Year 2 Maths Activities - Week Beginning 11.5.20.

Dear Parents and Carers,

We are going to continue with our revision and this week the activities will be about Addition and Subtraction as that was an area that many children needed to consolidate.

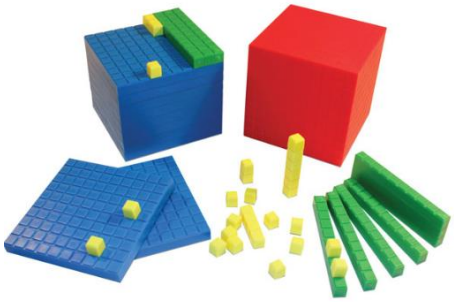
As with last weeks work, the activities have been organised into three levels so that you can choose the most appropriate ones for your child. You do not have to complete all of them, but you may wish to. Even a child who is Working At Greater Depth could use some of the easier activities as a 'brain warm-up' before completing the more challenging tasks.

Before we begin, let's take a look at how we teach addition and subtraction in Year 2.

The big focus in Year 2 is about working with 2-digit numbers. Some children may still be working with 1-digit numbers and some will be working with 3-digit numbers, but the majority will be adding and subtracting using 2-digits.

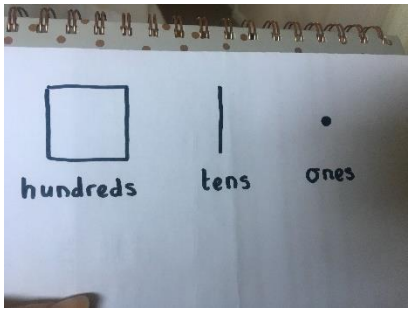
As you saw last week, we do lots of work where we group objects into tens and ones (we don't call the ones 'units' anymore). This work on tens and ones is extremely important when we come to adding and taking away.

In school, we use these;



They are called 'Diennes' or are sometimes called 'Base 10' (which I believe is the brand name). They come in little cubes to represent the ones, rods to represent the tens, squares to represent the hundreds and large cubes to represent thousands. In year 2 we mainly work with the little cubes and the rods, as these represent ones and tens.

We teach the children to draw these, like this;



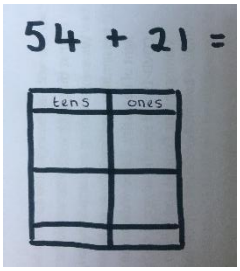
When we add together two 2-digit numbers, we can use our drawing to help us. Alternatively, we can use a column method (children can choose which method they prefer, but we teach both to everybody).

Addition of two 2-digit numbers (***not crossing ten***)

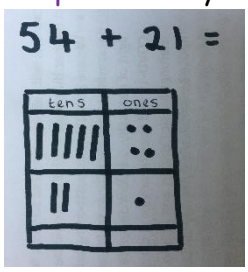
Drawing Method

54 + 21 =

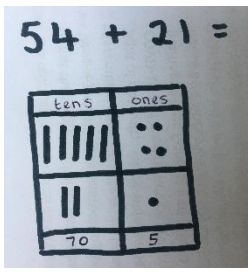
Step 1 – draw your boxes.



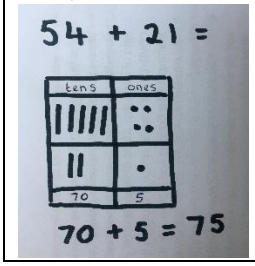
Step 2 – draw your tens and ones.



Step 3 – add together the ones (ALWAYS ADD THE ONES FIRST), then the tens.



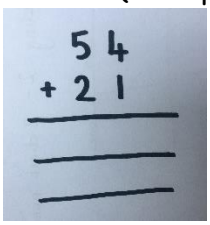
Step 4 – add the tens and ones together.



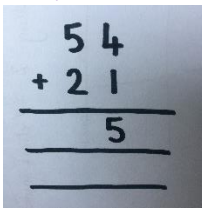
Column Method

54 + 21 =

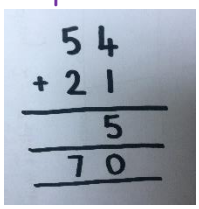
Step 1 – set out your calculation in columns (it helps to use squared paper).



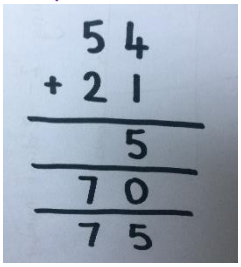
Step 2 – add together the ones first.



Step 3 – add together the tens.



Step 4 – add the tens and ones together.



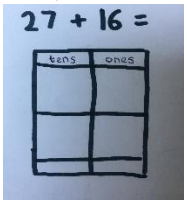
Sometimes when we add, we will cross the tens boundary. This is not a problem and we can do it in exactly the same way;

Addition of two 2-digit numbers (***crossing ten***)

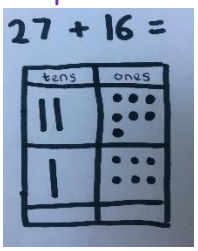
Drawing Method

27 + 16 =

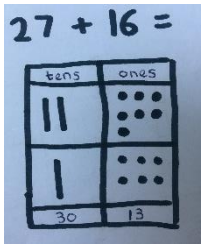
Step 1 – draw your boxes.



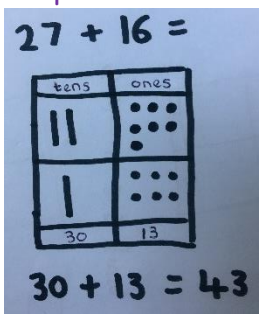
Step 2 – draw your tens and ones.



Step 3 - add together the ones (ALWAYS ADD THE ONES FIRST), then the tens.



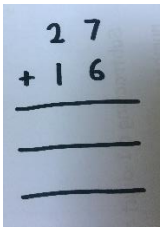
Step 4 – add the tens and ones together.



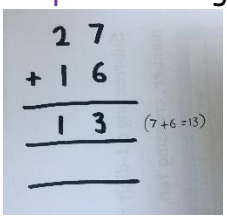
Column Method

27 + 16 =

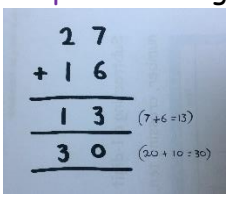
Step 1 – set out your calculation in columns (it helps to use squared paper).



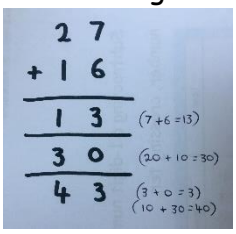
Step 2 – add together the ones first.



Step 3 – add together the tens.



Step 4 – add the ones from your answers together, then add the tens from your answers together.

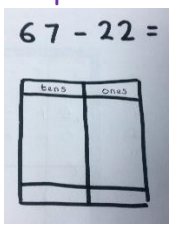


So, what about subtraction? We don't do the column method for subtraction because it gets a bit complicated when we have to exchange tens (we say 'exchange', we no longer say 'borrow'). Instead, we teach children to draw the tens and ones.

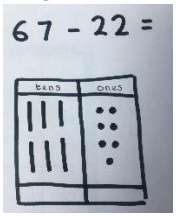
Subtraction of two 2-digit numbers (***not crossing ten***)

67 – 22 =

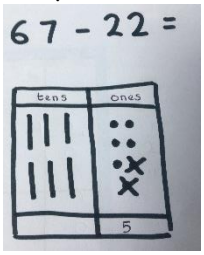
Step 1 – draw your boxes.



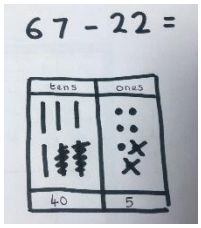
Step 2 – draw the tens and ones for the first number in the number sentence (the larger number).



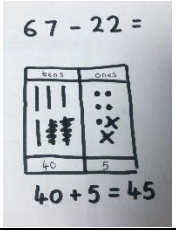
Step 3 – subtract the ones first by crossing out the number that are being taken away and write how many are left in the box underneath.



Step 4 – subtract the tens by crossing out the number that are being taken away and write how many are left in the box underneath.



Step 5 – add the tens and ones from your answers together.

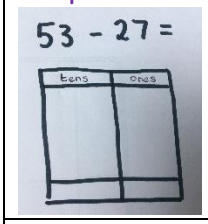


Finally, we have to teach children what to do when crossing the tens. They will need to 'exchange' a ten (we don't say 'borrow' anymore). We teach them to recognise when this will be necessary by getting them to look at the ones in both numbers. If the ones in the second number are greater than in the first number, then they will need to exchange. Here is an example;

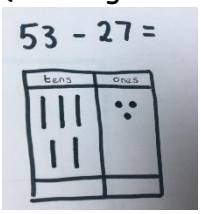
Subtraction of two 2-digit numbers (***crossing ten***)

53 – 27 =

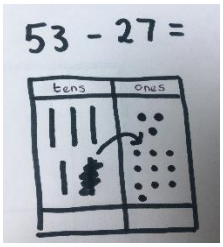
Step 1 – draw your boxes.



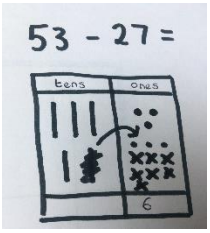
Step 2 – draw your tens and ones from the first number in the number sentence (the larger number).



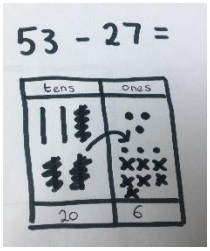
Step 3 – to exchange a ten, cross out one ten and draw ten dots in the ones column (along with the ones that were already there).



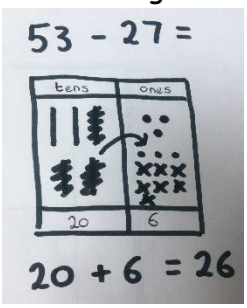
Step 4 – now proceed with the calculation by subtracting the ones first (cross out the number that are to be taken away).



Step 5 – now subtract the tens (cross out the number that are to be taken away).



Step 6 – add the tens and ones from your answers together.



Activity 1	**Objective:** Bonds to 10, 20, 100 and related facts. - Children should know 'off by heart' the pairs of numbers that go together to make 10 and 20. - Children should be able to work out the pairs of numbers that make 100. - Children should have an understanding of calculations with similar digits, e.g. 2 + 5 = 7, so 20 + 50 = 70. **<u>Working Towards the Expected Standard</u>** Number Bonds to make 10. - Start by checking whether or not your child knows their number bonds to 10; 0 + 10 = 10 1 + 9 = 10 2 + 8 = 10 3 + 7 = 10 4 + 6 = 10 5 + 5 = 10 They should understand that we can switch the numbers around and still get the same answer, e.g. if 4 + 6 = 10, then 6 + 4 = 10. They should know these and should be able to answer very quickly, so if you said 3, they should instantly say 7. - If your child doesn't know these, then there are lots of things you can do to help them to learn. You could make flashcards with them on so you hold one up and your child reads the number sentence out loud. You could start with 10 small objects (counters, pennies, pieces of pasta, lego) and split them in different ways. You can draw round both hands, cut them out and fold down fingers to show how many are left when a particular number is folded down. - The above activities might need to be repeated over and over again daily. Don't expect to do this once and for your child to remember them straight away. - Once children are happy with bonds to 10, they can learn their bonds to 20. You can repeat the same activities as above to help them to learn these. They should see that their bonds to 10 can help them with bonds to 20, so, if 4 + 6 = 10, then 14 + 6 = 20.

Working At the Expected Standard

- Work with your child on bonds to 10 and 20 (as above), to check that they really do know these 'off by heart'. If they do, introduce the idea that we can make numbers 10X larger and we know that the answer will be the same, except 10X larger. In other words, if we know that 4 + 6 = 10, then we also know that 40 + 60 = 100, or, if 15 + 5 = 20, then 150 + 50 = 200. Work through lots of examples of this to make sure that they are secure.
- When children are confident with bonds to 10 and 20, they should start to work with bonds to 100.
- Give your child a 100 square.

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

If they wanted to work out which number goes with 67 to make 100, they should find 67 first and count how many more to make 100. They should recognise that they don't have to count all of the numbers in ones, as this will take a long time and they might make a mistake. Instead, they should see that, if they are on 67, they would need 3 more to get to the next 10 (70), then there are 3 full rows and we know there are 10 in a row, so we can count them in 10s. Give your child lots of random numbers and ask them to find how many more they would need to make 100.

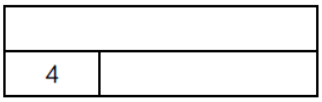
- Children should see number bonds in lots of different ways, so they might represent it as a Part / Whole Model (see last weeks examples) or they might see it as a bar model;

They might represent it as money, so 67p + 33p = 100p (or £1).
They might represent it as a measurement, so 67cm + 33cm =100cm (1m).

Seeing the calculation in lots of different contexts helps children to make links between different areas of maths. It also helps children to understand the relevance (the reason for knowing it).

Extra Activities for Children Working at Greater Depth

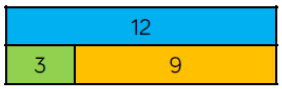
Here is an incomplete bar model.
The total is greater than 10 but less than 20
What could the numbers be?
How many different combination scan you find?

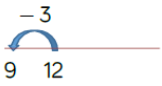


$$8 - 5 = 3$$
$$8 - 3 = 5$$
$$8 = 5 - 3$$
$$3 = 8 - 5$$

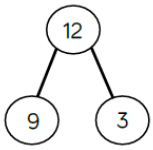
Laura says, "I think that all of these facts are correct because the numbers are related."
Sam disagrees.
Who is correct? Can you prove it?

Which of the representations are equivalent to the bar model?





$12 = 9 + 3$



There were 9 cars in the car park.
3 cars have left.

$9 - 3 = 12$

Continue the pattern.

$$90 = 100 - 10$$
$$80 = 100 - 20$$
$$70 = 100 - 30$$

What are the similarities and difference between this pattern and the following one?

$$9 = 10 - 1$$
$$8 = 10 - 2$$
$$7 = 10 - 3$$

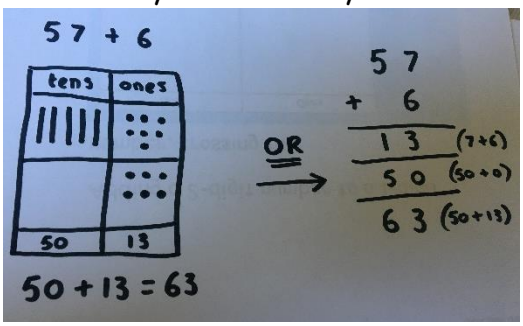
Scott goes to the fruit shop.

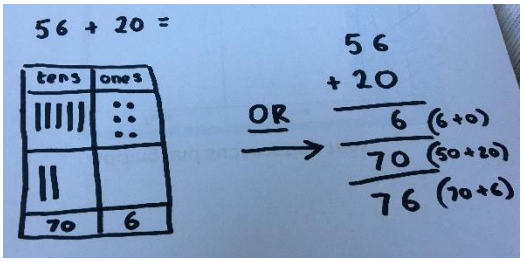
One apple costs 6p.
A bag of 10 apples costs 50p.

If he needs 20 apples, what's the cheapest way to buy them?

What would the difference be between buying 20 single apples and 2 bags of 10 apples?

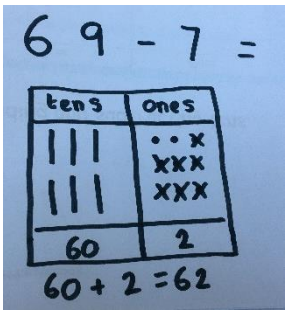
How much does each apple cost if he buys a bag of 10? Explain your answer.

Activity 2	**Objective:** Addition of two 2-digit numbers (without crossing 10). **<u>Working Towards the Expected Standard</u>** - Children start to add by understanding that they are taking two groups of objects and counting how many they have when the two groups are combined (counting all of the objects). If this is something you feel your child still needs to do, then give them small objects and ask them to add, perhaps up to 10 or to 20. - Children move on to counting on. In other words, they realise that they don't have to count all of the objects, they can count on, so if doing 7 + 5, they would start with the 7 and count 5 more (8, 9, 10, 11, 12). Again, if you feel that this would be useful for your child, do some of this. Encourage them to start with the bigger number, so if we had 3 + 8, we can turn it around to 8 + 3, as this will be easier. - Once children are happy with counting on, they should be able to count on (in ones) from any number. You could give them a 100 square. They find the starting number and count on in ones to find their answer. So 57 + 6 = 63 (for example). - If they are happy with counting on, they could set out their work by drawing tens and ones, or as a column method (described above). They do it in exactly the same way……  **<u>Working At the Expected Standard</u>** Use the methods described above (either drawing tens and ones or using the column method) to answer these questions; 44 + 23 = 65 + 21 = 22 + 22 = 68 + 20 = 54 + 22 = 84 + 12 = 47 + 50 = 12 + 23 = 75 + 14 = 47 + 21 =

	Extra Activities for Children Working at Greater Depth Katie has 12 marbles. Jim has 13 marbles more than Katie. How many marbles do they have altogether? What digits could go in the boxes? □ 2 + □ 5 = 87
Activity 3	**Objective:** Addition of two 2-digit numbers (crossing 10). **Working Towards the Expected Standard** Ten more. - Children begin to see what happens when they add ten to another number. Use a 100 square and practice adding tens, so numbers like 30 + 10, 50 + 10, etc. Ask your child to find the starting number and count on 10 more. They should quickly start to see that they don't need to count every time, we look at the number that is under our starting number when we are adding 10. - Once children are happy with the above, they should be able to do the same for any number, so 35 + 10 = 45, 29 + 10 = 39, and so on. When doing this, encourage your child to see that the number in the tens place has changed (we've added one more ten), but the number in the ones place has not changed. - Once we can add one ten, we can add more tens, e.g. 56 + 20, we know that 20 is two tens, so we look for the number that is two places below our starting number. - In time, you should be able to work to a place where children no longer need their 100 square to do this because they have completely understood the way in which the numbers are organised on the square. - They can start to lay this out as tens and ones or as a column method too, like this; 

	Working At the Expected Standard Use the methods described above (either drawing tens and ones or using the column method) to answer these questions; 23 + 37 = 17 + 48 = 52 + 29 = 55 + 17 = 43 + 38 = 26 + 66 = 68 + 17 = 28 + 56 = 63 + 19 = 16 + 77 = **Extra Activities for Children Working at Greater Depth** Can you create a calculation where there will be an exchange in the ones, and your answer will have two ones and be less than 100? How many different ways can you solve 19 + 11? Explain your method to a partner. Use concrete or pictorial resources to help explain your method. Find all of the possible pairs of numbers that could complete this calculation; 1 ? + 2 ? _____ _____ _____ 4 2
Activity 4	**Objective:** Subtraction of two 2-digit numbers (without crossing 10). **Working Towards the Expected Standard** - Children start to subtract by understanding that they are starting with a group of objects and physically taking some of them away. If this is something you feel your child still needs to do, then give them small objects and ask them to subtract, perhaps from 10 or to 20. - Children move on to counting back. So they could use a 100 square, find their starting number and physically count backwards to subtract. Again, if you feel that this would be useful for your child, do some of this. Make sure that they understand that, for subtraction, we always start with the bigger number and we cannot just swap the numbers around like we do for addition.

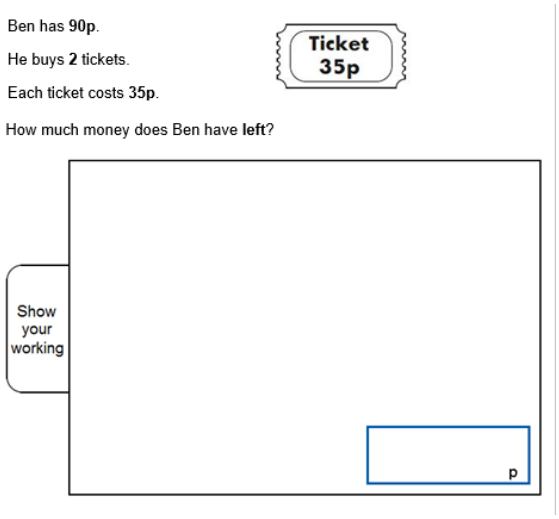
- Once children are happy with counting back, they should be able to count back (in ones) from any number.
- If they are happy with counting back, they could set out their work by drawing tens and ones (described above). They do it in exactly the same way……

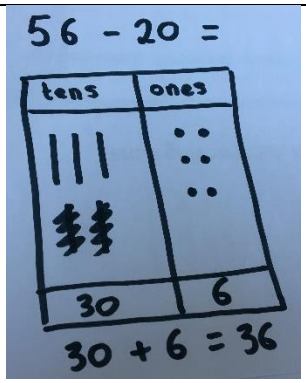


Working At the Expected Standard

Use the method described above (drawing tens and ones) to answer these questions;

64 – 11 =
59 – 15 =
85 – 21 =
96 – 21 =
26 – 15 =
98 – 84 =
56 – 35 =
49 – 24 =
37 – 13 =
75 – 32 =

	Extra Activities for Children Working at Greater Depth  Can you write a step by step explanation of how you answered this question?
Activity 5	Objective: Subtraction of two 2-digit numbers (crossing 10). **Working Towards the Expected Standard** Ten less. - Children begin to see what happens when they subtract ten from another number. Use a 100 square and practice subtracting tens, so numbers like 30 - 10, 50 - 10, etc. Ask your child to find the starting number and count back 10. They should quickly start to see that they don't need to count every time, we look at the number that is above our starting number when we are subtracting 10. - Once children are happy with the above, they should be able to do the same for any number, so 35 - 10 = 25, 29 - 10 = 19, and so on. When doing this, encourage your child to see that the number in the tens place has changed (we've taken away one ten), but the number in the ones place has not changed. - Once we can subtract one ten, we can subtract more tens, e.g. 56 - 20, we know that 20 is two tens, so we look for the number that is two places above our starting number. - In time, you should be able to work to a place where children no longer need their 100 square to do this because they have completely understood the way in which the numbers are organised on the square. - They can start to lay this out as tens and ones too, like this;



Working At the Expected Standard

Use the method described above (drawing tens and ones) to answer these questions;

74 – 47 =

91 – 48 =

71 – 14 =

55 – 17 =

54 – 35 =

77 – 48 =

21 – 17 =

41 – 18 =

62 – 47 =

85 – 39 =

Extra Activities for Children Working at Greater Depth

There are **100g** of chocolate chips in the bag.

Sita uses **25g**.

Ben uses **35g**.

How many grams of chocolate chips are **left** in the bag?

Show your working

g

Can you write a step by step explanation of how you answered this question?

A Little Extra

The White Rose End of Block Assessment is also included here with the other resources. Children do one of these at the end of each maths topic, so they have already done this (a long time ago). You might want to give it to them at the end of this week to see if they can complete it independently and if there are still things they have not understood.