

Irish Mathematics JI-Jnr Cert. National Curriculum Outcomes  
Addressed Within Numbers Up! 2 Baggin' the Dragon



**Curriculum**

Age	Level	Curriculum Level	National Curriculum Objectives
4-5	1	JI	<p><b>Early mathematical activities</b>                      Classifying                      &gt;classify objects on the basis of one attribute such as colour, shape, texture or size                      &gt;identify complements of a set (i.e. elements not in a set)</p> <p><b>Matching</b>                      &gt;match equivalent and non-equivalent sets using one-to-one correspondence</p> <p><b>Comparing</b>                      &gt;compare objects according to length, width, height, weight, quantity, thickness or size                      &gt;compare sets without counting</p> <p><b>Ordering</b>                      &gt;order objects according to length or height                      &gt;order sets without counting</p> <p><b>Algebra</b>                      &gt;identify, copy and extend patterns in colour, shape and size</p> <p><b>Spatial Awareness</b>                      &gt;explore, discuss, develop and use the vocabulary of spatial relations</p> <p><b>3-D shapes</b>                      &gt;sort 3-D shapes, regular and irregular                      &gt;solve tasks and problems involving shape</p> <p><b>2-D shapes</b>                      &gt;sort and name 2-D shapes: square, circle, triangle, rectangle                      &gt;solve problems involving shape</p> <p><b>Length</b>                      &gt;develop an understanding of the concept of length through exploration and the use of appropriate vocabulary                      &gt;compare and order objects according to length or height</p> <p><b>Weight</b>                      &gt;develop an understanding of the concept of weight through exploration and the use of appropriate vocabulary                      &gt;compare objects according to weight</p> <p><b>Capacity</b>                      &gt;develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary                      &gt;compare containers according to capacity</p> <p><b>Time</b>                      &gt;develop an understanding of the concept of time through the use of appropriate vocabulary                      &gt;sequence daily events or stages in a story</p> <p><b>Data</b>                      &gt;sort and classify sets of objects by one criterion                      &gt;match sets, equal and unequal                      &gt;represent and interpret a set of simple mathematical data using real objects, models and pictures</p>
6-7	2-3	1st & 2nd Class	<p><b>Algebra</b>                      &gt;recognise pattern, including odd and even numbers                      &gt;explore and use patterns in addition facts                      &gt;understand the use of a frame to show the presence of an unknown number</p> <p><b>Spatial Awareness</b>                      &gt;explore, discuss, develop and use the vocabulary of spatial relations</p>

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			<p>&gt;give and follow simple directions within classroom and school settings</p> <p><b>2-D shapes</b></p> <p>&gt;sort and name 2-D shapes: square, circle, semicircle, triangle, rectangle</p> <p>&gt;combine and partition 2-D shapes</p> <p>&gt;identify halves of 2-D shapes</p> <p>&gt;identify and discuss the use of 2-D shapes in the environment</p> <p><b>3-D shapes</b></p> <p>&gt;describe, compare and name 3-D shapes, including cube, cuboid, cylinder and sphere</p> <p>&gt;discuss the use of 3-D shapes in the environment</p> <p>&gt;solve and complete practical tasks and problems involving shape</p> <p>&gt;explore the relationship between 2-D and 3-D shapes</p> <p><b>Symmetry</b></p> <p>&gt;identify line symmetry in shapes and in the environment</p> <p><b>Angles</b></p> <p>&gt;explore and recognise angles in the environment</p> <p><b>Length</b></p> <p>&gt;estimate, compare, measure and record length using non-standard units</p> <p>&gt;select and use appropriate non-standard measuring units and instruments</p> <p>&gt;solve and complete practical tasks and problems involving length</p> <p><b>Area</b></p> <p>&gt;estimate and measure area using non-standard units</p> <p><b>Weight</b></p> <p>&gt; estimate, compare, measure and record weight using non-standard units</p> <p>&gt; select and use appropriate non-standard measuring units and instruments</p> <p>&gt;explore and discuss instances when objects or substances that weigh 1 kg vary greatly in size</p> <p><b>Capacity</b></p> <p>&gt;estimate, compare, measure and record the capacity of a wide variety of containers using non-standard units</p> <p>&gt;select and use appropriate non-standard measuring units and instruments</p> <p>&gt;estimate, measure and record capacity using litre, half-litre and quarter-litre bottles, and solve simple problems</p> <p><b>Time</b></p> <p>&gt;use the vocabulary of time to sequence events</p> <p>&gt;read and record time using simple devices</p> <p>&gt;read time in hours and half-hours on a 12-hour analogue clock</p> <p>&gt;read date, day and month using a calendar</p> <p><b>Data</b></p> <p>&gt;sort and classify sets of objects by two and three criteria</p> <p>&gt;represent and interpret data in two, three or four row or columns using real objects, models and pictures</p> <p>&gt;represent, read and interpret simple tables and charts (pictograms)</p> <p>&gt;represent, read and interpret simple block graphs</p>
7-8	3	Third class	<p><b>Algebra</b></p> <p><b>Number patterns &amp; sequences</b></p> <p>&gt;explore, recognise and record patterns in number 0-999</p>

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			<p>&gt;explore, extend and describe (explain rule for) sequences &gt;use patterns as an aid in the memorisation of number facts</p> <p><b>Number sentences</b> &gt;translate an addition or subtraction number sentence with a frame into a word problem (frame not in initial position) &gt;solve one-step number sentences</p> <p><b>2-D shapes</b> &gt;identify, describe and classify 2-D shapes: square, rectangle, triangle, hexagon, circle, semicircle, oval and irregular shapes &gt;explore, describe and compare the properties (sides, angles, parallel and non-parallel lines) of 2-D shapes &gt;identify the use of 2-D shapes in the environment &gt;solve and complete practical tasks and problems involving 2-D shapes</p> <p><b>3-D shapes</b> &gt;identify, describe and classify 3-D shapes, including cube, cuboid, cylinder, cone, sphere, triangular prism, pyramid &gt;explore, describe and compare the properties of 3-D shapes &gt;explore the relationship of 3-D shapes with constituent 2-D shapes &gt;solve and complete practical tasks and problems involving 2-D and 3-D shapes</p> <p><b>Symmetry</b> &gt;identify line symmetry in the environment &gt;identify and draw lines of symmetry in two-dimensional shapes</p> <p><b>Lines and angles</b> &gt;identify, describe and classify vertical, horizontal and parallel lines &gt;recognise an angle in terms of a rotation &gt;classify angles as greater than, less than or equal to a right angle &gt;solve problems involving lines and angles</p> <p><b>Length</b> &gt;estimate, compare, measure and record lengths of a wide variety of objects using appropriate metric units &gt;rename units of length in m and cm &gt;solve and complete practical tasks and problems involving the addition and subtraction of units of length (m, cm)</p> <p><b>Area</b> &gt;estimate, compare and measure the area of regular and irregular shapes</p> <p><b>Weight</b> &gt; estimate, compare, measure and record the weight of a wide variety of objects using appropriate metric units (kg g) &gt; solve and complete practical tasks and problems involving the addition and subtraction of units of weight (kg and g)</p> <p><b>Capacity</b> &gt;estimate, compare, measure and record the capacity of a wide variety of containers using appropriate metric units (L, mL) &gt;solve and complete practical tasks and problems involving the addition and subtraction of units of capacity (L, mL)</p> <p><b>Time</b> &gt;consolidate and develop a further sense of time passing &gt;read time in five-minute intervals on analogue and digital clocks (12-hour) &gt;record time in analogue and digital forms &gt;read and interpret simple timetables</p>

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			<ul style="list-style-type: none"> <li>&gt;rename minutes as hours and hours as minutes</li> <li>&gt;read dates from calendars and express weeks as days and vice versa</li> <li>&gt;solve and complete practical tasks and problems involving times and dates</li> </ul> <p><b>Data</b></p> <p><b>Representing and interpreting data</b></p> <ul style="list-style-type: none"> <li>&gt;collect, organise and represent data using pictograms, block graphs and bar charts</li> <li>&gt;represent and interpret data in two, three or four row or columns using real objects, models and pictures</li> <li>&gt;read and interpret tables, pictograms, block graphs and bar charts</li> <li>&gt;use data sets to solve and complete practical tasks and problems</li> </ul> <p><b>Chance</b></p> <ul style="list-style-type: none"> <li>&gt;identify and record outcomes of simple random processes</li> </ul>
8-10	4-5	4th class	<p><b>Algebra</b></p> <p><b>Number patterns &amp; sequences</b></p> <ul style="list-style-type: none"> <li>&gt;explore, recognise and record patterns in number 0-999</li> <li>&gt;explore, extend and describe (explain rule for) sequences</li> <li>&gt;use patterns as an aid in the memorisation of number facts</li> </ul> <p><b>Number sentences</b></p> <ul style="list-style-type: none"> <li>&gt;translate an addition, subtraction, multiplication or division number sentence with a frame into a word problem (frame not in initial position)</li> <li>&gt;translate a one-step word problem into a number sentence</li> <li>&gt;solve one-step number sentences</li> </ul> <p><b>2-D shapes</b></p> <ul style="list-style-type: none"> <li>&gt;identify, describe and classify 2-D shapes: equilateral, isosceles and scalene triangle, parallelogram, rhombus, pentagon, octagon</li> <li>&gt;explore, describe and compare the properties (sides, angles, parallel and non-parallel lines) of 2-D shapes</li> <li>&gt;identify the use of 2-D shapes in the environment</li> <li>&gt;solve and complete practical tasks and problems involving 2-D shapes</li> </ul> <p><b>3-D shapes</b></p> <ul style="list-style-type: none"> <li>&gt;identify, describe and classify 3-D shapes, including cube, cuboid, cylinder, cone, sphere, triangular prism, pyramid</li> <li>&gt;establish and appreciate that when prisms are sliced through (in the same direction) each face is equal in shape and size</li> <li>&gt;explore, describe and compare the properties of 3-D shapes</li> <li>&gt;explore the relationship of 3-D shapes with constituent 2-D shapes</li> <li>&gt;solve and complete practical tasks and problems involving 2-D and 3-D shapes</li> </ul> <p><b>Symmetry</b></p> <ul style="list-style-type: none"> <li>&gt;identify line symmetry in the environment</li> <li>&gt;identify lines of symmetry as horizontal, vertical or diagonal</li> <li>&gt;use understanding of line symmetry to complete missing half of a shape, picture or pattern</li> </ul> <p><b>Lines and angles</b></p> <ul style="list-style-type: none"> <li>&gt;identify, describe and classify oblique and perpendicular lines</li> <li>&gt;discuss and describe intersecting lines and their angles</li> <li>&gt;classify angles as greater than, less than or equal to a right angle</li> <li>&gt;solve problems involving lines and angles</li> </ul> <p><b>Length</b></p>

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			<ul style="list-style-type: none"> <li>&gt;estimate, compare, measure and record lengths of a wide variety of objects using appropriate metric units, and selecting suitable instruments of measurement</li> <li>&gt;rename units of length using decimal or fraction form</li> <li>&gt;understand, estimate and measure the perimeter of regular 2-D shapes</li> <li>&gt;solve and complete practical tasks and problems involving the addition and subtraction, multiplication and simple division of units of length (km, m, cm)</li> </ul> <p><b>Area</b></p> <ul style="list-style-type: none"> <li>&gt;estimate, compare and measure the area of regular and irregular shapes</li> </ul> <p><b>Weight</b></p> <ul style="list-style-type: none"> <li>&gt; estimate, compare, measure and record the weight of a wide variety of objects using appropriate metric units (kg, g) and selecting suitable instruments of measurement</li> <li>&gt; rename units of weight in kg and g</li> <li>&gt;rename units of weight using decimal or fraction form</li> <li>&gt;solve and complete practical tasks and problems involving the addition and subtraction, multiplication and division of simple units of weight (kg and g)</li> </ul> <p><b>Capacity</b></p> <ul style="list-style-type: none"> <li>&gt;estimate, compare, measure and record the capacity of a wide variety of containers using appropriate metric units (L, mL) and selecting appropriate instruments of measure</li> <li>&gt;rename units of capacity using decimal and fraction form</li> <li>&gt;solve and complete practical tasks and problems involving the addition and subtraction, multiplication and simple division of units of capacity (L, mL)</li> </ul> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>&gt;consolidate and develop a further sense of time passing</li> <li>&gt;read time in five-minute intervals on analogue and digital clocks (12-hour)</li> <li>&gt;express digital time as analogue time and vice versa</li> <li>&gt;read and interpret simple timetables</li> <li>&gt;rename minutes as hours and hours as minutes</li> <li>&gt;read dates from calendars and express weeks as days and vice versa</li> <li>&gt;solve and complete practical tasks and problems involving times and dates and the addition and subtraction of hours and minutes</li> </ul> <p><b>Data</b></p> <p><b>Representing and interpreting data</b></p> <ul style="list-style-type: none"> <li>&gt;collect, organise and represent data using pictograms, block graphs and bar charts incorporating the scales 1:2, 1:5, 1:10 and 1:100</li> <li>&gt;represent and interpret data in two, three or four row or columns using real objects, models and pictures</li> <li>&gt;read and interpret bar-line graphs and simple pie charts</li> <li>&gt;use data sets to solve and complete practical tasks and problems</li> </ul> <p><b>Chance</b></p> <ul style="list-style-type: none"> <li>&gt;identify and record outcomes of simple random processes</li> </ul>
10-11	6-7	5th class	<p><b>Algebra</b></p> <p><b>Directed numbers</b></p> <ul style="list-style-type: none"> <li>&gt;identify positive and negative numbers in context</li> </ul> <p><b>Rules and properties</b></p>

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			<ul style="list-style-type: none"> <li>&gt;explore and discuss simple properties and rules about brackets and priority of operation</li> <li>&gt;identify relationships and record verbal and simple symbolic rules for number patterns</li> <li><b>Equations</b></li> <li>&gt;translate number sentences with a frame into word problems and vice versa</li> <li>&gt;solve one-step number sentences and equations</li> <li><b>2-D shapes</b></li> <li>&gt;make informal deductions about 2-D shapes and their properties</li> <li>&gt;use angle and line properties to classify and describe triangles and quadrilaterals</li> <li>&gt;identify the properties of the circle</li> <li>&gt;classify 2-D shapes according to their lines of symmetry</li> <li>&gt;use 2-D shapes and properties to solve problems</li> <li><b>3-D shapes</b></li> <li>&gt;identify and examine 3-D shapes and explore relationships, including tetrahedron (faces, edges and vertices)</li> <li>&gt;draw the nets of simple 3-D shapes</li> <li><b>Lines and angles</b></li> <li>&gt;recognise, classify and describe angles and relate angles to shape and the environment</li> <li>&gt;recognise angles in terms of a rotation</li> <li>&gt;explore the sum of the angles in a triangle</li> <li><b>Length</b></li> <li>&gt;estimate and measure the perimeter of regular and irregular shapes</li> <li><b>Area</b></li> <li>&gt;discover that the area of a rectangle is length by breadth</li> <li>&gt;estimate and measure the area of regular and irregular 2-D shapes</li> <li>&gt;calculate area using square centimetres and square metres</li> <li><b>Weight</b></li> <li>&gt; estimate and measure weight using appropriate metric units</li> <li><b>Capacity</b></li> <li>&gt; estimate and measure capacity using appropriate metric units</li> <li><b>Time</b></li> <li>&gt;read and interpret timetables and the 24-hour clock (digital and analogue)</li> <li>&gt;interpret and convert between times in 12-hour and 24-hour format</li> <li><b>Money</b></li> <li>&gt;compare 'value for money' using unitary method</li> <li><b>Data</b></li> <li><b>Representing and interpreting data</b></li> <li>&gt;read and interpret pictograms, single and multiple bar charts and simple pie charts</li> <li>&gt;use simple data sets</li> <li>&gt;explore and calculate averages of simple data sets</li> <li>&gt;use data sets to solve problems</li> <li>&gt;read and interpret bar-line graphs and simple pie charts</li> <li>&gt;use data sets to solve and complete practical tasks and problems</li> <li><b>Chance</b></li> <li>&gt;identify and list all possible outcomes of simple random processes</li> <li>&gt;construct and use frequency charts and tables</li> </ul>

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11-12	7-8	6th class	<p><b>Algebra</b></p> <p><b>Directed numbers</b></p> <ul style="list-style-type: none"> <li>&gt;identify positive and negative numbers on the number line</li> </ul> <p><b>Rules and properties</b></p> <ul style="list-style-type: none"> <li>&gt;explore and discuss simple properties and rules about brackets and priority of operation</li> <li>&gt;identify relationships and symbolic rules for number patterns</li> <li>&gt;explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables</li> </ul> <p><b>Equations</b></p> <ul style="list-style-type: none"> <li>&gt;translate word problems with a variable into number sentences</li> <li>&gt;solve one-step number sentences and equations</li> </ul> <p><b>2-D shapes</b></p> <ul style="list-style-type: none"> <li>&gt;make informal deductions about 2-D shapes and their properties</li> <li>&gt;use angle and line properties to classify and describe triangles and quadrilaterals</li> <li>&gt;identify the properties of the circle</li> <li>&gt;plot simple co-ordinates and apply where appropriate</li> <li>&gt;use 2-D shapes and properties to solve problems</li> </ul> <p><b>3-D shapes</b></p> <ul style="list-style-type: none"> <li>&gt;identify and examine 3-D shapes and explore relationships, including octahedron (faces, edges and vertices)</li> <li>&gt;draw the nets of simple 3-D shapes</li> </ul> <p><b>Lines and angles</b></p> <ul style="list-style-type: none"> <li>&gt;recognise, classify and describe angles and relate angles to shape</li> <li>&gt;recognise angles in terms of a rotation</li> <li>&gt;explore the sum of the angles in a quadrilateral</li> </ul> <p><b>Length</b></p> <ul style="list-style-type: none"> <li>&gt;rename measures of length</li> <li>&gt;use and interpret scales on maps and plans</li> </ul> <p><b>Area</b></p> <ul style="list-style-type: none"> <li>&gt;recognise that the length of the perimeter of a rectangular shape does not determine the area of the shape</li> <li>&gt;calculate the area of regular and irregular 2-D shapes</li> <li>&gt;measure the surface area of specified 3-D shapes</li> <li>&gt;identify the relationship between square metres and square centimetres</li> <li>&gt;find the area of a room from a scale plan</li> </ul> <p><b>Weight</b></p> <ul style="list-style-type: none"> <li>&gt; rename measures of weight</li> </ul> <p><b>Capacity</b></p> <ul style="list-style-type: none"> <li>&gt;rename measures of capacity</li> <li>&gt;find the volume of a cuboid experimentally</li> </ul> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>&gt;explore international time zones</li> <li>&gt;explore the relationship between time, distance and average speed</li> </ul> <p><b>Money</b></p> <ul style="list-style-type: none"> <li>&gt;explore 'value for money'</li> </ul> <p><b>Data</b></p> <p><b>Representing and interpreting data</b></p> <ul style="list-style-type: none"> <li>&gt;read and interpret pie charts and trend graphs</li> <li>&gt;use simple data sets</li> <li>&gt;explore and calculate averages of simple data sets</li> </ul>

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			<p>&gt;use data sets to solve problems &gt;read and interpret bar-line graphs and simple pie charts &gt;use data sets to solve and complete practical tasks and problems</p> <p><b>Chance</b> &gt;identify and list all possible outcomes of simple random processes &gt;estimate the likelihood of occurrence of events; order on a scale from 0 to 100%, 0 to 1 &gt;construct and use frequency charts and tables</p>
12-15	8-11	Jnr Cert	<p><b>Applied arithmetic and measure</b> 2. SI units of length (m), area (sq m) volume (cu m) mass (kg) and time (s). Multiples and sub-multiples. Twenty-four hour clock, transport timetables. Relationship between average speed, distance and time. 3. Perimeter Area: square, rectangle, triangle Surface area and volume of rectangular solids Length of circumference of circle/length of diameter = <math>\pi</math> Use of formulae for length of circumference of circle, for curved surface area and volume of cylinder, right circular cone and sphere Application to problems, including use of the Theorem of Pythagoras</p> <p><b>Algebra</b> 1. Meaning of variable, constant, term, expression, coefficient Evaluation of expressions 2. Addition and subtraction of simple algebraic expressions Use of the associative and distributive property to simplify expressions Multiplication and division of expressions Rearrangement of formulae 3. Use of the distributive property in the factorisation of expressions Factorisation of quadratic expressions Difference of two squares 4. Formation and interpretation of number sentences leading to the solution of first degree equations in one variable First degree equations in two variables. Problems and their solutions. Quadratic equations – solutions using factors and/or the formula for real roots only.</p> <p><b>Statistics</b> 1. Collecting and recording data. Tabulating data. Drawing and interpreting bar-charts, pie-charts and trend graphs 2. Discrete array expressed as a frequency table. Drawing and interpreting histograms. Mean and mode. Mean of a grouped frequency distribution</p> <p><b>Geometry</b> 1. Synthetic geometry: Preliminary concepts: The plane Subsets of the plane: line <math>ab</math>, line segment, half line, collinear points Angle; naming an angle with three letters. Straight angle. Acute, right, obtuse and reflex angles Parallel lines, perpendicular lines Vertically opposite, alternate and corresponding angles Triangle (scalene, isosceles, equilateral), quadrilateral (convex), rhombus, parallelogram, rectangle, square, circle</p>

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			<p>Concept of area in relation to these figures                      All "Facts" and *Theorems* detailed in the Junior Certificate syllabus</p> <p>2. Transformational geometry                      Translation, central symmetry, axial symmetry. Translation and central symmetry map a line onto a parallel line. Axis and centre of symmetry. Rotation.</p> <p>3. Co-ordinate geometry                      Coordinates of images of points under translation, axial symmetry and central symmetry                      Distance. Midpoint                      Slope of a line. Parallel and perpendicular lines                      Equation of a line in the form <math>y = mx + c</math>                      Intersection of lines</p>