Year 3 – Mathematics Intent

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Year 3 Maths Long Term Plan		
Autumn 3x week	Number and Place Value (8 weeks)	Addition and Subtraction (8 weeks)
2x week	Statistics (7 weeks)	Time (9 weeks)
Spring 3x week	Addition and Subtraction (5 weeks)	Multiplication and Division (6 weeks)
2x week	Geometry (7 weeks)	Money (4 weeks)
Summer 3x week	Fractions and Decimals (13 weeks)	
2x week	Measure—Mass and Capacity (7 weeks)	Measure—length and perimeter (6 weeks)

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Number and Place Value			
Substantive Knowledge National Curriculum	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Count from 0 in multiples of 50 and 100; find 10 or 100 more or less than a given number NB – counting in multiples of 4 and 8 will be covered in the multiplication unit		• Can count in multiples of 50 and 100 and use doubling to explain the relationship between them • Can find 10 more or less than a given number and explain which digit changes and which stays the same • Can find 100 more or less than a given number and explain which digit changes and which stays the same	*Introduction to resources *Count in 100s – Ensure the link to counting in 10s *Value of digits with a range of representations *Systematic problem solving – making a range of 3-digit numbers with 3-digit cards *Partitioning in non-standard ways *1, 10, 100 more or less *Counting in 50s *Comparing objects using a range of representations *Comparing 2 numbers *Positioning numbers on a number line *Ordering a range of numbers *Application to substantial problems
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.	• Can identify the number of hundreds, tens and ones in a 3-digit number • Can identify the larger of two 3-digit numbers and explain reasoning	
Compare and order numbers up to 1000	3NPV–3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10 3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	• Can position 3-digit numbers on a number line and explain reasoning about where they are positioned	
Identify, represent and estimate numbers using different representations	3NPV–1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.	• Can use representations such as dienes, place value counters and money to represent 3-digit numbers	
Read and write numbers up to 1000 in numerals and in words		• Can use understanding of numbers 1 – 100 to read and write numbers to 1000	
Solve number problems and practical problems involving these ideas.		• Can solve problems involving number and link to areas such as money and measure	

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<table>
<tr><th colspan="4">Addition and Subtraction</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning Detailed in Planning Overview</th></tr>
<tr><td>Add and subtract numbers mentally, including
- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds</td><td>3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.

3NF–3 Apply place-value knowledge to known additive and multiplicative number facts

3AS–1 Calculate complements to 100

3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.</td><td>• Can add and subtract numbers using place value and partitioning, including counting on and back on a number line
• Can add and subtract multiples of 10 and compensate
• Can count on to find the difference between two numbers</td><td rowspan="2">*Consolidate number facts from KS1
*Related number facts using scaling– no bridging
*Fact families – no bridging
*Missing box and inverses – no bridging
*Adding and Subtracting Using Place Value
*Adding Using Partitioning
*Add a 3-digit number and ones mentally using bridging
*Subtract a 3-digit number and ones mentally using bridging
*Add a 3-digit number and tens mentally using bridging and extending to compensating
*Subtract a 3-digit number and tens mentally using bridging and extending to compensating
*Adding and subtracting a 3-digit number and hundreds mentally
*Estimation
*Finding the difference
*Problem solving with mental calculations
*Written addition
*Written subtraction</td></tr>
<tr><td>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</td><td>3AS–2 Add and subtract up to three-digit numbers using columnar methods

3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.</td><td>• Can calculate using a formal written method for TU+TU, no bridging and with bridging
• Can calculate using a formal written method for HTU+TU, no bridging and with bridging
• Can calculate using a formal written method for HTU+HTU, no bridging and with bridging
• Can calculate using a formal written method for TU-TU, no bridging and with bridging
• Can calculate using a formal written method for HTU-TU, no bridging and with bridging
• Calculate using a formal written method for HTU-HTU, no bridging and with bridging.</td></tr>
</table>

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Estimate the answer to a calculation and use inverse operations to check answers	3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.	• Round numbers to estimate answers to a problem • Understand how to use the inverse to check answers to a calculation	*Problem solving and consolidation. *Extending mental strategies
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.	• Identify the correct information to solve a problem • Find missing box calculations in mental addition • Check solutions and results to see whether they are reasonable	

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<table>
<tr><th colspan="4">Multiplication and Division</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning Detailed in Planning Overview</th></tr>
<tr><td>Count from 0 in multiples of 4, 8</td><td rowspan="2">3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.</td><td>• Can count in multiples of 4 and 8 and use doubling to explain the relationship between them</td><td rowspan="4">*Recap 2x, 5x, 10x tables
*4x tables
*8x tables
*3x tables
*Making connections between the 2, 4 and 8 times tables
*Array, commutative, inverse and fact families
*Multiplying and dividing by 10
*Related facts – scaling known facts
*Doubling and having
*Partitioning to multiply
*Additional mental strategies (compensating and x by 10 and halving)
*Scaling
*How many ways
*Written multiplication 2-digit by 1-digit
*Written division 2-digit by 1-digit
*Consolidation and problem solving</td></tr>
<tr><td>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</td><td>• Can recall the 3x table
• Can recall the 4x table
• Can recall the 8x table
• Can use doubling to explain the relationship between the 2, 4 and 8 times tables
• Can derive related division facts
• Can understand that division cannot be done in any order</td></tr>
<tr><td>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</td><td>3NF–3 Apply place-value knowledge to known additive and multiplicative number facts</td><td>• Can use multiplication facts to solve TU x U using partitioning
• Can use multiplication facts to solve TU x U using the grid method
• Can begin to use multiplication facts to solve TU x U using a formal written method
• Can use derived facts to solve problems involving division e.g. Flowers are grown in rows of 10. There are 73 flowers. How many full rows can be planted?
• Can use mental methods to divide TU by U e.g. For 42 ÷ 3, partition and calculate 30 ÷ 3 and 12 ÷ 3 then recombine
• Can begin to use a formal written method to divide TU by U</td></tr>
<tr><td>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</td><td>3MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division.</td><td>• Can solve missing box calculations relating to recall of multiplication and division facts
• Can solve problems linked to scaling measures e.g. 4 times as high
• Can solve correspondence problems such as 3 tops, 4 football shorts, how many different outfits can be made?
• Can solve division problems e.g. 12 sweets between 3 children or 4 cakes between 8 children</td></tr>
</table>

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Money			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Add and subtract amounts of money to give change, using both £ and p in practical contexts	No specific Ready to Progress statements for Money but use the opportunity to consolidate prior statements as appropriate e.g. **3AS–1 Calculate complements to 100** when finding change from £1	• Can record using £ and p • Can add and subtract amounts of money • Can add and subtract mixed units • Can give change	*Recognising coins *Making amounts *Find the total of two amounts *Finding the difference between 2 amounts *Giving change *Multiplication and division problems involving money *2 step problems

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Fractions and Decimals			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10		• Understands tenths are dividing an object or a number into ten equal parts. • Understands tenths are 10 parts of one whole. • Can find and place tenths on a number line. • Can use tenths in money and metres • Can compare and order numbers to 1dp	*Unit fractions *Non-unit fractions *Making a whole Making a half *Placing fractions on a number line (ordering fractions while exploring equivalents) *Equivalent fractions *Comparing and Ordering fractions *Fraction of an amount *Placing tenths on a number line – link to decimal representation *Substantial problem solving *Addition of Fractions *Subtraction of Fractions
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).	• Understand the numerator and denominator in a proper fraction. • Can calculate unit fractions by dividing. • Can compare unit fractions on a number line. • Can calculate non unit fractions by dividing.	
Recognise and show, using diagrams, equivalent fractions with small denominators		• Can recognise that one whole is equivalent to two halves, three thirds, four quarters • Can work out equivalent fractions using diagrams.	
Add and subtract fractions with the same denominator within one whole	3F–4 Add and subtract fractions with the same denominator, within 1.	• Can identify fractions that will total 1 • Can add fractions with the same denominator up to 1. • Can convert fractions to have common denominators. • Can subtract fractions with the same denominator within 1.	
Compare and order unit fractions, and fractions with the same denominators	3F–3 Reason about the location of any fraction within 1 in the linear number system.	• Can compare and order unit fractions • Can compare and order fractions with the same denominator.	
Solve problems that involve all of the above.		• Can solve problems that involve all elements of the Year 3 fraction curriculum.	

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Geometry			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• Can describe the properties of 2D shapes, including semi-circles, using accurate language about lengths of lines and numbers of vertices • Can recognise shapes with equal side lengths • Can recognise lines of symmetry in 2D shapes • Can sort and classify collections of 2D shapes in different ways using a range of properties • Can use Venn and Carroll diagrams to classify 2D shapes • Can draw 2D shapes with the aid of modelling equipment such as geometric paper, geo boards and geo strips • Can describe the properties of 3D shapes, including hemispheres and prisms, using language such as base, face, vertex and edge • Can recognise and name 3D shapes viewed from different angles • Can recognise and name unseen 3D shapes in a feely bag • Can construct 3D shapes using matchsticks and plasticine	*Recap of 2D shapes – names and properties *Lines *Right angles *Drawing 2D shapes *Regular and irregular polygons *Recap 3D shapes *Modelling 3D shapes *3D shapes in different orientations *Problem Solving
Recognise angles as a property of shape or a description of a turn	3G–1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.	• Can recognise that angles are the amount of turn between two lines • Can describe properties of shapes in terms of the angles formed at vertices	
Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle		• Can identify right angles as 90° • Can recognise that two right angles make a half turn or 180° • Can recognise that three right angles make a three quarter turn or 270° • Can recognise that four right angles make a half turn or 360° • Can identify angles less than or greater than a right angle	
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• Can identify horizontal and vertical lines • Can identify pairs of parallel lines within shapes and around them • Can identify pairs of perpendicular lines within shapes and around them	

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<table>
<tr><th colspan="4">Statistics</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning
Detailed in Planning Overview</th></tr>
<tr><td>Interpret and present data using bar charts, pictograms and tables</td><td rowspan="2">No specific Ready to Progress statements for Statistics but use the opportunity to consolidate prior statements as appropriate e.g. 3NPV–3 Reason about the location of any three-digit number in the linear number system and 3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. 3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</td><td>• Can interpret data from a pictogram when one symbol represents more than one unit
• Can interpret data in graphs and understand varying scales of multiples of 2, 5 and 10 when reading values presented in bar charts
• Can create a tally chart and understand that grouping in 5s helps with the accuracy and speed of counting the totals
• Can transfer data from a tally chart to a table
• Can create a bar chart to represent data</td><td rowspan="2">*Create tally charts and frequency tables
*Pictograms
*Pictograms including when one symbol represents more than one unit
*Bar charts
*Interpret data from graphs and understand varying scales of multiples of 2, 5 and 10 when reading scales
*Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables</td></tr>
<tr><td>Solve one-step and two-step questions [for example, ‘how many more?’ and ‘how many fewer?’] using information presented in scaled bar charts and pictograms and tables</td><td>• Can answer questions from a bar chart that involve comparison, sum and difference
• Can answer questions from a pictogram that involve comparison, sum and difference
• Can answer questions from a table that involve comparison, sum and difference</td></tr>
</table>

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Measure – Time			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks		• Can read times in analogue format to the minute • Can read times in digital format to the minute • Can read clocks displayed using Roman numerals to the minute	*Recap o' clock, half past, quarter past and quarter to. *Recap telling the time to the nearest 5 mins *Time to the minute past the hour *Time to the nearest minute to the hour *Show link to Roman Numerals on a clock *AM/PM *24 hour time *Estimate the time taken for activities in seconds * Comparing duration of events A - Duration when given start and end B - End when given start and duration C - Start when given end and duration Range of duration problems – identify whether the problem is type A, B or C and solve using an efficient method *Number of seconds in a minute, days in a year and a leap year *Application to substantial problems
Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight		• Can estimate how long something should take to complete • Can use vocabulary accurately: seconds, minutes, hours, o'clock, am/pm, morning, afternoon, noon and midnight • Can solve routine problems involving time using a time line	
Know the number of seconds in a minute and the number of days in each month, year and leap year		• Can say how many seconds there are in a minute • Can say how many days there are in a month • Can say how many days there are in a year (including leap years)	
Compare durations of events [for example to calculate the time taken by particular events or tasks].		• Can identify the finish time of an event when given the start and the duration • Can work out the difference between the start and finish time of an event. • Can work out the start time if given the duration and end timings of an event.	

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<table>
<tr><th colspan="4">Measure – Length, Perimeter, Mass and Capacity</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning
Detailed in Planning Overview</th></tr>
<tr><td>Measure, compare, add and subtract: lengths (m/cm/mm);</td><td rowspan="2">No specific Ready to Progress statements for Length and Perimeter but use the opportunity to consolidate prior statements as appropriate e.g. 3NPV–3 Reason about the location of any three-digit number in the linear number system and 3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. 3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</td><td>• Can show something that they think is just shorter/longer than a metre/ centimetre/millimetre and can check if they are right using correct apparatus
• Can measure accurately in m/cm/mm;
• Can compare measures using the appropriate scale
• Can read scales accurately and say what each division is worth
• Can add and subtract measures
• Can compare and use mixed units e.g. 1m and 20cm
• Can work out equivalents in all areas of measure e.g. 5m = 500cm
• Can complete simple scaling by integers (e.g. a given quantity or measure is twice as long or five times as high) and connects this to multiplication.</td><td rowspan="2">Consider links to PE/Sports Day, Olympics/Commonwealth Games

Length
*Explore tools for measuring length
*Explore vocab for measuring length
*Model units of length
*Read scales
*Measure in metres
*Measure in mm/cm
*Work out equivalent lengths
*Order and compare lengths using conversion

Perimeter
*Calculate Perimeter of simple 2d shapes
*Measure perimeter of shapes and areas e.g classroom</td></tr>
<tr><td>Measure the perimeter of simple 2-D shapes</td><td>• Can measure the sides of regular polygons in centimetres and millimetres and find their perimeters in centimetres and millimetres</td></tr>
</table>

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Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)	No specific Ready to Progress statements for Mass and Capacity but use the opportunity to consolidate prior statements as appropriate e.g. **3NPV–3** Reason about the location of any three-digit number in the linear number system and **3NPV–4** Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. **3NF–1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	• Can say which object in the classroom is heavier than 100 g/kilogram/half-kilogram and know how to check if they are correct. • Can measure accurately in kg/g; l/ml • Can compare measures using the appropriate scale • Can read scales accurately and say what each division is worth • Can add and subtract measures • Can compare and use mixed units *e.g. 1kg and 200g* • Can work out equivalents in all areas of measure *e.g. 1 litre = 1000ml* • Can complete simple scaling by integers (e.g. a given quantity or measure is twice as much or 3 times the amount of flour) and connects this to multiplication.	**Capacity** *Explore tools for measuring capacity *Explore vocab for measuring capacity *Model units of capacity *Find a container that holds more and less than a litre *Read scales *Measure in l/ml *Work out equivalent volumes **Mass** *Explore tools for measuring mass *Explore vocab for measuring mass *Model units of mass *Read scales *Measure in g/kg *Work out equivalent weights *Order and compare measurements using conversion *Addition and subtraction problems linked to measures. Multiplication and division problems linked to measures.