

# Parent Fluency Workshop Year 3 & 4



The aims of this workshop are to:

- \* Help you understand what *fluency* in Maths is.
- \* *Games* and *ideas* on how you can help your child at home to *improve* these skills.

# In Year 3

Mathematics: Place Value & 4

Operations – by the end of the year:

- Compare & order numbers up to 1000.
- Read & write all numbers to 1000 in digits and words.
- Find 10 or 100 more/less than a given number.
- Count from 0 in multiples of 4, 8, 50 and 100.
- Recall & use multiplication & division facts for 3, 4, 8 tables.
- Recognise place value of any 3-digit number.
- Add and subtract:
  - 3-digit no's and ones
  - 3-digit no's and tens
  - 3-digit no's and hundreds
- Add and subtract:
  - Numbers with up to 3-digits using written columnar method.
- Estimate and use the inverse to check.
- Multiply:
  - 2-digit by 1-digit
- Count up/down in tenths.
- Compare and order fractions with same denominator.
- Add and subtract fractions with same denominator with whole.
- Tell time using 12 and 24 hour clocks; and using Roman numerals.
- Tell time to nearest minute.
- Know number of days in each month and number of seconds in a minute.



These are all  
the skills you  
can help  
develop at  
home.

# In Year 4

## Mathematics: Place Value & 4

### Operations - by the end of the year:

- Count backwards through zero to include negative numbers.
- Compare and order numbers beyond 1,000.
- Compare and order numbers with up to 2 decimal places.
- Read Roman numerals to 100.
- Find 1,000 more/less than a given number.
- Count in multiples of 6, 7, 9, 25 and 1000.
- Recall and use multiplication and division facts all tables to  $12 \times 12$ .
- Recognise PV of any 4-digit number.
- Round any number to the nearest 10, 100 or 1,000.
- Round decimals with 1dp to nearest whole number.
- Add and subtract:
  - Numbers with up to 4-digits using written columnar method.
- Multiply:
  - 2-digit by 1-digit
  - 3-digit by 1-digit
- Count up/down in hundredths.
- Recognise and write equivalent fractions
- Add and subtract fractions with same denominator.
- Read, write and convert time between analogue and digital 12 and 24-hour clocks.



These are all the skills you can help develop at home.



*Place Value* is key to children's understanding of all aspects of Maths.

hundred thousands 100,000	ten thousands 10,000	thousands 1,000	hundreds 100	tens 10	units/ones 1	decimal point	tenths 0.1	hundredths 0.01
		4	5	6	8	.		
						.		
						.		
						.		
						.		
						.		
						.		

partitioning  
numbers into  
place value is an  
essential skill

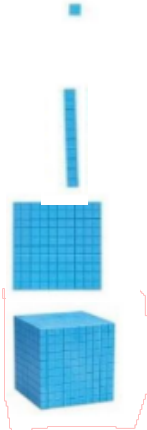


$$4\text{000} + 500 + 60 + 8 = 4568$$

*place holders*



Dienes

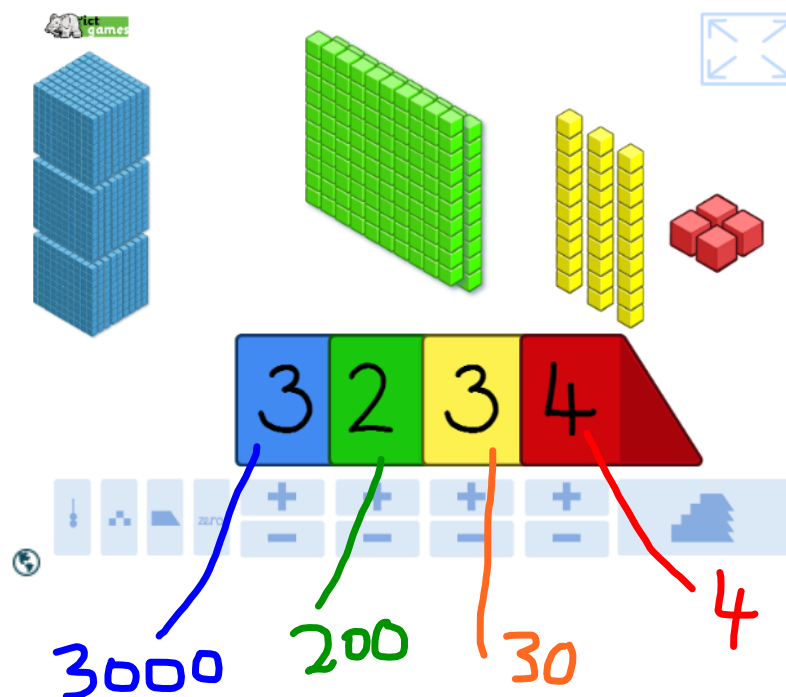


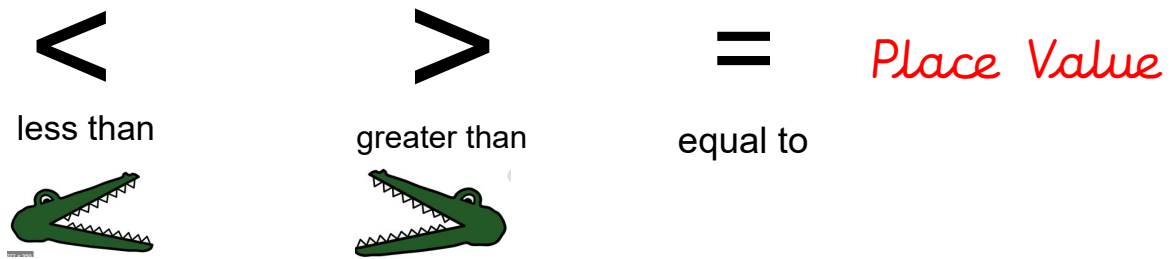
=  
=  
=  
=

Th	H	T	O
Thousands	Hundreds	Tens	Ones
			1
		1	0
	1	0	0
1	0	0	0



*Place Value* is key to children's understanding of all aspects of Maths














*Use these mathematical symbols to  
compare and talk about place value*

$$78 < 87$$

$$13 + 6 = 19 \times 1$$

$$80 + 3 + 7 > 89$$

## Using 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	CLEAR
91	92	93	94	95	96	97	98	99	100	PRINT
										MAIN

Lots of work on:

\* reading and then writing the number

\* 10 more, 10 less

\* Support with times tables

\* Counting backwards and forwards

The aim is for children to be able to visualise the number square in their minds.

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		55	56	57	58	59	60
61	62	63		65	66	67	68	69	70
71	72	73					78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

*Can you help me identify the numbers that I have covered?*

*How do you know?*

		23

	40

99	

## Challenge...

Think carefully about place value and what the rule is for each problem.

1235	
	2335

4455	
6455	6555

		1304
	3204	



Use the 100 Square to support times tables

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's special about all the numbers I have highlighted so far? What will the next 8 be in the sequence? How do you know? Can you see a pattern forming?

Who can explain it?

# Times Tables

<b>1 times table</b> $1 \times 1 = 1$ $1 \times 2 = 2$ $1 \times 3 = 3$ $1 \times 4 = 4$ $1 \times 5 = 5$ $1 \times 6 = 6$ $1 \times 7 = 7$ $1 \times 8 = 8$ $1 \times 9 = 9$ $1 \times 10 = 10$ $1 \times 11 = 11$ $1 \times 12 = 12$	<b>2 times table</b> $2 \times 1 = 2$ $2 \times 2 = 4$ $2 \times 3 = 6$ $2 \times 4 = 8$ $2 \times 5 = 10$ $2 \times 6 = 12$ $2 \times 7 = 14$ $2 \times 8 = 16$ $2 \times 9 = 18$ $2 \times 10 = 20$ $2 \times 11 = 22$ $2 \times 12 = 24$	<b>3 times table</b> $3 \times 1 = 3$ $3 \times 2 = 6$ $3 \times 3 = 9$ $3 \times 4 = 12$ $3 \times 5 = 15$ $3 \times 6 = 18$ $3 \times 7 = 21$ $3 \times 8 = 24$ $3 \times 9 = 27$ $3 \times 10 = 30$ $3 \times 11 = 33$ $3 \times 12 = 36$	<b>4 times table</b> $4 \times 1 = 4$ $4 \times 2 = 8$ $4 \times 3 = 12$ $4 \times 4 = 16$ $4 \times 5 = 20$ $4 \times 6 = 24$ $4 \times 7 = 28$ $4 \times 8 = 32$ $4 \times 9 = 36$ $4 \times 10 = 40$ $4 \times 11 = 44$ $4 \times 12 = 48$
<b>5 times table</b> $5 \times 1 = 5$ $5 \times 2 = 10$ $5 \times 3 = 15$ $5 \times 4 = 20$ $5 \times 5 = 25$ $5 \times 6 = 30$ $5 \times 7 = 35$ $5 \times 8 = 40$ $5 \times 9 = 45$ $5 \times 10 = 50$ $5 \times 11 = 55$ $5 \times 12 = 60$	<b>6 times table</b> $6 \times 1 = 6$ $6 \times 2 = 12$ $6 \times 3 = 18$ $6 \times 4 = 24$ $6 \times 5 = 30$ $6 \times 6 = 36$ $6 \times 7 = 42$ $6 \times 8 = 48$ $6 \times 9 = 54$ $6 \times 10 = 60$ $6 \times 11 = 66$ $6 \times 12 = 72$	<b>7 times table</b> $7 \times 1 = 7$ $7 \times 2 = 14$ $7 \times 3 = 21$ $7 \times 4 = 28$ $7 \times 5 = 35$ $7 \times 6 = 42$ $7 \times 7 = 49$ $7 \times 8 = 56$ $7 \times 9 = 63$ $7 \times 10 = 70$ $7 \times 11 = 77$ $7 \times 12 = 84$	<b>8 times table</b> $8 \times 1 = 8$ $8 \times 2 = 16$ $8 \times 3 = 24$ $8 \times 4 = 32$ $8 \times 5 = 40$ $8 \times 6 = 48$ $8 \times 7 = 56$ $8 \times 8 = 64$ $8 \times 9 = 72$ $8 \times 10 = 80$ $8 \times 11 = 88$ $8 \times 12 = 96$
<b>9 times table</b> $9 \times 1 = 9$ $9 \times 2 = 18$ $9 \times 3 = 27$ $9 \times 4 = 36$ $9 \times 5 = 45$ $9 \times 6 = 54$ $9 \times 7 = 63$ $9 \times 8 = 72$ $9 \times 9 = 81$ $9 \times 10 = 90$ $9 \times 11 = 99$ $9 \times 12 = 108$	<b>10 times table</b> $10 \times 1 = 10$ $10 \times 2 = 20$ $10 \times 3 = 30$ $10 \times 4 = 40$ $10 \times 5 = 50$ $10 \times 6 = 60$ $10 \times 7 = 70$ $10 \times 8 = 80$ $10 \times 9 = 90$ $10 \times 10 = 100$ $10 \times 11 = 110$ $10 \times 12 = 120$	<b>11 times table</b> $11 \times 1 = 11$ $11 \times 2 = 22$ $11 \times 3 = 33$ $11 \times 4 = 44$ $11 \times 5 = 55$ $11 \times 6 = 66$ $11 \times 7 = 77$ $11 \times 8 = 88$ $11 \times 9 = 99$ $11 \times 10 = 110$ $11 \times 11 = 121$ $11 \times 12 = 132$	<b>12 times table</b> $12 \times 1 = 12$ $12 \times 2 = 24$ $12 \times 3 = 36$ $12 \times 4 = 48$ $12 \times 5 = 60$ $12 \times 6 = 72$ $12 \times 7 = 84$ $12 \times 8 = 96$ $12 \times 9 = 108$ $12 \times 10 = 120$ $12 \times 11 = 132$ $12 \times 12 = 144$

Make times table  
memory cards.

Year 2

2, 5, 10

Year 3:

Revise Y2

3, 4, 8 and 11

Year 4

revise Y3

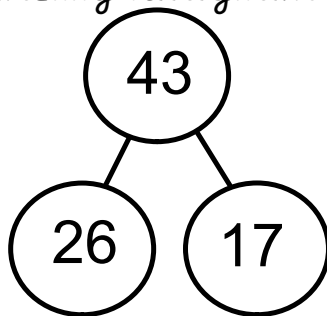
6, 7 and 9

12- through the other  
the times tables

Not just  
about  
multiplication,  
also need to  
know the  
relevant  
division facts

## Part - Whole

cherry diagram

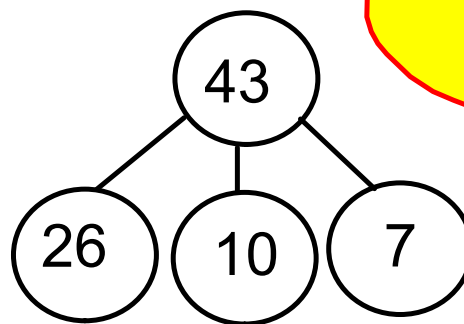


$$43 = 26 + 17$$

$$17 + 26 = 43$$

$$43 - 17 = 26$$

$$17 = 43 - 26$$



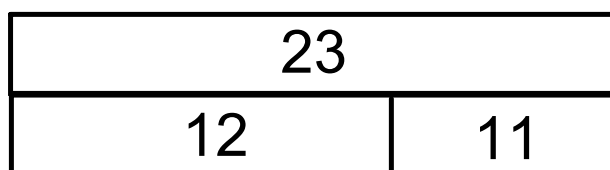
$$26 + 10 + 7 = 43$$

$$43 - 10 - 7 = 26$$

*and so many more number sentences*

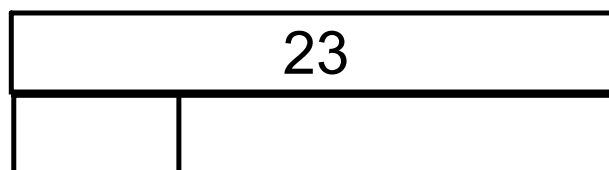
*We also support maths concepts by using visual representations*

## Bar Model

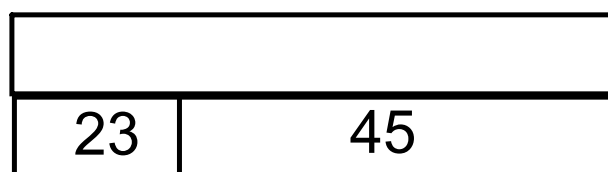


We also support  
maths concepts by  
using visual  
representations

What could the parts be now?



What is the whole? How do you know?



## *Estimation*

$$34 + 59 =$$

$$4 \times 21 =$$

$$1000 - 562 =$$

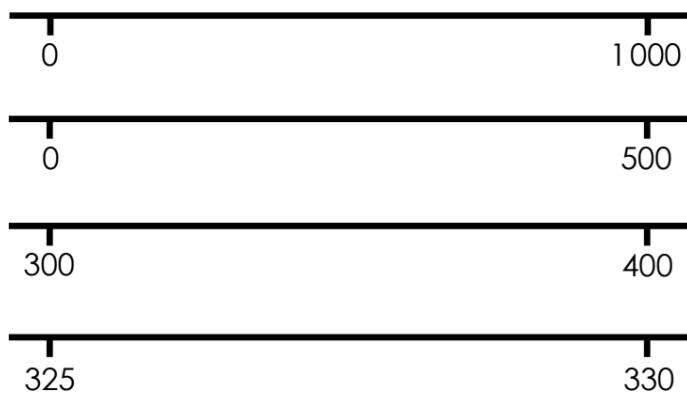
*Being able to estimate is a mathematical skill that children will be able to apply to all calculations.*

*It demonstrates their understanding of all operations.*

## Reasoning & Explanation

### Number lines

Show the position of **328** on each number line.

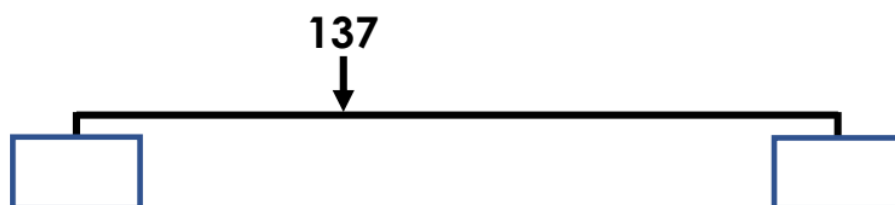


*Get children talking about what they know by applying their mathematical understanding.*

# Reasoning & Explanation

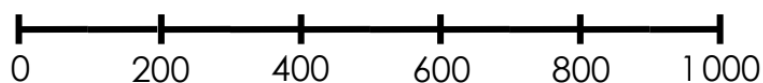
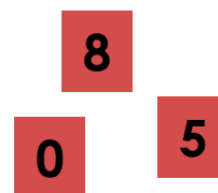
## Different ways

What could the start and end numbers be?



## Different ways

Make different 3-digit numbers using the digits 0, 5 and 8. Position your numbers accurately on the number line below:





# Reasoning & Explanation

## Investigate

--	--	--

--	--

2

Using the digits 0, 1, 2, 3 and 4 make a 3-digit number and a 2-digit number.

0

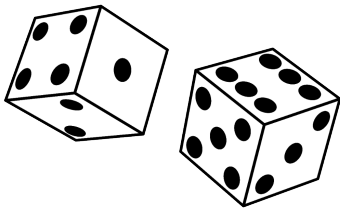
**Make the difference between the two numbers as small as possible.**

4

*You can use each digit only once.*

1

3



## MAKE IT FUN!

### Using Dice for Games

- rolling dice and asking about number bonds
- adding together
  - subtracting
  - multiplying
- 2 digits + 2 digits
- 2 digits - 2 digit
- 3 digit + 3 digit

So many ways to use and support fluency!



## Closest to 1000.

Player 1				Player 2			
+				+			
<hr/>				<hr/>			

- Each player draws the game board.
- Roll the dice - you must place it in one of the circles
- Once you have rolled 6 times - add up the scores. Closest to 1000 wins.

Extend by creating three 3 digit numbers:

Closest to 1000.			
+			

## Multiple Madness

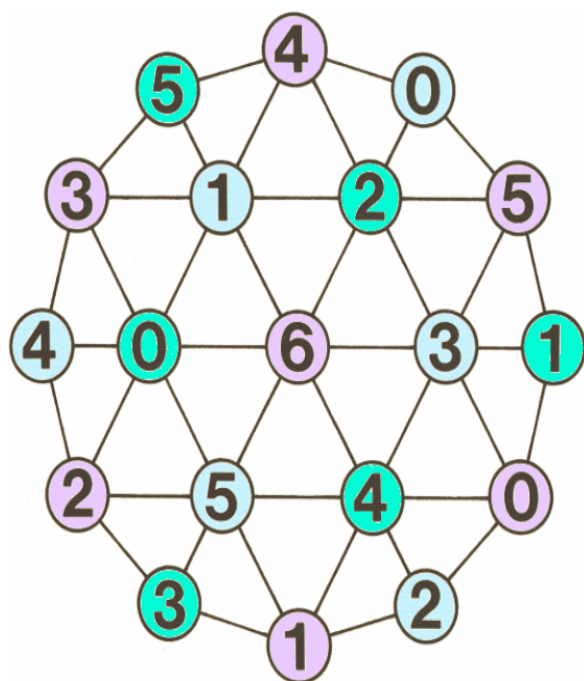
### Rules / Instructions:

- \* Before the game decide on a times table to use, for example: 4 times tables
- \* Use a 1-100 Square
- \* Each player chooses a counter
- \* Take it in turns to roll the dice and move the counter along the 100 Square, for example if you roll 7, move 7 spaces.
- \* When a player lands on a number from the chosen times table, then they get another turn.
- \* The winner is the first to pass 100 - you can change this according to the times tables / child's confidence in identifying multiples.

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



**Totality**



## Rules / Instructions:

- 2 players & 1 counter
- Choose a target number, for example 24
- Start at 0
- Each player moves the counter and mentally adds -one at a time. *If it helps to jot down the answers, that's fine*
- The aim of the game is to NOT be the person who gets over that total.
- *This game can be played with subtraction too, start with 24 and subtract. First person who gets to 0 or below is out!*

# DOUBLING DICE



Aim: I can DOUBLE numbers

## What you need:

- 2 players.
- 20-sided dice.  $\longrightarrow$  or use 1-20 cards
- 2 sets of different colour counters.

## What to do:

- 1) Take turns to throw the dice and double the number thrown.
- 2) Cover the answer on the grid.
- 3) The winner is the person who covers the most squares.

2	40	20	8	32	24	12
24	38	18	36	30	2	36
30	22	12	20	16	16	10
14	40	34	6	14	4	12
28	16	6	14	28	10	22
26	2	20	4	26	6	8
4	38	18	8	32	34	10

## An example of how we use dice games to support learning objectives...

Tuesday 1st October 2019

L.I. To compare and order numbers up to 1000

L.I. To solve a problem by finding all the possibilities

Independent	/	Guided T	/	Guided TA	/	Paired	/	Group
Self-Assessment & Marking	/	Conferencing I-I	/	Paired Marking				
* I can work systematically to solve a problem								😊 😊
* I can use a strategy to find all the possibilities for a problem								😊 😊
* I can order numbers up to 1000								😊 😊

Roll your dice three times.

How many different three digit numbers can you make with your three digits?

NEXT, put all the numbers you've made in order from smallest to largest.

Repeat these steps!

Think about the strategies you are using to find all the possibilities each time.

This can be modified to 2 digit numbers or 4 digit numbers



*Same game, adjusted for Y4*

## High Number

Player 1

--	--	--	--

Player 2

--	--	--	--

*Find a partner and draw a set of boxes on your whiteboards as above.*

*Take turns to throw the dice and decide which of your four boxes to fill. Do this four times until your boxes are full.*

*Whoever has the biggest number gets a point. Then repeat.*

# ADDITION

Key Vocabulary:

add addition and plus count on more  
increase makes sum total altogether

Year 2 & 3

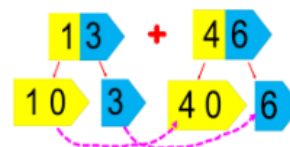
## Column partitioning

Partitioning both numbers into tens and ones where ones are placed under ones and tens under tens to prepare children for formal columnar methods.

$$13 + 46 = 10 + 3$$

$$40 + 6$$

$$50 + 9 = 59$$



Year 3

## Expanded column method

adding the ones first, then tens, then the hundreds

$$67$$

$$+43$$

$$10 (7+3)$$

$$100 (60+40)$$

$$110$$



$$126$$

$$+54$$

$$10 (6+4)$$

$$70 (20+50)$$

$$100 (100+0)$$

$$180$$

- continue to use in Y4

Use expanded column method when adding money, beginning with decimals that require no carrying and then move onto carrying the tenths or hundredths only

$$£ 2.50$$

$$+£ 1.75$$

$$5 (5p + 0p)$$

$$£ 1.20 (50p + 70p)$$

$$£ 3.00 (£2.00 + £1.00)$$

$$£ 4.25$$

# Year 4

<p><u>Compact column method without carrying</u></p> <p>Children add from least significant number without carrying</p>	<div style="text-align: center;"> <p>H T O</p> <p>↓ ↓ ↓</p> <p>3 4 2</p> <p>+ 5 7</p> <hr/> <p>3 9 9</p> </div>
<p><u>Compact column method, carrying below the line (ONES only)</u></p>	<div style="text-align: center;"> <p>H T O</p> <p>↓ ↓ ↓</p> <p>6 2 5</p> <p>+ 4 8</p> <hr/> <p>6 7 3</p> <p>1</p> </div>

Add the ones first, then the tens and lastly, the hundreds

Children will begin with carrying only the ones below the line.  $5+8 = 13$ . Record the 3 in the ones column, carrying the 1 ten.

Reminders...

*Interactive Resources*

username: primrose

password: primrosehill

*Google Classroom*

Home Learning Activities

*Maths Frame*

- free for times

table practice





*Thank you for  
coming!*

*Questions?*