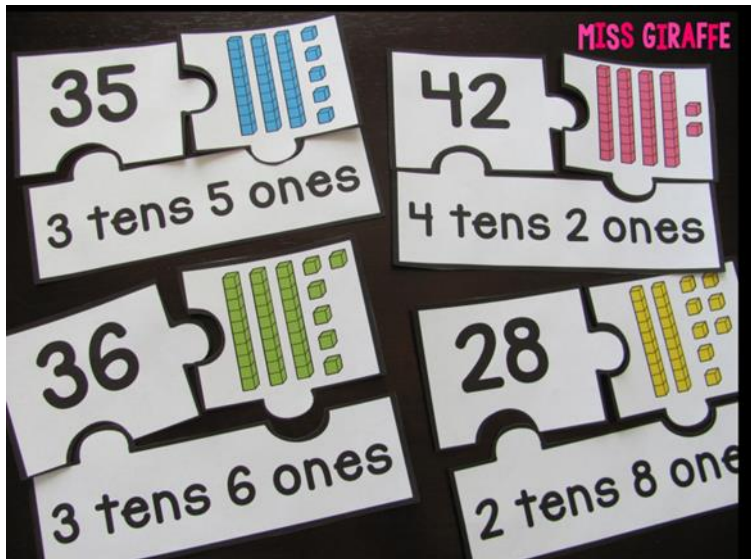
Which expressions represent the same amount as 402?

Choose all answers that apply:

(A) $400 + 2$

(B) $40 + 2$

(C) $4 + 2$

(D) $100 + 100 + 100 + 100 + 2$

Compare and order numbers up to 1000

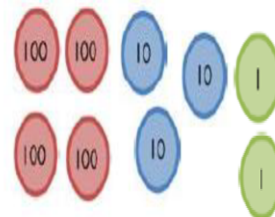1) Draw place value counters to show
   324

H	T	U

2) Draw an arrow on the number lines to show

415

0   1000
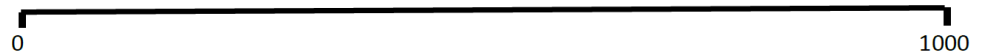
3) Alice says, "The number in the place value grid is the largest number you can make with 8 counters." Do you agree? **Explain** why.

100s	10s	1s
●● ●● ●●	●	●

4) Simon was making a three digit number using place value counters. He has dropped three of his counters on the floor. What could his number be?

Identify, represent and estimate numbers, using different representations.

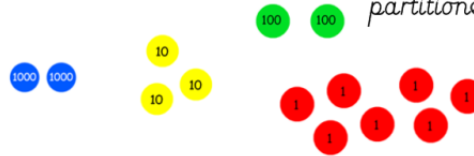1. Estimate how many stars there are on this page. Say how you arrived at your answer.
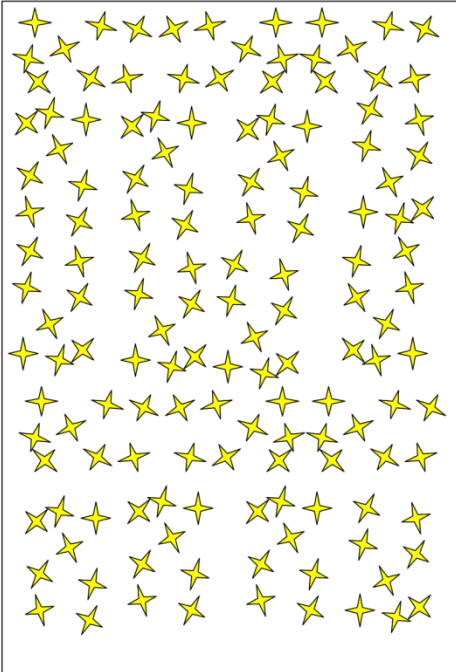
I can represent numbers in different ways

thousands	hundreds	tens	ones

Amy uses these cou
make a number. H
different numbers c
make?

Write them down in
numerals, words a
partitioned.

Estimate the capacity of this plastic cup:

330ml   2l   5

Is it likely to be:

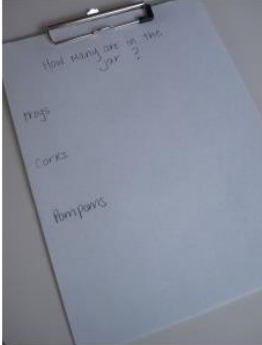a) 2 litres   b) 4 millilitres   c) 200 millilitres

Estimation Station

Estimation Station

Write a simple chart to record the items are in each jar.

Time to estimate!

Write it down.

Open and count.

Solve number problems and practical problems involving these ideas.

Take Three Numbers

Choose any two odd numbers and one even number, such as $3, 5$ and 2.

How would you like to represent these numbers?

Try adding them together and draw/make the representation of their sum.

What do you notice about the answer?

Look closely at your model.

Would it work in exactly the same way if you used different numbers but still two odds and one even?

Can you use your example to prove what will happen every time you add two odd numbers and one even number?

See if you can explain this to someone else. Are they convinced by your argument?

Once you can convince someone else, see if you can find a way to show the argument on paper. You might draw something or take a photo of things you have used to prove that your result is always true from your example.

Three Neighbours

Stage: 2 ★ ★

Take three numbers that are 'next door neighbours' when you count. These are called consecutive numbers.

Add them together.

What do you notice?

Take another three consecutive numbers and add them together.
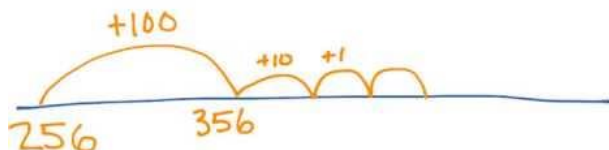
What do you notice?

Can you prove that this is always true by looking carefully at one of your examples?

How to use a number line

Addition number line

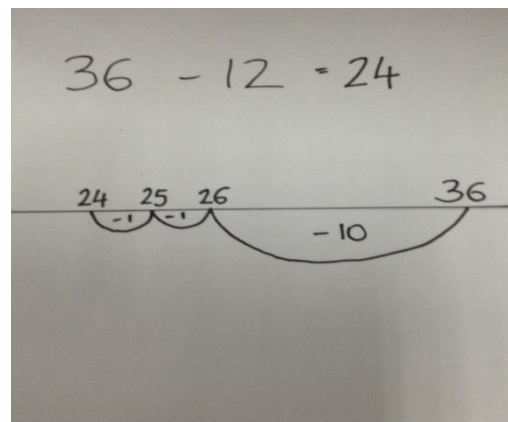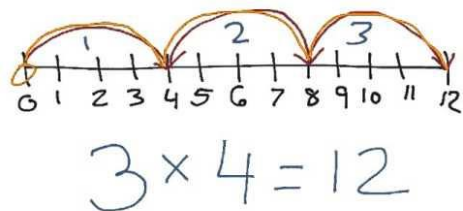Subtraction number line

Multiplication number line

Division number line
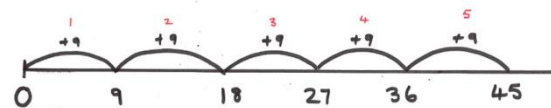
Least to Greatest Template

Least to Greatest			