

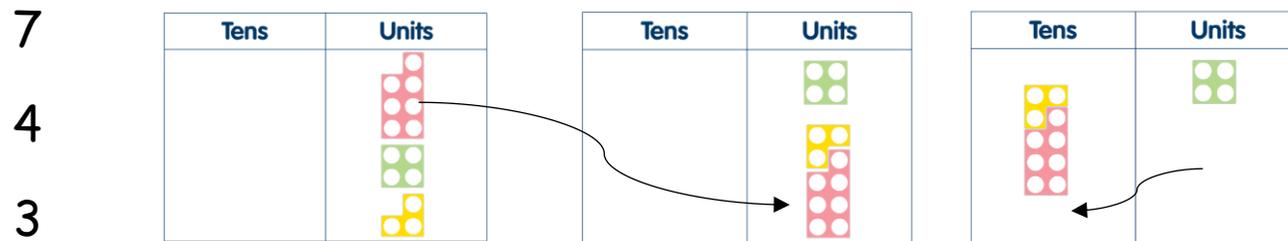
Challenge 1: Using a tens and ones frame for adding.



00550567	FETA FLAT BREAD	0.62PW
00436281	2 CORN PASTIES	0.37PW
00160919	LAMB ROGAN JOSH	0.99PW
00160919	LAMB ROGAN JOSH	0.99PW
00259941	16 DOUGHBALLS	0.57PW
00141802	***SBCHEESE/TOM	0.87PW
00141802	***SBCHEESE/TOM	0.87PW
00209663	500G MOUSSAKA	0.74PW
00250078	SNGAPRE NOLS	0.94PW
00415293	12 VEG VOL/VENT	0.99PW
00127042	STRAW X 3	0.54PW

Look at this till receipt. Do you notice that all the numbers are listed vertically?

Using the tens and ones frame, add the following three numbers

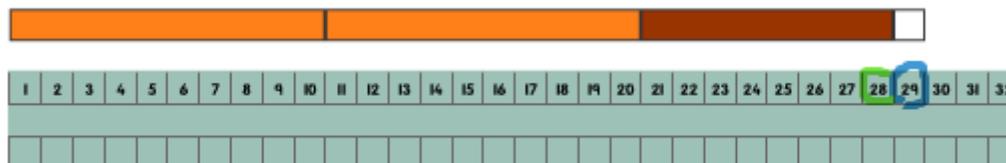
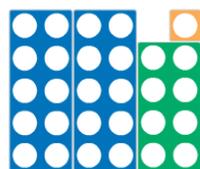
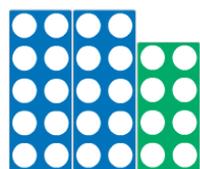


as you cannot have more than 9 in the ones place value column.

Use the spinners to find three numbers and add these vertically, using the tens and units frame. If you add 3 even numbers do you always get an even number? What about 3 odd numbers? Do you spot a pattern?

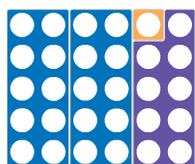
Challenge 2: Adding 1 to a 2-digit number.

There are 10 cartons of juice in each pack. Class 1 has 28 juice cartons but needs one more. This can be shown using shapes or rods:

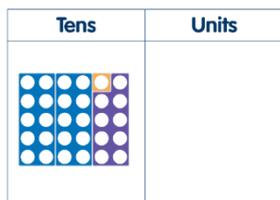
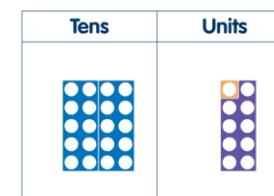


Look at the tens and ones values. Which have changed and which have stayed the same?

If another person joins the class they will need another juice carton.



so $29 + 1 = 30$. Show this on the tens and units frame.

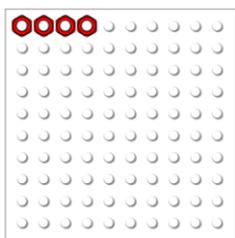


But you cannot have 10 'ones' in the units so these move to the 'tens', giving 3 tens.

Does this happen every time 1 is added to a number ending in 9? Prove it!

Challenge 3: Finding a pattern when adding and subtracting 10.

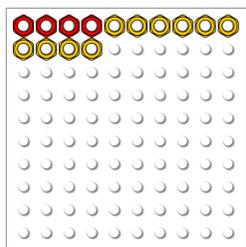
You will need shapes, pegs, a baseboard and a 100 square. Choose a shape and place pegs on the corresponding number on the baseboard.



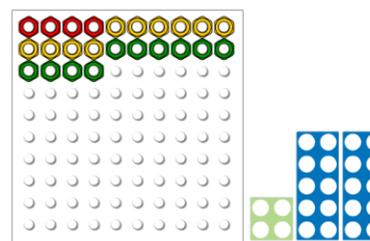
Put a counter on the 100 square circle.



Add 10.



Then another ten



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

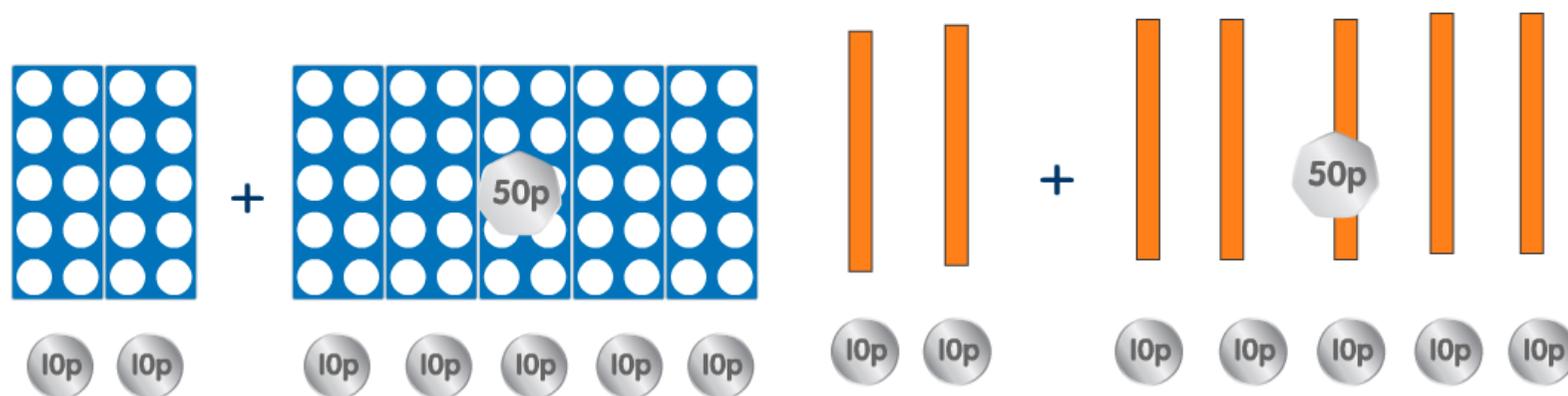
What pattern do you notice? Can you predict the highest number you can show on the 100 square?

Try with another shape. When you reach the highest number you can on the 100 square, start taking away 10.

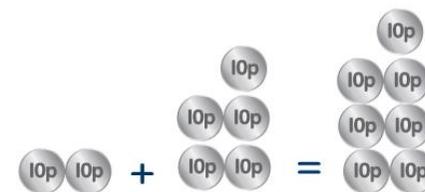
Challenge 4: Using shapes to support adding and subtracting with money.

Sophie has a 50p coin and a 20p coin. How much does she have altogether?

Use shapes or rods to show the value of each coin.



Rearrange the 10p coins so that they form a Numicon shape. Can you work out how much you have altogether without counting the coins?

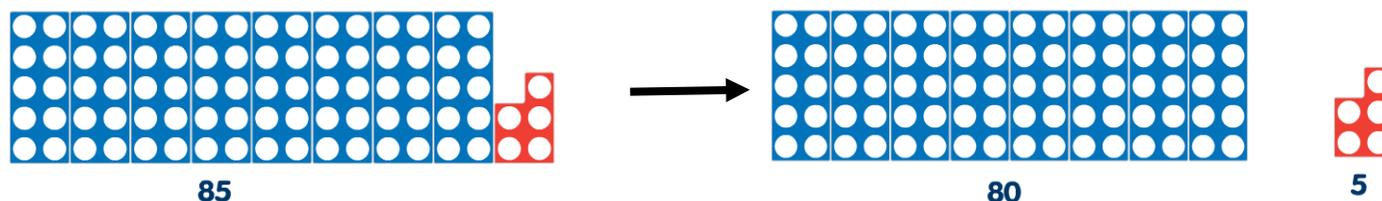


If Sophie spent 30p, using the subtracting covers, can you work out how much she has left?

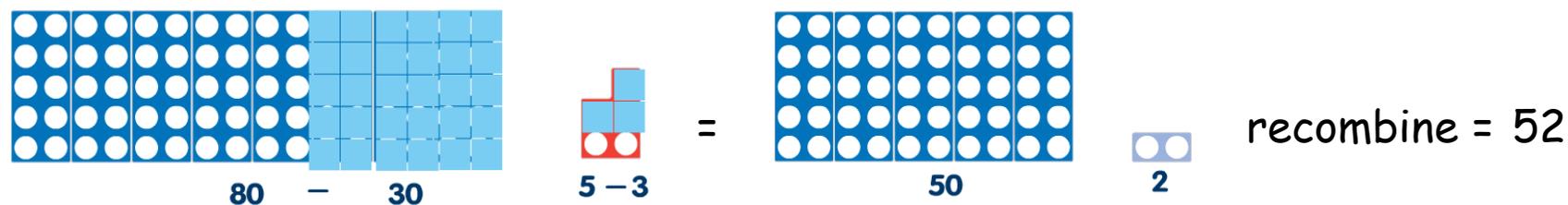
Challenge 5: Subtracting a 2-digit number from a 2-digit number without bridging a multiple of 10.

Look at the number sentence $85 - 33$

This can be partitioned, using rods or shapes into tens and ones



Now use the subtraction covers to deduct 30 and 3

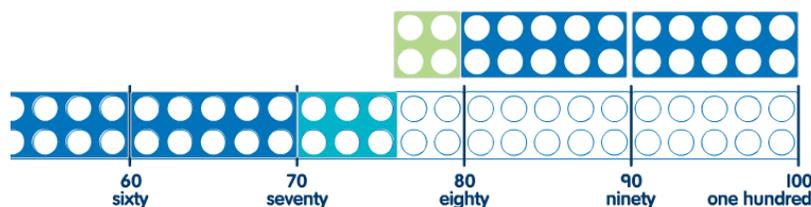


There are 78 children on a school trip but they needed to be split into two groups to do two different activities. 26 children were chosen to go pond dipping. How many were left to do the minibeast activity? Use the shapes and subtracting covers to help you. Challenge - use the tens and units frame to show this vertically.

Challenge 6: Subtracting 2-digit numbers from 2-digit numbers, crossing 10s

Look at the dartboard results. Each child started with 100 and each time they scored points, these were deducted from their existing score.

Name of child	Points remaining
Risa	76
Jess	56
Rob	35
Karim	87
Ella	62



Using the number line and shapes, calculate how many points Risa has scored.

Now choose another child and work out how many points they have scored.

What strategy could we use to find the difference between their scores (see Challenge 5)?

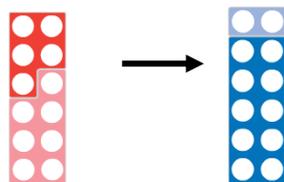
Challenge 7: Grouping and regrouping with tens and ones.

Consider $84 + 67$. How can we work this out? Start by partitioning.

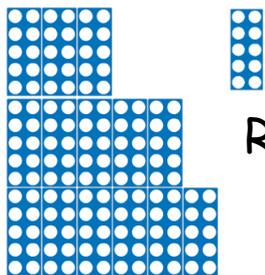


Now add these together using the HTO frame.

Start with the ones.



Move the 'extra' ten to the tens, leaving 2 in the ones.



Look at the tens.

Rearrange these.

H	T	O

H	T	O

Remember, you can only have 9 'tens' in the tens column. Move 10 'tens' to the Hundreds column.

Try $56 + 79$.

Challenge 8: Subtracting using the column method.

Remember how we partition numbers into tens and ones before subtracting. Use the HTU frame to help you record your calculations.

Solve $71 - 25$

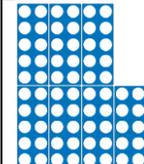
Partition the bigger number and place it on the HTO frame.

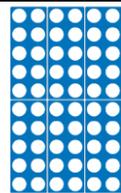
Now try to take away the ones first. Can you subtract 5 from 1?

You need to take a ten from the tens column and place it in the ones. Use the subtraction covers to cover 5 'ones'.

$$\begin{array}{r}
 \cancel{7}^6 \ \cancel{1}^{11} \\
 - \quad 2 \ 5 \\
 \hline
 4 \ 6
 \end{array}$$

Now you try: $65 - 28 =$

H	T	O
		

H	T	O
		

H	T	O
	