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

3rd & 4th 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.

Third and Fourth Class

3.1 Maths Approaches to Teaching Number

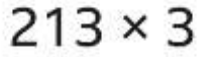
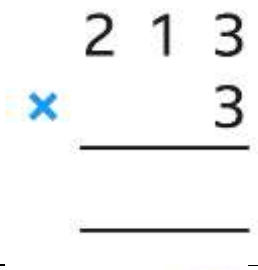
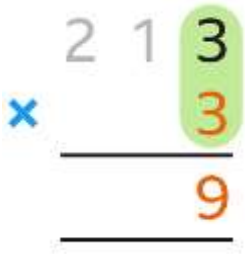
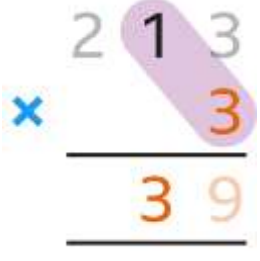
Short multiplication is a method using columns to set out and calculate a multiplication.

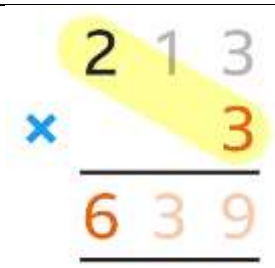
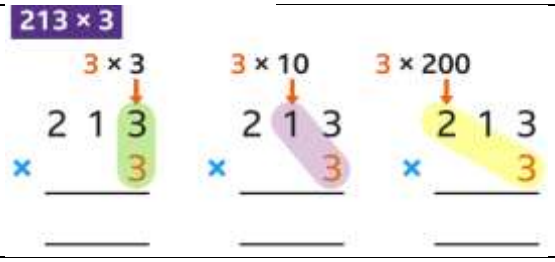
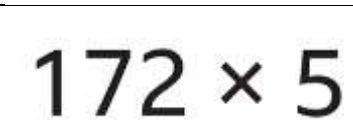
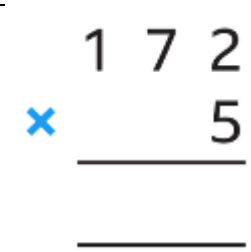
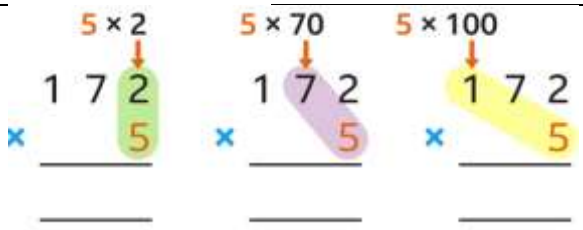
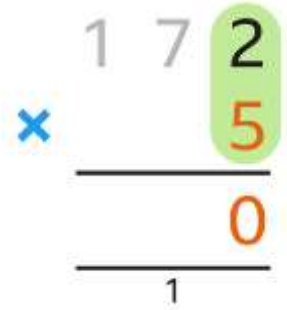
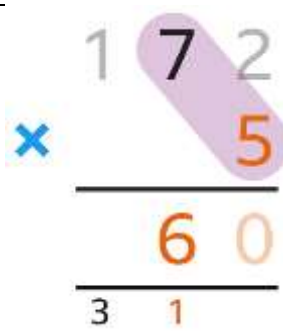
Short multiplication is an extension of times-tables and enables a faster solution to a problem than repeated addition.

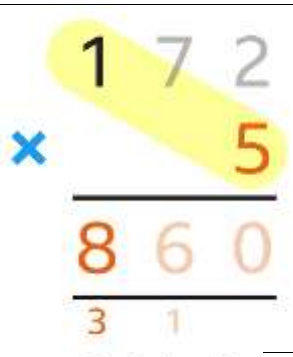
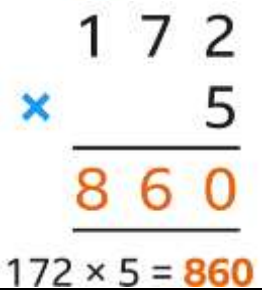
To use the short multiplication method, you need to be able to recall times-tables up to 9 x 9 and be confident in adding any carried digits in your working.

In short multiplication the answer is built up as each individual product is calculated.

https://www.khanacademy.org/math/arithmetic-home/multiply-divide/multi-digit-mult/v/2-digit-times-1-digit-example-no-carrying This is a short video outlining the method described below.

Example of multiplication without carrying	
To set out the calculation, list 213 and 3 vertically and make sure the digits are aligned to the right. Write the multiplication operator and draw the answer space.	
Each digit in 213 must be multiplied by 3. Begin in the smallest value column, in this case the units column. 3 x 3 (3 x 3 units) Insert your answer directly underneath the relevant column.	
Now work out 3 x 1 ten. 3 x 10 is 30. Write 3 in the tens column in the answer space. 3 x 1 (3 x 1 ten)	

Now work out 3 x 2 hundreds. 3 x 200 is 600. Write 6 in the hundreds column in the answer space. In short multiplication the answer is built up as each individual product is calculated.	
The working is complete. Write the answer clearly. 213 x 3 = 639	
However, if the answer to any of the above steps is greater than 10, you must carry. Here is an example of this.	
List 172 and 5 vertically aligned to the right. Write the multiplication operator and draw the answer space.	
Each digit in 172 must be multiplied by 5. 5 x 2 (5 x 2 units), 5 x 7 (5 x 7 tens) and 5 x 1 (5 x 1 hundred). In short multiplication the answer is built up as each individual product is calculated.	
Start with 5 x 2. 5 x 2 is 10. Write 0 aligned to the right in the answer space and carry the 1 to the tens column.	
Now work out 5 x 7 tens. 5 x 70 is 350, add the carried 1 ten to give 360. Write 6 in the tens column in the answer space and carry the 3 hundreds to the hundreds column.	

Now work out 5 x 1 hundred. 5 x 100 is 500, add the carried 3 hundreds to make 800. Write 8 in the hundreds column in the answer space.	
The working is complete. Write the answer clearly. 172 x 5 = 860	

Short division

Short division is also known as the bus stop method and is often used to divide large numbers.

Division is sharing things out or working out how many times one number goes into another. Division is the inverse of multiplication.

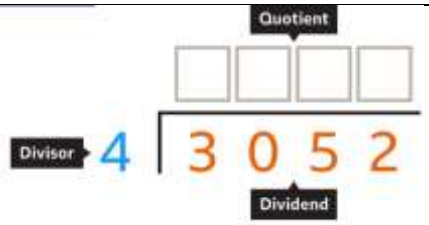
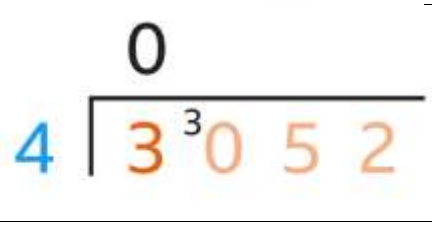
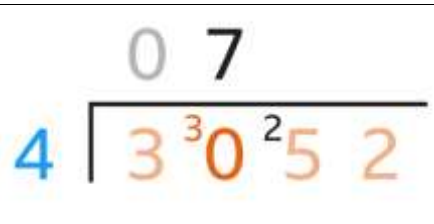
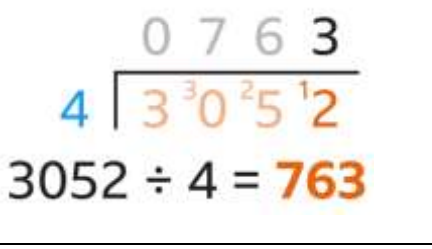
When doing short division, it can be useful to know your times tables. It is also important to be able to work out remainders if values do not divide exactly.

In the calculation 36 ÷ 3 = 12, 36 is the dividend, 3 is the divisor and the quotient is 12

If a digit in the answer is recurring it can be shown in the answer with a dot above the repeating digit.

https://www.khanacademy.org/math/arithmetic-home/multiply-divide/remainders/v/long-division-with-remainder-example

An example of using short division, or the 'Bus Stop' method of division. This example includes remainders	3052 ÷ 4

To begin, layout your division question like so. The “Dividend” is written underneath a bus stop shaped line. The “divisor” is written to the left-hand side, with room for the “quotient” or answer on the top.	
Start with 3 ÷ 4. 3 ÷ 4 is 0 remainder 3. Write 0 above the 3 and carry the remainder 3 to the next digit to give 30	
30 ÷ 4 is 7 remainder 2. Write the 7 above the 0 and carry the remainder 2 to the next digit to give 25	
25 ÷ 4 is 6 remainder 1. Write the 6 above the 5 and carry the remainder 1 to the next digit to give 12	
12 ÷ 4 is 3. Write the 3 above the 2. There is no remainder, so the calculation is complete. The first digit of the answer is 7. Write out the answer clearly. 3052 ÷ 4 = 763	

3.2 Recommended Websites

Third and Fourth 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/
https://lichess.org/
https://ec.europa.eu/programmes/erasmus-plus/project-result-content/0c2dbd0a-9ddd-45cd-950c-0edbbe848894/50%20Chess%20and%20Mathematics%20Exercises%20CHAMPS%20Final.pdf

3.3 Maths Vocabulary

Third Class	**Fourth Class**
Strand: Number	***Strand: Number***
Place Value • Hundreds • tens • units • digit • cubes • lollipop sticks • loose • placeholder • count • match • after • before • between • less than • more than • odd • even • rows • columns • count forwards • row • column • vertically • horizontally • diagonally • round up/down **Addition** • estimate	**Place Value** • Thousands • Hundreds • tens • units • groups of • sets of • bundles of • cubes • lollipop sticks • loose • placeholder • count • match • after • before • between • less than • more than • odd • even • row/s • column/s • vertically • horizontally • diagonally • round up/down • value • digit **Addition**

• equals • teens • plus • add one more • swap • addition sentence • regroup • and • altogether • plus • together • total • counting on • add • show most • total amount • total cost • value • more **Subtraction** • Estimate • take away • count backwards • hundreds/tens/units house • subtraction sentence • exchange • show least • digits • estimate • represents • less • swap • rename • change • stay the same • spent • left **Multiplication** • Multiply • multiplication symbol (x) • multiple/multiples • double • near double • two for the price of one • buy one, get one free (commutative property), bigger/greater than	• equals • teens • plus • add one more • count forwards • hundreds/tens/units house • swap • regroup • add • show most • and • altogether • plus • together • total • counting on • more • total cost/centimetres cm/meters m • total amount **Subtraction** • take away • count backwards • exchange • show least • digits • estimate • represents • change • stay the same • less • swap • rename • spent • left **Multiplication** • Squared • Multiply • multiplication symbol (x) • multiple/multiples • double • near double • two for the price of one • factor • multiple

• repeated addition • multiplication sentence • product • groups of • sets of • bundles of **Division** • Division • division symbol (÷) • inverse • repeated subtraction • division sentence • smaller than • less than • grid • pattern • list **Fractions** • Half • Quarter • Eighth • Fraction • fraction wall • part • bit • piece • whole • whole amount • set • equal amounts • not equal • circle • bigger • less than • greater than • the same as • divide • cut • match • pair • colour • shapes • draw • altogether • biggest	• buy one, get one free (commutative property) • bigger/greater than • repeated addition • addition/multiplication sentence • product **Division** • Division • division symbol (÷) • inverse • repeated subtraction • division sentence • smaller than • less than • grid • pattern • list • combine • common factors • short division • remainder • prime number **Fractions** • half • quarter • eighth • fraction • fraction wall • equal part/bit/piece • whole • whole amount • set • equal amounts • not equal • circle • bigger • less than • greater than • the same as • divide • cut • match • pair • colour • shapes • draw

• smallest **<u>Decimal Fractions</u>** • Decimals • Metre • decimal number • decimal fraction • bigger • smaller • unit • tenth • hundredth • equal part • odd one out • whole numbers • decimal point • value of digits • placeholder • centimetre	• altogether • biggest • smallest • numerator • denominator • improper fraction **<u>Decimal Fractions</u>** • Decimals • Metre • decimal point • decimal fraction • bigger • smaller • unit • tenth • hundredth • equal part • odd one out • whole numbers • value of digits • placeholder • rectangles • centimetre • millimetre • decimal place
Strand: Algebra	***Strand: Algebra***
<u>Number Pattern and Sequences</u> • Pattern • repeating pattern • core sequence • term • rule • growing patterns • increasing sequence • shrinking patterns • decreasing sequence • odd • even • multiple • number sentence • word problem • bar model • number bond	**<u>Number Pattern and Sequences</u>** • Pattern • repeating pattern • core sequence • term • rule • growing patterns • increasing sequence • shrinking patterns • decreasing sequence • odd • even • multiple • number sentence • word problem • bar model • number bond
Strand: Shape and Space	***Strand: Shape and Space***
<u>2D Shapes</u>	**<u>2D Shapes</u>**

• Shape • Circle • Square • Rectangle • Oval • semi-circle • flat • dimension • regular • irregular • straight • sides • angles • symmetry • hexagon • four-sided • less than • greater than • parallel • tesselate • curved **3D shapes** • Cuboid • Sphere • Cube • Cylinder • Pyramid • triangular prism • cone • stack • roll • edges • corners • sides • curved edges • 3-Dshapes • nets • construct • different • same • symmetrical • half • fold • exact same **Symmetry**	• 2 Dimensional – 2D • Shape • Circle • Square • Rectangle • Oval • semi-circle • flat • dimension • regular • irregular • straight • sides • angles • symmetry • hexagon • four-sided • less • greater • parallel • tesselate • curved **3D Shapes** • 3 Dimensional - 3D • Cuboid • Sphere • Cube • Cylinder • Pyramid • triangular prism • cone • stack • roll • edges • corners • sides • curved edges • 2-D shapes • nets • construct • difference/different • same **Symmetry** • Symmetrical • Half

• line of symmetry • patterns • squares • shapes **Lines and Angles** • vertical • horizontal • diagonal • same length • direction • position • parallel lines • never meet • straight lines • right angles	• Fold • exact same • line of symmetry • patterns • squares • shapes **Lines and Angles** • Lines • Vertical • Horizontal • Diagonal • same length • direction • position • parallel lines • never meet • angles • straight lines • right angles
Strand: Measures	***Strand: Measures***
Time • Hour • half-hour • past • quarter past/to • minutes • five-minute intervals • What time is it? • Before • After • Early • Earlier • Late • Later • long/shorthand • clock face • digital form • middle • timetable • calendar • months • weeks • important dates • diary **Money**	**Time** • Hour • half-hour • past • quarter past/to • minutes • five-minute intervals • What time is it? • Before • After • Early • Earlier • Late • Later • long/shorthand • clock face • digital form • middle • timetable • calendar • months • weeks • important dates • diary • time conversions

- counting money
- euro (€)
- decimal point
- €1
- €2
- Coins
- €5 note
- Equal
- the same amount as
- blank
- least amount
- amounts
- different ways
- bought
- cost
- more
- cent (c)
- how much change?
- I had
- Spent
- Left
- Between
- Items

Weight

- Kilogramme (kg)
- Gramme (g)
- more than
- less than
- about
- balance
- estimate
- weight
- measure
- weighing scales
- digital
- ½kg, ¼kg, ¾kg
- Heaviest
- Lightest
- Total
- Heavier
- Lighter
- Addition
- Subtraction
- Add
- Subtract
- Weighs

- fortnight
- decade
- century
- millennium

Money

- counting money
- euro
- €1
- €2
- Coins
- €5 note
- Equal
- the same amount as
- blank
- least number
- amounts
- different ways
- bought
- cost
- more
- cent
- how much change?
- I had
- spent
- left
- between
- items
- currency

Weight

- Kilogram (kg)
- Gram (g)
- more than
- less than
- about
- balance
- estimate
- weight
- measure
- weighing scales
- digital
- ½kg, ¼kg, ¾kg
- Heaviest
- Lightest
- Total
- Heavier

• Cent • Euro **Area** • surface • squares • circles • shapes • pair **Capacity** • litres (l) • containers • more than • about • less than • liquid • estimate • measure • ½l, ¼,l ¾l • total • millilitres(ml) • least • most	• Lighter • Addition • Subtraction • Add • Subtract • Weighs • Cent • Euro **Area** • area • surface • squares • circles • shapes • pair • depth **Capacity** • capacity • litres (l) • containers • more than • about • less than • liquid • estimate • measure • ½l, ¼l, ¾l • total • millilitres • least • most • perimeter • area • volume
Strand: Data	***Strand: Data***
Representing and Interpreting Data • Survey • Pictogram • Favourite • Prefer • Least • More • Fewer • Fraction	**Representing and Interpreting Data** • graph • survey • pictogram • favourite • prefer • least • more • fewer

• Altogether • block graph • popular • twice • half • tally • bar chart • scale • small • big • data • information • represent • bar graph **<u>Chance</u>** • Certain • Possible • Impossible • Might • not sure • likely • unlikely • very likely • most • least • hearts • diamonds • clubs • spades • dice	• fraction • altogether • block graph • popular • twice • half • tally • bar chart • scale • small • big • data • information • represent • bar graph • compare • sum • difference • timetables • change • increase • decrease **<u>Chance</u>** • certain • possible • impossible • might • not sure • likely • unlikely • very likely • most • least • hearts • diamonds • clubs • spades