Torriano Maths Progression Document

Subject Statement

The maths curriculum at Torriano builds and shapes our pupils to be passionate and life-long mathematicians. From understanding the basic principles of one-to-one correspondence to decoding multi-step algebraic problems, we are ambitious to equip students with the skills, depth of knowledge and enthusiasm for mathematics learning, within and beyond the subject.

Knowledgeable Learners

- We will develop fluent mathematicians, who have strong number sense and confidence in problem solving and reasoning, through a coherent curriculum.
- Maths teaching delivers all the requirements of the National Curriculum for all children.
- Children have an understanding of how new learning builds upon their prior learning and can notice connections between current and prior learning.
- Knowledge and skills are developed through the progression of concrete representations, pictorial representations to more abstract calculations.
- Children spend more time thinking deeply about key concepts in order to better understand them and make connections with other areas of the mathematics curriculum.

Confident Communicators

- Children will continuously develop their ability to problem solve and apply their reasoning skills.
- Maths lessons will develop children's fluency and emphasise the necessity of over-learning key number facts through choral chanting, singing, memorisation games and repetition.
- Explicit teaching of key new mathematical vocabulary forms an integral part of all maths lessons.
- Sentence stems are used to support children's ability to explain, and allow them the opportunity to practise new vocabulary.
- Our reasoning scale (*Add'em scale*), is used throughout maths lessons enabling children to describe, then show their method before moving to explaining concepts and justifying them with mathematical proof.

Active Citizens

- Children are motivated to secure their fluency through regular quizzes, MOT awards and success in the inter-school Autumn and Spring times table slams.
- Exposure to a multitude of strategies, both mental and formal, encourages our learners to ask themselves what suits their needs best, creating more active and independent mathematicians.
- Continued access to concrete equipment across key stages encourages self-directed learning and resilience, ambition and an understanding for those who work in different ways.
- Children have an understanding of how maths shapes the world through a number of projects: Maths Week, Ada Lovelace Day, census day and whole-school STEAM projects.
- Children will be made aware of how mathematics links to the other school subjects, their lives outside of school and the world around them.

Implementation

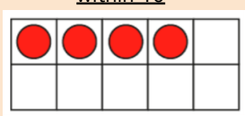
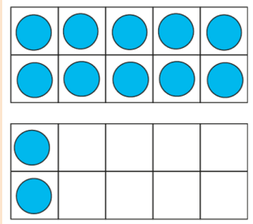
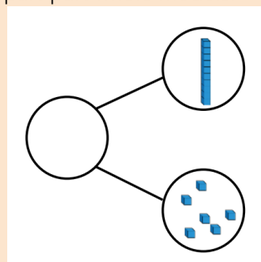
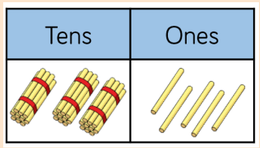
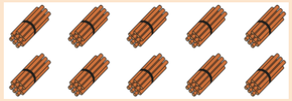
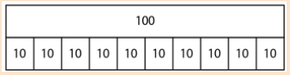
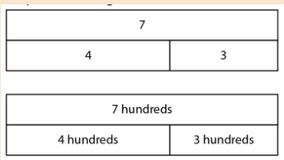
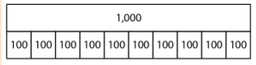
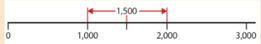
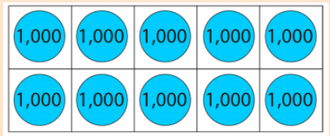
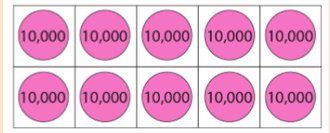
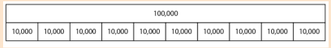
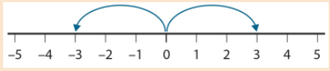
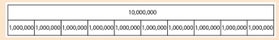
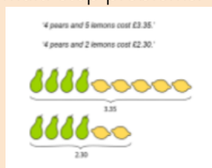
- Teachers use the NCETM curriculum prioritisation documents to ensure that pupils have a firm foundation of all mathematical concepts, are secure in their number knowledge and fact fluency and ready to progress to the next year group. A clear progression of key skills and concepts is mapped.
- Professional Development Meetings focused on mathematics are held regularly for teachers and support staff to increase the capacity and expertise of all staff.
- KS1 and KS2 planning follows the National Curriculum using the DfE mathematics guidance to inform the learning. Teachers also use the NCETM progression document along with the spine points to ensure small steps are taught. White Rose is used to support reasoning challenges.
- Teachers plan a unit using an 'S' plan and the children's learning journey is derived from this to maintain cohesion.
- EYFS uses the Mastering Number programme alongside the DfE development matters guidance to structure the teaching of mathematics in EYFS.
- Parent workshops and parents evening support documents.
- A mastery curriculum and approach is consistently implemented in mathematics ensuring every child is learning as a part of the class and teaching is adapted through the use of small steps.
- Assessment is used through: regular low stakes quizzes, retrieval activities, pre and post-unit assessments and formal PUMA assessments every term. These all inform teacher judgement.
- Regular fluency quizzes and inter school competitions are used to maintain confidence in fluency.
- Teachers have high expectations of all pupils and pupils are expected to be active contributors in lessons using the Reasoning Scale to articulate their thought process
- Equal access to career pathways are promoted. Through our innovative STEAM (Science, Technology, Engineering, Art, Maths) education offer, children and our community regularly engage with London's rich cultural and business partnerships.

Torriano Maths Progression Document

Impact

We measure the impact of the curriculum against various outcomes through:

- Standardised summative assessment points at EYFS, KS1 and KS2.
- Pupil voice is monitored regularly through questionnaires and interviews with a range of children from EYFS to upper KS2.
- Learning walks and book monitoring by maths leaders and senior leadership team takes place regularly and key findings are reported to governors.
- Staff questionnaires and feedback during regular staff CPD.
- Assessment data is reviewed by class teachers and SLT in termly pupil progress meetings.
- Teaching staff attend moderation training between the federation and with other Camden schools.
- Subject leaders meet with the Maths governor between the federation.
- The school strives to achieve excellent end of Key Stage results that are above local and national averages for all learners.

	Nursery	*Reception Mastering Number*	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*	*Year 6*
AUTUMN 1	<u>Getting to know you:</u> Opportunities for settling in, introducing the areas of provision to the children and getting to know the children. Explore key times of day. Explore continuous provision inside and out. Where do things belong? Positional language. To learn some number rhymes. To explore number through child-led activities.	<u>Getting to know you (weeks 1& 2):</u> Opportunities for settling in, introducing the areas of provision to the children and getting to know the children. Explore key times of day. Explore continuous provision inside and out. Where do things belong? Positional language. Learning new number rhymes for numbers to 5. Looking at real life context of numbers (doors, birthdays, children at school each day) <u>Measure - time:</u> Looking at a daily timetable. Sequence using 'first...next...last' Looking at days of the week and months of the year. Using a visual timetable to show children morning and afternoon activities. Pupils will build on previous experiences of number from their home and nursery environments, and further develop their subitising and counting skills. They will explore the composition of numbers within 5. They will begin to compare sets	<u>*Previous Reception experiences and counting within 100</u> Composition of numbers 0-5 (1.3) Introduction of bar models from 0-5  (Mastering Number 1.1) (1.9) Counting sequences within and beyond 100. Understanding the unique position of numbers on a line between 0 and 100. Count forwards and backwards. Compare calculations using < and > symbols. Tens and ones - introduction of dienes. Composition of numbers 11-20. Composition of multiples of 10 up to 100. (1.8) One ten is equal to ten ones (1.8 TP1). Composition of numbers 20-100. <u>Number & Place Value within 10</u>  Sort objects Count objects Count objects from a	<u>Number & Place Value</u> Composition of 20.  Composition of 50. (1.9 Yr1) Multiples of 10 up to 100. (1.8 Yr1) Count objects to 100 and read and write numbers in numerals and words. Tens and ones using part-part whole models.  Use a place value chart & tens and ones for addition.  	<u>Number & Place Value</u> Components of 100.   Recognise the place value of a 3-digit number and place it one a number line. (1.18) Find 10 more or 10 less than a number. Compare and order 3-digit numbers. <u>Addition & Subtraction</u> Number complements to 100. (1.18) Language behind addition and subtraction: - addend - subtrahend - minuend Known facts to 10 can be used to derive known facts within 100: - Increasing parts by 10 or 100.  - Part-part whole model - increasing number of 100s, 10s and 1s.	<u>Number & Place Value</u> Components of 1000 (1.22).   Compose, decompose, compare and order 4-digit numbers. (1.22)   Round to the nearest 10, 100 and 1000 - number line representation (1.22)  Count backwards through zero to include negative numbers <u>Addition & Subtraction</u> Column addition and subtraction for 4-digit numbers (1.22)	<u>Number & Place Value</u> Components of 10,000, 100,000 and 1,000,000 (1.26 - TP1).     Recognise the digits in a 7 digit number, place numbers on a number line and count forward and backwards in powers of 10 from a given number. (1.26 - TP 2&3) Round numbers to the nearest 10, 100, 1000, 10000 and 100000 (1.26 - TP5). (Number line representation) Curriculum Prioritisation Document - Unit 3 Negative numbers - count forwards and backwards across 0 and interpret negative numbers in a graphing context (1.27 - All TPs).  	<u>Number & Place Value (1.30)</u> Components of 10,000,000.  Know the value of each digit in a 8 digit number. Order and compare numbers to 10 million. Find the difference between positive and negative integers. Use negative numbers in a context. <u>Addition & Subtraction (1.31)</u> Finding number facts that equal 10,000,000 Solve addition and subtraction problems, selecting appropriate methods to use and explaining why. Using bar models to solve multi-step problems.  Inverse operations when solving missing number problems. 

Torriano Maths Progression Document

of objects and use the language of comparison.

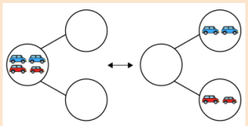
Pupils will:

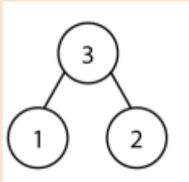
Identify when a set can be subitised and when counting is needed
subitise different arrangements, both unstructured and structured, including using the Hungarian number frame
Make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills
Spot smaller numbers 'hiding' inside larger numbers

larger group
Represent objects
Recognise numbers as words
Count on from any number (Mastering Number 1.5)
1 more
Count backwards within 10
1 less
Compare groups by matching (Mastering Number 1.4)
Comparison of quantities and measures (1.1)

Fewer, more, same
Less than, greater than, equal to
Compare numbers
Order objects and numbers
The number line Year 1 small steps. (Mastering Number 1.11)

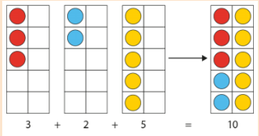
Addition and subtraction
(Mastering Number 1.2 and 1.3)
Introduce parts and wholes (1.2).



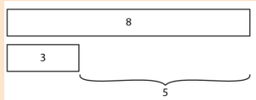


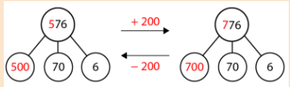
Part-whole model
Write number sentences (1.5)
Fact families - addition facts
Composition of numbers 6-10 (1.4) (Mastering Number 1.2, 1.3, 1.8, 1.9))
Odd and even numbers to 20 (1.4 TP3).
(Mastering Number 1.7)

Addition & Subtraction:
Bridging 10. (1.11).
Add 3 single digit numbers. (1.11 TP4)

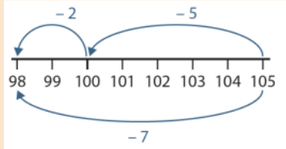


Compare numbers to find the difference between the amounts.
Understand subtraction as difference (1.12)





- Bridging 100 to them bridge larger 3 digit number/



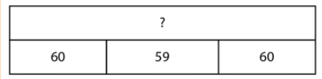
Counting sequences can be extended up to 1000 (Counting in multiples of 50 and 100)

Solve addition and subtraction problems - 2-step.

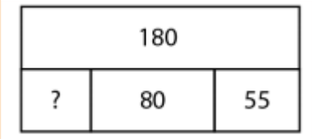
Area - opportunity to cement M&D learning (2.16)

Find the area of rectangular shapes.

Addition & Subtraction
Additive and multiplicative relationships - (1.28 TP1&2)
Mental addition methods using bar models.



Missing part problems (1.28 TP 3)
Mental subtraction methods using bar models.

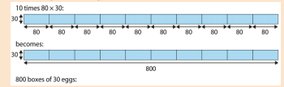


Formal written methods of addition and subtraction.

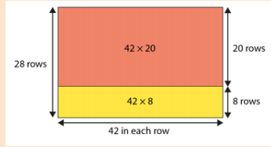
Problem solving in different contexts (1.28 - TP4)

Finding related facts by increasing parts of the number sentence (1.29)

Multiplication & Division
Identify common multiples, factors and prime numbers.
Multiplying and dividing by 10, 100 and 1000 - use method to solve more complex problems. (2.23)

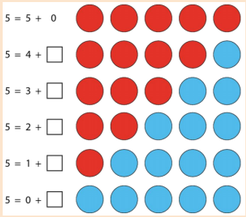
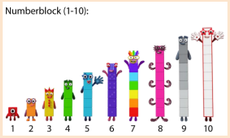
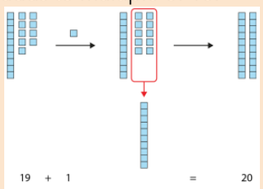
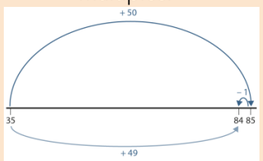
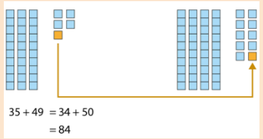
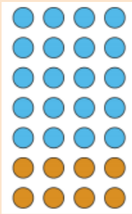
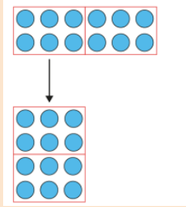
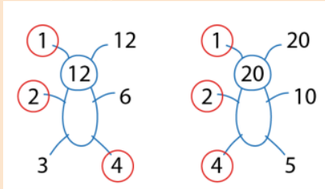
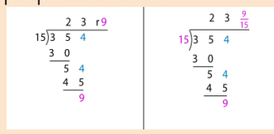
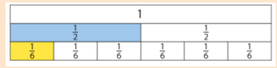


Multiplying two 2-digit numbers using partitioning and then adding the parts back together.



Long and short multiplication as an algorithm.

Torriano Maths Progression Document

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			 Number bonds to 10 (1.4 TP5). (Mastering Number 1.10) Systematic number bonds within 10 (1.4 TP3) Number bonds to 10 Addition - add together (1.5 TP1)  Addition - add more Addition problems Find a part (1.5 TP3)  Break down a whole into two or more parts. (1.5 TP 4)					
AUTUMN 2	Numbers 1 & 2:  Meeting one. (NCETM) Understand what 'one' means. Recognise the number 1. Counting to one. (NCETM) Represent 1 in different ways. Another one. (NCETM) Make comparisons between 1 and another 1. Meeting 2. (NCETM) Chant to 2. Two. (NCETM) Represent 2 in a number of different ways. Counting to two. (NCETM) Select 2 from a larger group.	Pupils will: Connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers hear and join in with the counting sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number Develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for	Addition & Subtraction (within 10) continued: Subtraction - find a part Fact families - the eight facts  Subtraction - take away/crossing out (How many left?) Subtraction - take away (How many left?) Subtraction on a number line Add or subtract 1 or 2 Geometry shape (Unit 4): Recognise and name 3D shapes. Sorting 3D shapes.	Addition & Subtraction Number bonds to 20. Number bonds to 100. Addition of two-digit and single-digit numbers. (1.13) Exchange 10 ones for 1 ten when a calculation adds to multiple of 10.  Exchange 1 ten for 10 ones when a calculation subtracts from a multiple of 10.	Addition & Subtraction Mental strategies for adding 3-digits and 1s, 10s and 100s: (1.19) - Partitioning - Adjusting - near multiples.  - Redistributing  Mental strategies for subtracting 3-digits and 1s, 10s and 100s: (1.19)	Multiplication & Division Commutativity and distribution - breaking down facts to help us find related facts. (2.10)  11x table - use tables in problem solving activities.(2.11) 12x table - Use distributive law to simplify facts. Relationship between 6x table and 12x table.	Multiplication & Division Find related multiplication and division facts using known tables. (2.18)  Multiply and divide mentally drawing upon known facts. Systematically identifying factors of numbers. (2.21) Identifying common factors. Identifying prime numbers.  	Multiplication and Division continued Short and long division. Representing remainders as proper fractions.  Fractions Use common factors to simplify fractions. Compare and order fractions including >1. Add and subtract fractions using the concept of equivalence. Multiply and divide simple pairs of proper fractions. (3.9) 

Torriano Maths Progression Document

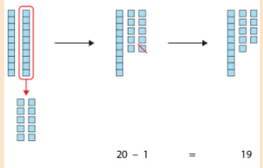
Knowing that 2 is more than 1.
'Twoness' of two (NCETM).
Count 2 objects accurately.
To place 2 objects on a 5 frame.
Subitise 2 (recognise without counting).

<u>Geometry- shape:</u>
Looking at a circle.
Being able to recognise a circle.
Being able to use a circle for a selection of pictures and art.
Beginning to be aware that a circle has no corners and one edge.

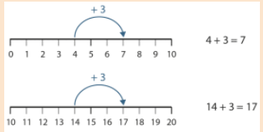
<u>Sorting:</u>
To sort into 2 groups - colour, or type of object e.g. fruit at snack time.

1:1 correspondence; understanding that anything can be counted, including actions and sounds
Compare sets of objects by matching
begin to develop the language of 'whole' when talking

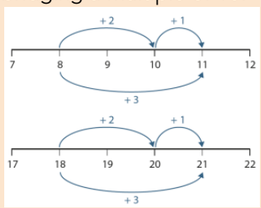
Recognise and name 2D shapes.
Sort 2D shapes.
Making patterns with 2D and 3D shapes.



Use number facts within to apply to addition/subtraction of a 1-digit and 2-digit number calculation.
Use known number bond facts to 10 to apply to addition/subtraction of a 1-digit and 2-digit number calculation.



Build on strategies for bridging 10 applied to bridging a multiple of 10.

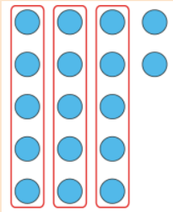


Addition of two-digit numbers and multiples of 10. (1.14)
Subtraction of two-digit numbers and multiples of 10 (1.14 TP1).

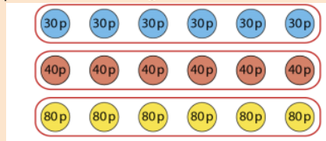
<u>Geometry shape:</u>
Recognise 2D and 3D shapes.
Know sides, vertices and edges for 2D and 3D shapes.
Make patterns with 2D and 3D shapes.
Sort 2D and 3D shapes.

- Partitioning subtrahend and working back.
- Working forward from the subtrahend.

Division with remainders (2.12)



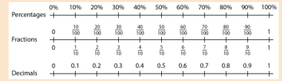
Recognise cubed and squared numbers.
Curriculum Prioritisation Document - Unit 4
Long and short multiplication methods.
Combining 4 operations in a problem solving context (2.22).



30 p × 6 = £1.80
40 p × 6 = £2.40
80 p × 6 = £4.80

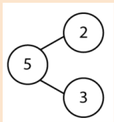
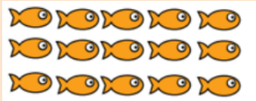
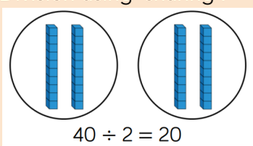
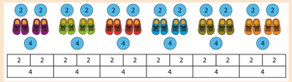
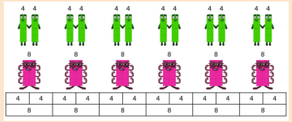
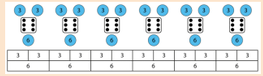
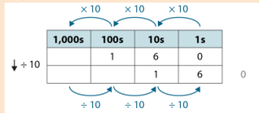
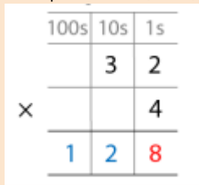
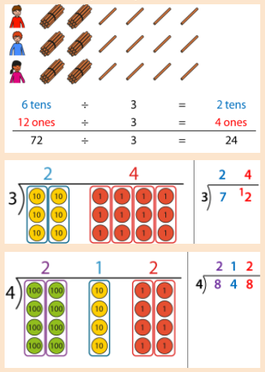
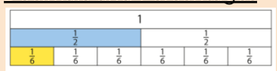
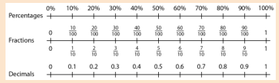
<u>Measurement - Volume (Consolidate M&D knowledge)</u>
Estimate volume and use cubes to calculate.
Solve problems involving volume.

Find equivalent decimal fractions for proper fractions. (3.10)
Find percentage equivalents for fractions and decimals.

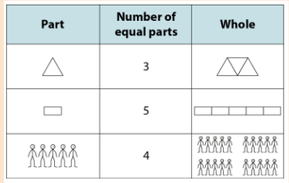
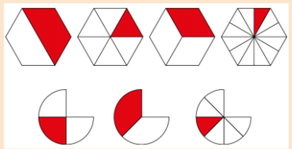
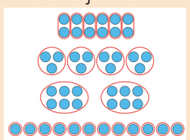
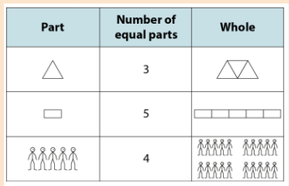
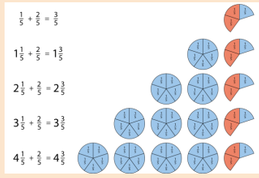


Identify the value of each digit in a decimal and multiply and divide by 10, 100 and 1000.
Multiply decimals with 2 decimal places by whole numbers.
Use written division methods with decimals.
Solve problems which require decimals to be rounded.
Recall and use fractions, decimals and percentages knowledge in different contexts.

Torriano Maths Progression Document

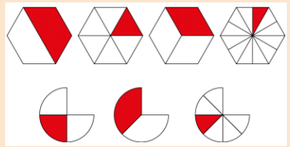
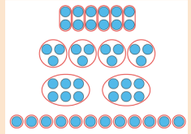
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
SPRING 1	<u>Number 3:</u>  Three (NCETM). Meet 3 (NCETM). Know that 3 is one more than 2 (NCETM). Know that numeral 3 comes after numeral 2. One, two, three (NCETM). Counting to 3 (NCETM). Comparing numbers 1, 2, 3 with bigger and smaller (NCETM). Know that the amount doesn't change if we don't add to it or take anything away. Place 3 objects on a 5 frame. Subitise 3 (recognise without counting). <u>Geometry - shape:</u> Triangle. Name a triangle when shown. Use a triangle appropriately for pictures/models. Begin to be aware that a triangle has 3 corners and 3 sides (after looking at number 3). <u>Sorting:</u> Sort into triangles and circles. <u>Length/height:</u> Order 3 things by height/length	*Pupils will continue to develop their subitising and counting skills and explore the composition of numbers within and beyond 5. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals.* <u>Pupils will:</u> Continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals Begin to identify missing parts for numbers within 5 explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame Focus on equal and unequal groups when comparing numbers.	<u>Number: Place value (within 20)</u> Count forward and backwards and write numbers to 20 in numerals and words Numbers to 11 - 20 (1.10). Tens and Ones Count one more one less Compare groups of objects Compare objects Order groups of objects Order numbers <u>Addition & Subtraction (within 20):</u> Add by counting on Find and make numbers Add by making 10 Subtraction -not crossing 10  Subtraction - Crossing 10 (1) (1.6) (1.7) Subtraction - Crossing 10 (2) Related facts (1.6 TP4) Compare number sentences	<u>Including measurement and money - opportunity to cement A&S skills:</u> Recognise coins and notes. Count money is pounds and pence. Compare money including finding the same amount. Add and subtract 2-digit and 1-digit calculations with money context. <u>Multiplication & Division:</u> Understand multiplication as representing equal groups. (2.2) Use arrays to represent multiplication as repeated addition.  Times tables: groups of 2 and commutativity. (2.3) Times tables: groups of 10 and of 5, and factors of 0 or 1 . (2.4) Look at the link between 5 and 10 times tables as doubles. (2.4 TP3). Understand doubling and halving. (2.5) Odd and even numbers - explicit links to doubling and 2 times table. Division of 2, 5 and 10 through grouping (2.6 TP1). Division using 'grouping' (2.6 TP2). Division using 'sharing'.  40 ÷ 2 = 20 Division by using known times table facts and halving (2.6 TP4). Dividing by zero and one (2.6 TP5).	<u>Multiplication and Division</u> Relationship between 2x table, 4x table and 8x table. (2.7) Divisibility rules for working out if a number is in the 2, 4 or 8 times table.   Relationships between 3x table, 6x table and 9x table. (2.8) Divisibility rules for working out if a number is in the 3, 6 or 9 times table.   7x table. (2.9) Solve problems including missing number problems using times tables. Correspondence problems - systematic thinking. <u>Measurement: Length and Perimeter</u> Convert between units of length Measure and compare lengths Use mixed units Add and subtract lengths Measure the perimeter of simple 2D shapes Solve length and perimeter problems involving scaling integers	(Fractions objective) Multiplying and dividing by 100 and 10. (2.13)  Partitioning in to short multiplication. (2.14)  Partitioning in to short division. (2.15)  <u>Length, perimeter (2.16)</u> Convert between units of measure. Calculate the perimeter using multiplication or side lengths using division.	<u>Measurement: Money</u> Use all four operations to solve problems involving money. Curriculum Prioritisation Document - Unit 2 <u>Fractions including decimals and percentages.</u> Curriculum Prioritisation Document - Unit 1, 6 and 8 Equivalent fractions including tenths and hundredths. Add and subtract fractions with the same denominator. Recognise and convert mixed numbers and improper fractions. Compare and order fractions who have denominators all in the same multiplication table. Multiply fractions. Convert tenths, hundredths to decimal values. Read and write more complex fractions as decimals. Read write and order decimals up to 3 decimal places. Round decimals to the nearest whole number. Solve problems with decimals up to 3 decimal places.	<u>Decimals and Percentages</u>   Find equivalent decimal fractions for proper fractions. (3.10) Find percentage equivalents for fractions and decimals. Identify the value of each digit in a decimal and multiply and divide by 10, 100 and 1000. Multiply decimals with 2 decimal places by whole numbers. Use written division methods with decimals. Solve problems which require decimals to be rounded. Recall and use fractions, decimals and percentages knowledge in different contexts. <u>Measurement</u> Use, read, write and convert between standard units (cm, m, km). Solve problems involving perimeter. Recognise where it is possible to use formulae for volume and area. Express and describe linear sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy a problem with 2 unknowns. Number puzzles. Calculate perimeter and recognise that shapes with the same area can have different perimeters. Calculate the area of parallelograms and triangles Calculate, compare and estimate the volume of cubes and cuboids.

Torriano Maths Progression Document

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
SPRING 2	<u>Geometry- shape:</u> Square. Name a square when shown. Name a rectangle. Know and find a corner on a 2D shape. Use shapes appropriately in images. <u>Measure - time:</u> Beginning to sequence events using visual timetable or pictures. <u>Number 4 & 5:</u> Four (NCETM). Count 4 objects. Subitise 4 recognise without counting). Place 4 objects on a 5-frame. Recognise more and fewer than 4. Chant to 4. Make numbers up to 4 by adding or taking away an object. Five (NCETM). Understand the concept of 5. Count 5 objects accurately. See that 5 can represent actions as well as objects. Use fingers to represent objects in a rhyme. Compare amounts using 'the same', 'more' and 'less' to 5. Make a number to 5 by adding more or taking away 1 object. Concept of zero.	<u>Pupils will:</u> Understand that two equal groups can be called a 'double' and connect this to finger patterns Sort odd and even numbers according to their 'shape' continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern Order numbers and play track games join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers.	<u>Place Value within 50</u> Numbers to 50 Tens and Ones (1.10 TP2). Represent numbers to 50 One more one less Compare objects within 50 Compare numbers within 50 Order numbers within 50 Count in 2s Count in 5s <u>Measurement length & Height:</u> Compare lengths. Compare heights. Measure the length. Introduce a ruler. <u>Measurement weight & volume:</u> Introduce weight and mass. Measure mass. Compare mass. Introduce capacity and volume. Measure capacity. Measure volume.	<u>Addition & subtraction:</u> Addition of 2-digit and 2-digit numbers. (1.15) Subtraction of 2-digit and 2-digit numbers. (1.16) Use of partitioning to add/subtract. Dienes drawn in columnar method to support addition/subtraction. <u>Measurement length & Height:</u> Measure length (cm) Measure length (m) Compare length. Order length. Four operations with length. (taught within contexts of addition & subtraction and multiplication & division). <u>Measurement: Mass, capacity and temperature</u> Compare mass. Measure mass in grams. Measure mass in kilograms. Compare volume. Compare volume. Mililitres. Litres. Temperature. Calculations using the 4 operations in the context of measure. <u>Consolidation:</u> (teacher to review) Addition and subtraction 2-digit and 2-digit calculation (columnar method using diene drawing to support). Multiplication - arrays and using times tables to support. (2, 5, 10) Division - using times tables to support.	<u>Fractions</u> Understanding parts and wholes (3.1)  Represent unit fractions and non-unit fractions and use them as numbers (3.10). Count up and down in tenths. Compare and order unit and non-unit fractions (3.10 and 3.11).  Find a fraction of a discrete set of objects.  Adding and subtracting fractions within one whole (3.12). Solve problems using fractions. Understanding parts and wholes (3.1)  Represent unit fractions and non-unit fractions and use them as numbers (3.10). <u>Measurement: Mass and Capacity</u> Measure and compare mass. Used mixed units when dealing with mass.	<u>Fractions including decimals</u> Find families of equivalent fractions. Count up and down in hundredths. Find equivalent fractions for any number of tenths and hundredths. Add and subtract fractions with the same denominator.  Reason about the location of mixed numbers in the linear number system. Solve problems involving fractions (fractions of quantities). <u>Fractions and Decimals (2.16)</u> Find equivalent decimals for fractions. Compare and order decimals. Round decimals to the nearest whole number. Solve simple problems using decimals and fractions (Use measurement and money context).	<u>Fractions, decimals and percentages</u> Recognise the % symbol as meaning parts of 100. Write percentages as a fraction and decimals. Solve problems that involve percentage equivalents. Solve puzzles including percentages, fractions and decimals. Measurement: Length, Perimeter and Area Measure and calculate perimeter of composite shapes <u>Statistics - Opportunity to cement A&S skills (Elements of 1.26)</u> Solve problems in the context of tables and charts. Interpret and draw line graphs. Solve problems in the context of line graphs. Interpret and read timetables.	<u>Ratio and Proportion</u> Recognise ratio as the relationship between two quantities (context). Solve problems using ratio (multiplication and division of ratio to find missing values) Solve problems using scale factors and shapes. Relate percentages to angles within a pie chart. Solve problems involving calculation of percentage. Use percentages for comparison. Solve problems using unequal sharing and grouping. <u>Algebra</u> Use simple formulae in place of numbers in contexts already familiar. <u>Statistics</u> Interpret and construct pie charts and line graphs. Calculate and interpret mean.

Torriano Maths Progression Document

					Add and subtract mass. Solve problems involving mass. Measure and compare capacity and volume. Use mixed units when dealing with capacity and volume. Add and subtract volume. Solve problems involving capacity and volume.			

	Nursery	Reception	*Year 1*	Year 2	Year 3	*Year 4*	Year 5	*Year 6*
SUMMER 1	Numbers to 5: Represent numbers 0-5 on a 5 frame. Three little pigs. Off we go! How to count. Stampolines. The whole of me. Terrible twos. Holes. Hide and seek. Geometry- shape: Recap 2D shape Measure- Mass: Compare 2 items saying which is heavy and which is light. Positional language: Respond correctly to positional language - in, on, under, in front of, behind, next to. Begin to use some positional language.	*Pupils will consolidate their counting skills, counting to larger numbers and developing a wider range of counting strategies. They will secure knowledge of number facts through varied practice.* Pupils will: Continue to develop their counting skills, counting larger sets as well as counting actions and sounds explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame Compare quantities and numbers, including sets of objects which have different attributes Continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2.	Multiplication & division (context of money): Counting in 2s (2.1 TP1). Counting in 10s. (2.1 TP 2). Counting in 5s. (2.1 TP 3). Make equal groups Add equal groups Make arrays Make doubles (Mastering Number 1.6) Make equal groups – grouping Make equal groups - sharing Fractions: Find a half (1) Find a half (2) Find a quarter (1) Find a quarter (2)	Number fractions: Make equal parts. Recognise and find a half. Recognise and find a quarter. Recognise and find a third. Unit fractions. Non-unit fractions. Equivalence of ½ and 2/4. Find ¾ and to count in fractions. Measurement: time O'clock and half past. Quarter past and quarter to. Telling time to five minutes.	Fractions B: Count up and down in tenths. Compare and order unit and non-unit fractions (3.10 and 3.11).  Find a fraction of a discrete set of objects.  Adding and subtracting fractions within one whole (3.12). Solve problems using fractions. Measurement: Money Add and subtract amounts of money to give change - use near multiples strategy to teach. Measurement: Time Use vocabulary such as o'clock, morning, afternoon, midday and midnight. Know the number of seconds in a minute and minutes in an hour. Tell and write the time to the nearest minute from an analogue clock Use vocabulary such as am and pm.	Decimals Multiply and divide by 10 and 100 including decimals. *Measurement: Money (Consolidation for addition and subtraction methods)* Estimate, compare and calculate money measurements. Measurement: Time Convert between measurements of time. Estimate, calculate and compare durations. Read, write and convert between analogue clocks and 12hour and 24 hour clocks. Solve problems involving converting from hours to minutes, minutes to seconds, years to months and years to days.	Geometry: Properties of shape Curriculum Prioritisation Document - Unit 10 Identify 3D shapes using 2D representations. Know angles are measured in degrees. Know types of angle and estimate size. Measure and draw angles using protractors. Use facts about angles and shape properties to make deductions about a shape. Solve problems involving angle size. Geometry: Position and direction Understand reflection and translation. Draw shapes on a grid using these techniques. Solve problems.	Properties of shape Draw 2D shapes using dimensions and angles. Compare and classify shapes. Illustrate and name parts of a circle Find missing angles using known angle facts. Recognise, describe and Position and direction Describe positions on a coordinate grid. Draw and translate simple shapes and reflect them in other axes. *KS2 SATs*

Torriano Maths Progression Document

					Convert analogue times to 12 hour digital format. Understand the 24 hour time format. Convert analogue clocks to 24 hour time format. Record and compare time in terms of seconds, minutes and hours. Compare duration of events. Maths Meetings: Roman Numerals. Number of days in years, leap year.			
	Nursery	Reception	*Year 1*	Year 2	Year 3	*Year 4*	Year 5	*Year 6*
SUMMER 2	Measure - capacity: Identify when a container is full and empty. Fill a container so it is full. empty a container so it is empty. Order 3 containers for capacity. Know which container has more or less. Number- consolidation: Numbers to 5 in greater depth concept of 0 as nothing left or nothing	Pupils will: Begin to generalise about 'one more than' and 'one less than' numbers within 10 Continue to identify when sets can be subitised and when counting is necessary develop conceptual subitising skills including when using a rekenrek.	Geometry position & direction: Describe turns Describe position (1) Describe position (2) Place Value within 100: Counting forwards and backwards within 100 Partitioning numbers (1.9 TP6) Comparing numbers (1) Comparing numbers (2) Ordering numbers One more, one less Money:  Understanding that a coin has a value which is independent of its size, colour and mass (2.1 TP4). Understanding that the number of coins in a set is different to the value of coins in a set (2.1 TP5). Time: Understand before and after. Dates. Telling the time to the hour. Telling the time to the half hour. Writing the time.	Measurement: Money Find the difference. Find the total. Find change. Calculations using addition and subtraction in the context of money. Statistics: To make tally charts. Draw and interpret pictograms in 1-1 correspondence and 2, 5 and 10. Use and understand block diagrams. Geometry position & direction: Describing movements and turns.	Shape Recognise and draw simple 2D shapes. Identify perpendicular and parallel lines. Recognise right, acute and obtuse angles as properties of a shape. Recognise that rights angles make up a quarter turn half turn and full turn. Make and describe 3D shapes. Statistics: Interpret information from tables. Present information on a table. Read simple scales (2s, 5s and 10s) Interpret information on pictograms. Present information on pictograms. Interpret information from bar charts. Present information on bar charts. Problem solving - "How many more…? and "How many fewer..?" questions *Consolidation: Addition and Subtraction (teacher to review)* Mental addition and subtraction methods. Column method. *Consolidation: Multiplication and division*	Geometry: Properties of Shape Identify, compare and order angles. Use angles to classify shapes. Understand quadrilaterals and triangles. Identify lines of symmetry in shapes. Complete a shape using a line of symmetry. Geometry: Position and Direction Describe positions on a graph using coordinates. Describe movement on a coordinate grid. Plot points on a grid in order to draw a shape. Statistics - Use multiples of 25, 50, 250, 500, 100 and 1000 to solve problems in graphing and measure contexts (Reading scales). Solve comparison, sum and difference problems presented in tables. Interpret bar charts. Solve comparison, sum and difference questions using information presented in pictograms and bar charts. Interpret time graphs. Solve comparison, sum and difference questions using information presented in time graphs.	Measurement: Time Recap calculating duration - number line representation. Solve problems which include converting between units of time. Curriculum Prioritisation Document - Unit 5 and 9 Convert between metric measurements. Understand common imperial units and estimate conversion. Measure and calculate perimeter of composite rectangular shapes. Calculate area in centimetres squared and metres squared. Estimate area of irregular shapes. Use all four operations to solve length problems.	Problem solving Four operations - focus on more challenging word problems and developing reasoning skills in preparation for secondary school.

Torriano Maths Progression Document

					Multiplication facts 2-10 times tables. Problem solving.			
Number facts/Rules:		Number bonds to 5 Number bonds to 10			The 4x table is double the 2x table. The 8x table is double the 4x table. The 8x table is quadruple the 2x table. If the final two digits of a number are divisible by 4 then the number is divisible by 4. The 3x table is double the 6x table. The 9x table is triple the 3x table. If the sum of a numbers digits are divisible by 3, then the number is divisible by 3. For a number to be divisible by 6, the number must be divisible by 2 and 3. If the sum of the digits of a number are divisible by 9, then the number is divisible by 9.	For a number to be divisible by 12, the number must be divisible by 4 and 3.		*Problem solving*

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

Number facts not bridging 10:
Adding 1
Adding 2
Doubles 1-5 (6-9 taught Summer 2).
Bonds to 10
Near doubles
Adding 0

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

Number facts from year 1
Number facts bridging 10

×	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6			15					30		
4	0	4	8			20					40		
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12			30					60		
7	0	7	14			35					70		
8	0	8	16			40					80		
9	0	9	18			45					90		
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22			55					110		
12	0	12	24			60					120		

2 times table
10 times table
5 times table

Even numbers are in the 2 times table.
10 times table ones are always 0
5 times table ones are 0 or 5
Double is the same as x2