Year 3 Maths – week beginning 6.7.2020				
Theme	Formal methods for calculation (Lesson 1 of 6) CONSOLIDATION LESSON Addition	Formal methods for calculation (Lesson 2 of 6) CONSOLIDATION LESSON Subtraction	Formal methods for calculation (Lesson 3 of 6) CONSOLIDATION LESSON Multiplication	Formal methods for calculation (Lesson 4 of 6) CONSOLIDATION LESSON Multiplication	Formal methods for calculation (Lesson 5 of 6) CONSOLIDATION LESSON Division
Factual fluency (to aid fluency)	Addition practice (10 questions)	Subtraction practice (10 questions)	Times tables practice (10 questions)	Times tables practice (10 questions)	Division facts practice (10 questions)
Problem/ activity of the day **Remember, just like in class, you can still show the depth of your knowledge** LINK	(Lesson 1 resources below) **MAKING LINKS:** Earlier in the year, you learnt to use the column method to add three-digit numbers. Today you are going to practise this. **THINK: (support below)** Sarah used the digits 2, 3, 4, 7, 8 and 9 to make 2 three-digit numbers. She made 469 and 257. What is the sum of the two numbers? *If you have online parent access, this lesson is based on textbook 3A, chapter 2, lesson 10.* **SEE: (model below)** Watch the lesson video here **DO:** Use what you have learnt today to solve: Part 1: Use the digits 2, 3, 4, 7, 8 and 9 to make five other addition equations and find the total. The numbers you make must have 3-digits. The sum must be less than 1000. Check your answers before moving onto: Part 2: Solve the calculations below using the column method.	(Lesson 2 resources below) **MAKING LINKS:** Earlier in the year, you learnt to use the column method to subtract three-digit numbers. Today you are going to practice this. **THINK: (support below)** In a school, there are 500 pupils. 225 of them are boys. How many girls are there? *If you have online parent access, this lesson is based on textbook 3A, chapter 2, lesson 19.* **SEE: (model below)** Watch the lesson video here **DO:** Use what you have learnt today to solve: Part 1: Use the digits 2, 3, 4, 7, 8 and 9 to make five subtraction equations. The numbers you make must have 3-digits. Remember, you always start with the whole number, so the greatest number you make will go first in the calculation. Find the answer. Check your answers before moving onto: Part 2: Solve the calculations below using the column method. For some extra support with subtraction, watch the year 3 subtraction video here.	(Lesson 3 resources below) **MAKING LINKS:** Earlier in the year, you learnt to use the formal written method for multiplication. Today you are going to practise this. **THINK: (support below)** There are 42 sweets in a packet. How many sweets are there in 2 packets? *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 3.* **SEE: (model below)** Watch the lesson video here **DO:** Use what you have learnt today to solve: Part 1: Use the formal written method frames to find the product of the numbers below. Check your answers before moving onto: Part 2: Solve the calculations below using the formal written method for multiplication.	(Lesson 4 resources below) **MAKING LINKS:** Yesterday you consolidated the formal written method for multiplication. Today you are going to practise multiplying with regrouping. **THINK: (support below)** One pack has 13 stickers. How many stickers are there in 4 packs? *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 4.* **SEE: (model below)** Watch the lesson video here **DO:** Use what you have learnt today to solve: Part 1: Use the formal written method frames to find the product of the numbers below. Check your answers before moving onto: Part 2: Solve the calculations below using the formal written method for multiplication.	(Lesson 5 resources below) **MAKING LINKS:** Earlier in the year, you learnt to use a written method for division. Today you are going to practise this. **THINK: (support below)** Sam and Charles share 46 strawberries equally among themselves. How many strawberries will each person get? *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 6.* **SEE: (model below)** Watch the lesson video here **DO:** Use what you have learnt today to solve: Part 1: Use the written method frame to solve the calculations below. Check your answers before moving onto: Part 2: Solve the calculations below using the written method you have practised.
Methods, tips, clues & checks	Day 1 resources and answers below	Day 2 resources and answers below	Day 3 resources and answers below	Day 4 resources and answers below	Day 5 resources and answers below

<u>**See below for resources to support you to THINK-SEE-DO**</u>

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THINK: *If you have online parent access, this lesson is based on textbook 3A, chapter 2, lesson 10.*

Sarah used the digits 2, 3, 4, 7, 8 and 9 to make 2 three-digit numbers.

She made 469 and 257.

What is the sum of the two numbers?

SEE:

Watch the lesson video here.

Sarah used the column method to find the sum of the two numbers.

When adding, we always add the **ones** first in case we need to rename.

9 + 7 = 16 but we can't have 16 ones in the ones place, so we rename 10 ones for 1 ten. There are 6 ones left.

Next we can add the **tens.** 6 tens + 5 tens = 11 tens, but I also need to add the renamed ten from the ones place. 11 tens + 1 ten = 12 tens. We can't have 12 tens in the tens place, so I rename 10 tens as 1 hundred. There are 2 tens left. Finally I can add the **hundreds.** 4 hundreds + 2 hundreds = 6 hundreds. Then I need to add the renamed hundred. 6 hundreds + 1 hundred = 7 hundreds.

So the sum of 469 and 257 is 726.

H	T	O
1	1	
4	6	9
+ 2	5	7
7	2	6

H	T	O
4	1	2
+ 2	5	7
6	6	9

When I found the sum of 412 and 257, I didn't need to rename. 2 ones + 7 ones = 9 ones. This is less than 10 so I don't need to rename. 1 ten + 5 tens = 6 tens. This is less than 10 so I don't need to rename. 4 hundreds + 2 hundreds = 6 hundreds. This is less than 10 so I don't need to rename.

DO:

Part 1:

Use the digits 2, 3, 4, 7, 8 and 9 to make five other addition equations and find the total.

The numbers you make must have 3-digits.

The sum must be less than 1000.

Part 2:

Solve these calculations using the column method.
1. 134 + 255
2. 304 + 425
3. 700 + 142
4. 724 + 124
5. 851 + 23
6. 128 + 143
7. 524 + 194
8. 657 + 264
9. 283 + 368
10. 817 + 249

Deepening:

Write an explanation for a child going into year 3 in September explaining how to add 2 three-digit numbers together.

You might want to use some of these words in your explanation:

add, total, sum, rename, ones, tens, hundreds

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THINK: *If you have online parent access, this lesson is based on textbook 3A, chapter 2, lesson 19.*
In a school, there are 500 pupils. 225 of them are boys. How many girls are there?

SEE: Watch the lesson video here.

When we subtract, we always start with the whole number (500) and take away the part we know (225).
First, we look at the **ones** place. We don't have enough ones to subtract 5, so we need to rename. There aren't any tens to rename, so we can rename a hundred as 10 tens. We would have 4 hundreds left. We can then rename a ten for 10 ones. We would have 9 tens left.
Now I can subtract the ones. 10 ones – 5 ones = 5 ones.
Next, we look at the **tens** place. 9 tens – 2 tens = 7 tens.
Finally, we look at the **hundreds** place. 4 hundreds – 2 hundreds = 2 hundreds.
There are 275 girls in the school.

```
        H   T   O
            9
           10  10
        4̶5̶  0̶   0̶
    -   2   2   5
    _____
        2   7   5
```

```
        H   T   O
           14
        3̶4̶  4̶   9
    -   2   5   7
    _____
        1   9   2
```

In this example, when I look at the ones place, I have enough ones to subtract 7 so I don't need to rename. 9 – 7 = 2.
When I look at the tens, I don't have enough tens to take away 5 tens, so I need to rename one hundred for 10 tens. I will then have 3 hundreds left. I will have 14 tens because 10 tens + 4 tens = 14 tens. Now I can subtract 5 tens. 14 tens – 5 tens = 9 tens. Finally, I can subtract the hundreds. 3 hundreds – 2 hundreds = 1 hundred.

DO:
For some extra support with subtraction, watch the year 3 subtraction video here.

Part 1:
Use the digits 2, 3, 4, 7, 8 and 9 to make five subtraction equations. The numbers you make must have 3-digits.
Remember, you always start with the whole number when subtracting, so the greatest number you make will go first in the calculation.

Part 2:
Solve these calculations using the column method.
1. 462 – 131
2. 265 – 140
3. 742 – 400
4. 541 – 521
5. 174 – 32
6. 382 – 145
7. 614 – 251
8. 341 – 165
9. 874 – 596
10. 600 – 372

Deepening:
In the video below, Alison chooses some three-digit numbers and carries out some calculations which lead to a surprising result!
Watch the video. What do you notice? Can you figure out the steps that Alison carries out in each calculation?
Choose some three-digit numbers of your own. (Make sure the first and third digits are different). Is there a pattern to all the answers?
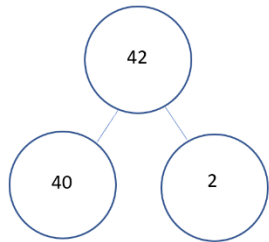
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THINK: *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 3.*

There are 42 sweets in a packet.
How many sweets are there in 2 packets?

SEE:
Watch the lesson video here.

42
40   2

It is important to remember that 42 is **40** and **2.**

T	O
4	2
×	2

	4
+ 8	0
8	4

First, I need to multiply the **ones.**

2 x 2 = 4
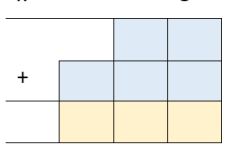
Now, I can multiply the **tens.**

40 x 2 = 80

Finally, I can add the **ones and tens** together.

80 + 4 = 84

There are 84 sweets in 2 packets.

DO:

Part 1:
Solve these calculations.

a)
T	O
1	3
×	3

b)
T	O
3	1
×	3

c)
T	O
3	4
×	2

Check your answers below.

Part 2:
Use the formal written method to solve these calculations.
   a) 41 x 2
   b) 14 x 2
   c) 23 x 3
   d) 22 x 4
   e) 43 x 2
   f) 21 x 4
   g) 13 x 3

Deepening:
My friend had a go at using the formal written method, but has made a mistake. Explain their mistake and then show them how to solve it correctly.

	2	1
×		4
		4
		8
1	2	

THINK: *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 4.*
One pack has 13 stickers.
How many stickers are there in 4 packs?

SEE:
Watch lesson video here.

13

10   3
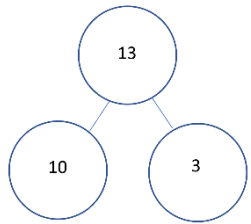
Just like yesterday, we need to remember that 13 is **10** and **3**.

First, we multiply the **ones.**

3 x 4 = 12

We can't have 12 ones in the ones place, so we rename 10 ones as 1 ten. We put this ten in the tens place, and the 2 ones in the ones place.

H	T	O
	1	3
x		4
	1	2
+	4	0
	5	2

Next, we multiply the **tens.**

10 x 4 = 40

Finally, I can add the **ones and tens** together.

40 + 12 = 52

There are 52 stickers in 4 packs.
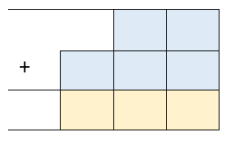
DO:
Part 1:
Solve these calculations.
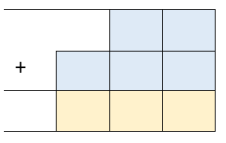
a)
H	T	O
	1	8
x		3

b)
H	T	O
	3	4
x		5

c)
H	T	O
	2	9
x		4

Check your answers below.

Part 2:
Use the formal written method to solve these calculations.
   a) 25 x 4
   b) 8 x 16
   c) 57 x 2
   d) 65 x 2
   e) 45 x 3
   f) 38 x 4
   g) 27 x 8

Deepening:
What is the same and what is different about how you solve these two calculations?
24 x 2 and 24 x 4

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THINK: *If you have online parent access, this lesson is based on textbook 3A, chapter 4, lesson 6.*

Sam and Charles share 46 strawberries equally among themselves.

How many strawberries will each person get?

SEE: Watch the lesson video here.

To share 46 strawberries equally between Sam and Charles, we need to divide 46 by 2. (46 strawberries shared between 2 people).

$46 \div 2 = 23$
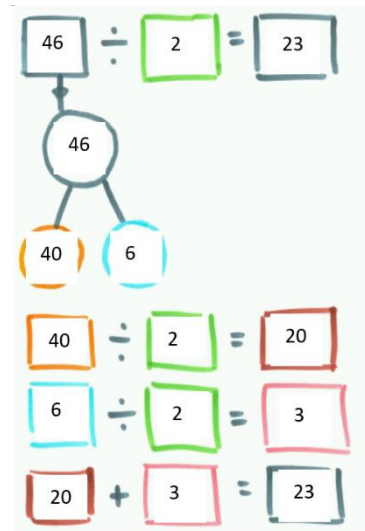
To help us, we can partition 46 into **40** and **6**. This will make it easier for us to divide as we can divide each part separately before adding them back together.

Now I can divide my tens by 2, and my ones by 2.

Let's start with the tens:

I can use facts I already know to solve 40 ÷ 2. I know 4 ÷ 2 = 2, so if I make it ten times bigger, 40 ÷ 2 = 20.

Now let's divide the ones by 2.

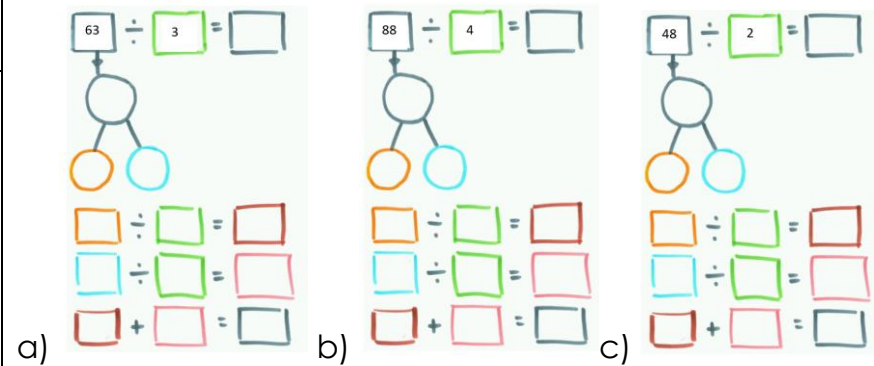$6 \div 2 = 3$

Finally, I can add the tens and ones together.

$20 + 3 = 23$

Each person will get 23 strawberries.

DO:

Part 1:
Solve these calculations.

a)   b)   c)

Check your answers below.

Part 2:
Use the written method to solve these calculations.
a) 86 ÷ 2
b) 96 ÷ 3
c) 84 ÷ 4
d) 88 ÷ 8
e) 88 ÷ 2
f) 69 ÷ 3
g) 66 ÷ 2

Deepening:
What's the mystery number?
When I multiply my number by 3, the answer is 93.
Show and explain how you found the mystery number.

ANSWERS – part 1:

Day 1	Day 2	Day 3	Day 4	Day 5
Answers may vary depending on numbers chosen. Send to your teacher on Seesaw for checking.	Answers may vary depending on numbers chosen. Send to your teacher on Seesaw for checking.	a)	a)	a)

Day 3

a)

	T	O
	1	3
x		3
		9
+	3	0
	3	9

b)

	T	O
	3	1
x		3
		3
+	9	0
	9	3

c)

	T	O
	3	4
x		2
		8
+	6	0
	6	8

Day 4

a)

	H	T	O
		1	8
x			3
		2	4
+		3	0
		5	4

b)
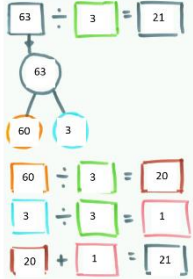
	H	T	O
		3	4
x			5
		2	0
+	1	5	0
	1	7	0

c)

	H	T	O
		2	9
x			4
	1	3	6
+		8	0
	1	1	6

Day 5

a)

$63 \div 3 = 21$

63
$60 \quad 3$

$60 \div 3 = 20$
$3 \div 3 = 1$
$20 + 1 = 21$

b)

$88 \div 4 = 22$

88
$80 \quad 8$

$80 \div 4 = 20$
$8 \div 4 = 2$
$20 + 2 = 22$

c)

$48 \div 2 = 24$

48
$40 \quad 8$

$40 \div 2 = 20$
$8 \div 2 = 4$
$20 + 4 = 24$
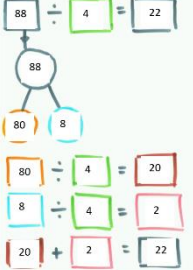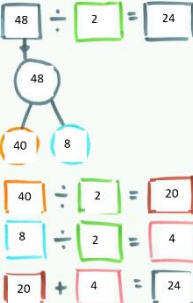
ANSWERS – part 2 and deepening:

Day 1	Day 2	Day 3	Day 4	Day 5
Q1. 134 + 255 = 389 Q2. 304 + 425 = 729 Q3. 700 + 142 = 842 Q4. 724 + 124 = 848 Q5. 851 + 23 = 874 Q6. 128 + 143 = 271 Q7. 524 + 194 = 718 Q8. 657 + 264 = 921 Q9. 283 + 368 = 651 Q10. 817 + 249 = 1066	Q1. 462 – 131 = 331 Q2. 265 – 140 = 125 Q3. 742 – 400 = 342 Q4. 541 – 521 = 20 Q5. 174 – 32 = 142 Q6. 382 – 145 = 237 Q7. 614 – 251 = 363 Q8. 341 – 165 = 176 Q9. 874 – 596 = 278 Q10. 600 – 372 = 228	Qa) 41 x 2 = 82 Qb) 14 x 2 = 28 Qc) 23 x 3 = 69 Qd) 22 x 4 = 88 Qe) 43 x 2 = 86 Qf) 21 x 4 = 84 Qg) 13 x 3 = 39	Qa) 25 x 4 = 100 Qb) 8 x 16 = 128 Qc) 57 x 2 = 114 Qd) 65 x 2 = 130 Qe) 45 x 3 = 135 Qf) 38 x 4 = 152 Qg) 27 x 8 = 216	Qa) 86 ÷ 2 = 43 Qb) 96 ÷ 3 = 32 Qc) 84 ÷ 4 = 21 Qd) 88 ÷ 8 = 11 Qe) 88 ÷ 2 = 44 Qf) 69 ÷ 3 = 23 Qg) 66 ÷ 2 = 33
Deepening: Explanations may vary, but might look like this: When adding two 3-digit numbers, you always need to add the ones first in case you need to rename. If you are solving 128 + 234, when you add the ones you have 8 + 4, which is 12. You can't have 12 ones in the ones place, so you rename 10 ones for 1 ten. You have 2 ones left. Now you can add the tens. 2 tens + 3 tens is 5 tens, but you also have the renamed ten, which makes 6 tens. Now you can add the hundreds. 1 hundred + 2 hundreds is 3 hundreds. So altogether, 128 + 234 = 362.	**Deepening:** The steps that Alison carries out are: 1.Pick a three-digit number 2. Reverse the digits, so write the number back to front. 3. Subtract the smaller of the two numbers from the larger one. 4. Reverse the digits of the answer you get. 5. Add the answer to its reverse. The total will always come to 1089. You can see some other solutions here.	**Deepening:** The mistake they made was when they were multiplying the tens. They solved 2 x 4 = 8, but the digit 2 in 21 doesn't stand for 2, it stands for 20. They should have solved 2 **tens** x 4, or **20** x 4, which is 80. Then they should have added 80 to 4, which is 84.	**Deepening:** What is the same is that in both calculations there are 24 groups. What is different is that you multiply 24 by different numbers, which affects how you solve them. When solving 24 x 2, when multiplying the ones, you can do 4 x 2, which is 8, and then the tens: 20 x 2 = 40. When you add them together it makes 48. When solving 24 x 4 though, when you multiply the ones, you do 4 x 4, which is 16. You can't have 16 in the ones place, so you need to rename ten ones for one ten. Then you can solve 20 x 4, which is 80. When you add them together, it makes 96 (don't forget to add the renamed ten!)	**Deepening:** The mystery number is 31. I knew because division is the inverse of multiplication. If I know that ___ groups of 3 = 93, I can split 93 into groups of 3 to find how many groups there are. I solve 93 ÷ 3 which was 31. To check I was correct, I did 31 x 3 using the formal written method and it was 93 so I was correct.

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