Parents' Information Booklet on the Teaching of Mathematics in Ashbourne CNS

1st and 2nd Class

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Introduction

The Numeracy Committee have compiled the information in this booklet to assist you and your child/ren when supporting their learning in mathematics in primary school. The booklet aims to simplify how Number is taught in Ashbourne CNS, and to clarify the methods, strategies and language that the staff of Ashbourne CNS employ to teach adding, subtracting, multiplying and dividing.

What is included in the booklet?

1. Simple instructions with visual examples and video links for each of the four operations.
2. Links to websites so that you and your child/ren can practise key concepts that are being taught in class in a fun and interactive way at home. These websites have been collated according to class level of the pupil. Please note that games from class streams above or below may also be accessed depending on the ability of your child.
3. A list of maths vocabulary that the children are using for each topic of maths. These lists may be very useful to you and your child/ren when they are learning a new concept in maths. As you will notice the language gets progressively more difficult as the children move up the school, so it is imperative that they have a good understanding of maths vocabulary at every stage in their development to facilitate them in solving word problems in mathematics.

The Numeracy Committee hope that you find the information contained in this booklet practical and useful. If you have any further questions in relation to the teaching of mathematics, please contact your child/ren's class teacher.

1. First and Second Class

1. Maths Approaches to Teaching Number

First Class
- Doubles up to 10 + 10
- Number bonds of ten (combinations of 2 numbers that make 10)
- Number stories – Example: the story of 7 is all the ways we can add two numbers to make 7 or subtract a number from 7 (5+2 = 7 2+ 5 = 7 7 – 1 = 6, 7 - 2 = 5 etc.)

Second Class
- Number bonds of ten
- Doubles
- Near Doubles (I know 5 + 5 = 10 so therefore 4 + 5 = 9)
- Adding 10
- Skip Counting by 2s, 3s, 5s, 10s

Operations: Addition/Subtraction

First Class
- Counting up/counting on from bigger number
- Counting back/down to a smaller number
- Using number lines and 20 frames as tools to add and subtract
- Introduction to Place Value: Adding and subtracting tens and units. We use the column method to add and subtract. Sometimes they are called "tens and units houses".
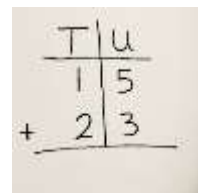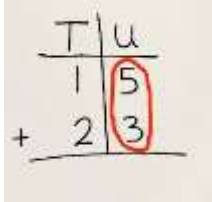
Second Class
- Using number lines and 100 squares as tools to add and subtract.
- Using mental strategies to add and subtract more efficiently. Knowing number facts automatically is necessary for this to be efficient. (Example: Using number facts such as number bonds of 10, doubles and near doubles.)
- Place Value: Adding and subtracting tens and units. We use the column method to add and subtract. Sometimes they are called "tens and units houses".
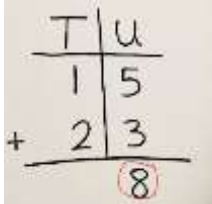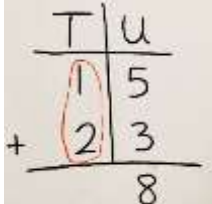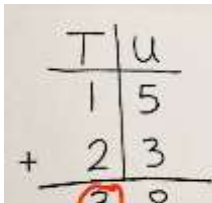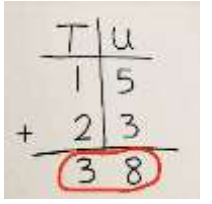
Place Value addition- The column method
Addition without regrouping (When the units add up to 9 or less). This is a link to a video showing Addition without regrouping on the Khan Academy website

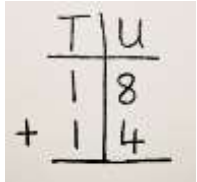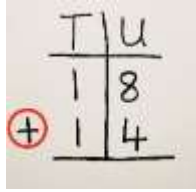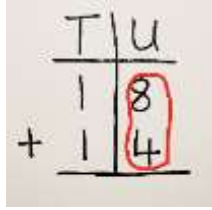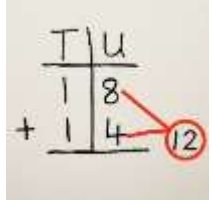|	
Step 1. Draw a tens column (T) and a units column (U) (or a tens house and a units house). Insert the numbers to be added - 15 + 23	
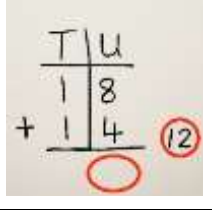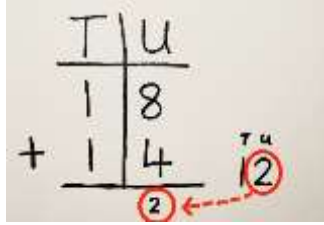
Step 2. Check to see if the problem is addition or subtraction.	
Step 3. We always start with the units.	
Step 4. Add the digits in the units together. 5 + 3 is 8. Write the answer under the units.	
Step 5. Now we are finished with the units, so we move to the tens. We add the digits in the tens.	
Step 6. One ten plus 2 tens is 3 tens. We write 3 tens under the tens.	
Step 7. Our answer is 3 tens and 8 units. 38 15 + 23 = 38	

Addition with regrouping (When the units add up to a number greater than 9)
This is a link to a video on Addition with regrouping on the Khan Academywebsite

Step 1. Draw a tens column (T) and a units column (U). Insert the numbers to be added. - 18 + 14	

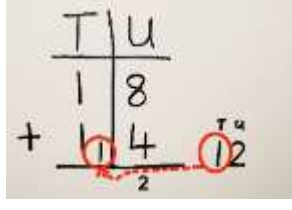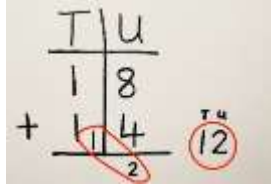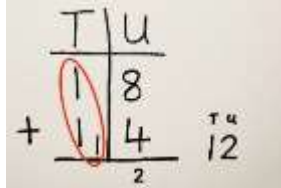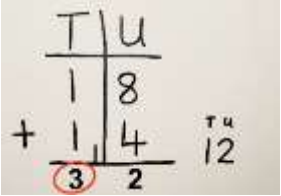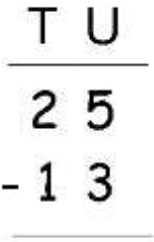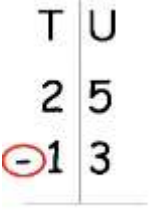|	
Step 2. Check to see if the problem is addition or subtraction.	
Step 3. We always start with the units.	
Step 4. Add the digits in the units together. 8+4 is 12	
I only have space for 1 digit, and I remember that numbers bigger than 9 can't stay in the units house. 12 is too big.	
Step 5. The number 12 is made up of tens and units. T U 1 2 I'm going to put my 2 down under the units because 2 is a unit	
and I will bring my 1 and put it over with the tens because it is a ten.	
Check that my number still looks like a 12.	
Step 6. Now we are finished with the units, so we move to the tens. We add the digits in the tens. One ten plus one ten is two tens. We also have to add the one ten we brought over which makes 3 tens altogether.	
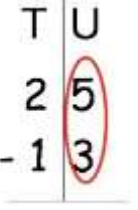
Write 3 tens under the tens side.	
Step 7. Our answer is 3 tens and 2 units. 32	18 + 14 = 32

Subtraction

Place Value Subtraction - The column method
Subtraction without renaming (When the units to be subtracted are smaller than the units we have.)
This is a link to a video of Subtraction without renaming on the Khan Academy website

Step 1. Draw a tens column (T) and a units column (U) (or a tens house and a units house). 25 - 13 Insert the numbers of the problem to be solved. The number you "have" 25 always goes on the top and the number you are "taking away" 13 always goes on the bottom (or the floor of the house).	
Step 2. Check to see if the problem is addition or subtraction.	
Step 3. We always start with the units. We look at the number we have on the top. We have 5 and we look to see what we need to subtract or take away. We want to subtract 3.	

Step 4. We think of the rhyme **"More on the top no need to stop, more on the floor go next door".** Is there more on the top? Is 5 more than 3? Yes, so there is no need to stop. Continue to subtract. **5 - 3 is 2.** Write the answer under the units.	T U 2 5 - 1 3 ⊙2
Step 5. Now we are finished with the units, so we move to the tens. We have 2 tens on the top and we take away 1 ten. 2 tens take away 1 ten leaves us with 1 ten. We write 1 ten under the tens house.	T U ②5 -①3 ①2
Step 6. Our answer is 1 ten and 2 units. 12	25 - 13 = 12

Subtraction with renaming (When the units to be subtracted are greater than the units we have.)
This is a link to Subtraction with renaming on the Khan Academy website.

Step 1. Draw a tens column (T) and a units column (U) (or a tens house and a units house). Insert the numbers of the problem to be solved - **35 - 16** The number you "have", 35, always goes on the top and the number you are "taking away", 16, always goes on the bottom (or the floor of the house).	T U 3 5 - 1 6
Step 2. Check to see if the problem is addition or subtraction.	T U 3 5 ⊖1 6

Step 3. We always start with the units. We look at the number we have on the top. We have 5 and we look to see what we need to subtract or take away. We want to subtract 6. We think of the rhyme **"More on the top no need to stop, more on the floor go next door".** Is there more on the top? Is 5 more than 6? No, so we stop. We cannot take away 6 from 5 because it is bigger. We must go next door to the tens.	T U 3 ⑤ - 1 ⑥ T U 3 ⑤̶ - 1 6
Step 4. We go to the tens (house). We take one of the tens and bring it over to the units. We put it right here next to the 5. Now instead of having 5, we have a ten and a five, which is 15.	T U 3 ¹5 - 1 6
We have to remember to rename the tens. We took one ten to the units house, so we have to show that by changing the 3 to a 2. We have only 2 tens left in the tens house.	T U 2̶3̶ ⑮ - 1 6
Step 5. Now let's say our rhyme again. **More on the top no need to stop.** Is 15 more than 6? Yes, so we can take 6 away from 15. 15 - 6 is 9. We write our answer 9 under the units.	T U 2̶3̶ ⑮ - 1 6 9
Step 6. Now we are finished with the units, so we move to the tens. We have 2 tens on the top and we need to take away 1 ten. **2 - 1 = 1** We write 1 ten under the tens.	T U 2̶3̶ ¹5 - 1 6 ① 9
Step 7. Our answer is 1 ten and 9 units. 19	35 - 16

2.Recommended Websites

First/ Second Class
https://www.topmarks.co.uk/Search.aspx?Subject=16
http://www.math-drills.com
https://www.ictgames.com/mobilePage/index.html
https://www.jmathpage.com/wpjmp/
http://www.ict.mic.ul.ie/maths.html
www.mathfactcafe.com
http://www.math-aids.com/
http://www.worksheetworks.com/math.html
https://www.senteacher.org/printables/mathematics/
http://nces.ed.gov/nceskids/createagraph/default.aspx
http://www.superkids.com/aweb/tools/math/
http://www.homeschoolmath.net/worksheets/
http://www.aplusmath.com/Worksheets/index.html
http://themathworksheetsite.com/
https://nrich.maths.org/10334
https://www.haveyougotmathseyes.com/
https://ttrockstars.com/page/interactivetools
https://www.arcademics.com/
http://www.xtramath.org/

3. Maths Vocabulary

First Class	Second Class
Strand: Number	*Strand: Number*
Place Value	**Place Value**
- count on - hundred square - columns - rows - tens - units - place value - number frames - greater than - less than - equal to - the same as - Even - odd	- count on - hundred square - columns - rows - tens - units - place value - number frames - greater than - less than - equal to - the same as - Even - odd

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Addition

- number line
- jumps
- count up
- total
- altogether
- Addition house
- place value
- regroup
- carry

Subtraction

- count back
- minus
- difference
- take away,
- "More on top? No need to stop. More on the floor? Go next door."

Fractions
- Half
- Sets
- Divide equally
- Partition
- Same amount
- Numbers – 0-20

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Addition

- number line
- jumps
- count up
- total
- altogether
- Addition house
- place value
- regroup
- carry

Subtraction

- count back
- minus
- difference
- take away,
- "More on top? No need to stop. More on the floor? Go next door."

Fractions
- Half
- Quarter
- Divide equally
- Partition
- Same amount
- Sets
- Numbers – 0-20

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Strand: Algebra	*Strand: Algebra*

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Extending and Using Patterns

- pattern
- skip counting
- what comes next
- what comes next in the pattern
- what comes next in the sequence
- What's missing?

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Extending and Using Patterns

- pattern
- skip counting
- what comes next
- what comes next in the pattern
- what comes next in the sequence
- What's missing?

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Strand: Shape and Space	*Strand: Shape and Space*

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Spatial Awareness

- Between
- Underneath
- on top of
- around
- through

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Spatial Awareness

- Between
- Underneath
- on top of
- around
- through

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- left - right - direction - left - right - forwards - backwards **2D shapes** - Shape names – square, rectangle, triangle, circle, semicircle - Number of sides - number of corners - lines of symmetry - regular and irregular polygon - half **3D Shapes** - shape names – cuboid, cube, sphere, cylinder - Number of sides - number of corners - lines of symmetry - faces	- left - right - direction - left - right - forwards - backwards - half turn - quarter turn - full turn - straight **2D shapes** - Shape names – square, rectangle, triangle, circle, semicircle - Number of sides - number of corners - lines of symmetry - regular and irregular polygon - half **3D Shapes** - shape names – cuboid, cube, sphere, cylinder - Number of sides - number of corners - lines of symmetry - faces **Angles** - left - right - clockwise - anti-clockwise - turn - half turn - quarter turn
Strand: Measures	*Strand: Measures*
Time - Calendar - days of the week - weeks - months - years - daytime - clocks	**Time** - Calendar - days of the week - weeks - months - years - daytime - clocks

- analogue
- digital
- hour
- half hour
- quarter to/past
- Minute
- Hour
- second hands
- Small/big hands.
- night-time
- left
- right
- clockwise
- anti-clockwise
- turn
- half turn
- quarter turn

Length

- lollipop sticks
- pencils
- spans
- strides
- metres (m)
- big, bigger, biggest
- small, smaller, smallest

Weight
- Bucket Balance
- heavy, heavier, heaviest
- light, lighter, lightest

Capacity
- pour
- fill
- holds more, less or the same amount as
- Empty
- Full
- half full
- half empty
- litre (l)
- container

Money

- Euro (€)
- Cent (c)
- 5c, 10c, 20, 50c
- Coins

- analogue
- digital
- hour
- half hour
- quarter to/past
- Minute
- Hour
- second hands
- Small/big hands.
- night-time

Length

- lollipop sticks
- pencils
- spans
- strides
- metres (m)
- centimetres (cm)
- big, bigger, biggest
- small, smaller, smallest
- tall, taller, tallest
- short, shorter, shortest

Area

- Playing cards
- Copies
- Books
- Most suitable
- Least suitable
- Estimate
- Measure
- Record
- result

Weight
- Bucket Balance
- Weights
- Scale
- heavy, heavier, heaviest
- light, lighter, lightest

Capacity
- pour
- fill
- holds more, less or the same amount as
- Empty
- Full
- half full

• Copper, gold • Big • Small • Value • worth • Change • How much? • Cost	• half empty • litre (l) • container **Money** • Euro (€) • Cent (c) • 5c, 10c, 20, 50c • Coins • Copper, gold • Big • Small • Value • worth • Change • How much? • Cost
Strand: Data	*Strand: Data*
Representing and interpreting data • Bar graph • bar chart • tally • survey • more than • less than • equal to	**Representing and interpreting data** • Bar graph • bar chart • tally • survey • more than • less than • equal to