WILLOUGHBY A PRIORY ACADEMY

Maths Long Term Plan 2023-2024

EYFS Mathematics
Birth and 3-year-olds will be learning to: • combine objects like stacking blocks and cups - put objects inside others and take them out again • take part in finger rhymes with numbers • react to changes of the amount in a group of up to 3 items. • compare amounts, saying 'lots', 'more' or 'same' • develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence • count in everyday contexts, sometimes skipping numbers – '1-2-3-5' • climb and squeeze themselves into different types of spaces • build with a range of resources • complete inset puzzles • compare sizes, weights etc. using gesture and language - 'bigger, little, smaller', 'high or low', 'tall', 'heavy' • notice patterns and arrange things in a pattern. **3 and 4-year-olds** will be learning to: • develop fast recognition of up to 3 objects, without having to count them individually ('subitising') • recite numbers past 5 • say one number for each item in order: 1,2,3,4,5 • know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle') • show 'finger numbers' up to 5 • link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5 • experiment with their own symbols and marks as well as numerals • solve real-world mathematical problems with numbers up to 5

- compare quantities using language 'more than' and 'fewer than'
- talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language such as:
    - sides
    - corners
    - straight
    - flat
    - round
- understand position through words alone, for example, "The bag is under the table," with no pointing
- describe a familiar route
- discuss routes and locations, using words like 'in front of' and 'behind'
- make comparisons between objects relating to size, length, weight and capacity
- select shapes appropriately such as flat surfaces for building or a triangular prism for a roof
- combine shapes to make new ones, for example, an arch or a bigger triangle
- 'first', 'then', 'after', 'before'
- "Every day we…"
- "Every evening we…"

Key Essentials for teaching numbers 0 – 5:

- **Noticing** – pupils can compare groups of similar objects, as well as comparing quantities and size.
- **Perceptual Subsitising** – the ability to see an amount and label it. To start to see the parts within a whole up to five.
- **Conceptual Subsitising** – joining groups together and be able to know how many (**move it to prove it**). Play games such as '3 or not 3.'
- **5 Frames** – develop pupils concept imaging by teaching images on a 5 frame. Do not count when using a 5 frame.

Ensure stages 1- 4 are mastered before progressing to 5.

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- **10 Frames** – start to understand two fives are in ten. Model to children the different patterns; either filling the top line first in order before introducing two patterns (similar to numicon).

Application of all maths applied in the environment, 5 frame at registration, at snack time, placing of water bottles, and the countdown to Christmas.

It is important cognitive load is reduced by ensuring objects used are a similar colour, shape, and size unless it is one of these features being compared. Opportunity to categorise and sort is essential at this stage.

Pre-Formal Maths is integrated into multi-sensory curriculum					
Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
The Numerate Body	Counting	Patterns	Shape and Space	Time	Problem Solving

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Informal							
Week	Week One	Week Two	Week Three	Week Four	Week Five	Week Six	Week Seven
Autumn One	**Number -Subitises** Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').		**Counting** Say one number for each item in order: 1,2,3,4,5. Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). Link numerals and amounts: for example, showing the right number of objects to match the numeral.			**Writing numbers** Focus on composition of 0,1, 2, 3, 4 and 5 before moving on.	
Autumn Two	**Geometry: Properties of 2D shapes** (rectangles, squares, circles and triangles) Match, sort and categorise shapes. Begin to recognise rectangles and triangles are not always similar to each other.			**Measures: Money** Match, sort and recognise coins - £1 / £2 – 1p, 2p, 5p			
Spring One	**Number Sense** Perceptual and Conceptual subitising and comparing numbers and objects to five.		**Addition and Subtraction** Understanding one more / one less and start to realise there is a relationship between consecutive numbers.		**Number** Explore the composition of numbers to 5.		
Spring Two	**Geometry: Properties of 3D shapes** Explore properties through construction.			**Fractions (3 weeks)** Recognise, find and name a half as one of two equal parts of an object, shape or quantity.			
Summer One	**Measures: Length, Height and Mass** Compare, describe for lengths and heights using language of long / short, longer / shorter, tall / short, heavy / light, heavier/ lighter.			**Geometry: Direction** Use positional language: below, above, next to, beside, in front, behind, underneath and on top.			
Summer Two	**Measure: Time** Sequencing everyday events, including daily routines. Morning / afternoon / evening			**Measure: Capacity and Temperature** Develop conceptual language for every area. Full/empty and hot/cold.			

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	Days of the week / months. Introduce the analogue clock.		

Semi-formal							
Week	Week One	Week Two	Week Three	Week Four	Week Five	Week Six	Week Seven
Autumn One	**Number and Place Value** (to ten and then twenty) Count to and across 10, forwards and backwards, from 0, 1 or any given number Count, read and write numbers to 20 One more, one less		**Addition and subtraction** Number bonds to 10 Add and subtract one-digit and two-digit numbers to 10 including zero. Represent and use number bonds and related subtraction facts to 10. Read, write and interpret mathematical statements involving addition, subtraction and equals signs.		**Measures: Time** Compare, describe and solve practical problems for time using language of quicker, slower, earlier, later. Sequencing events (before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening).	**Geometry: Properties of shape** 2-D shapes (rectangles, squares, circles and triangles) Compare shapes identifying similarities and differences.	
Autumn Two	**Number and Place Value** One more / one less Represent numbers to 20 using objects – 10 frames and numicon. Count, read and write numbers to 100 in numerals (100 square).		**Measures: Money** Recognising coins to 10 – 1p, 2p, 5p, 10p	**Addition and Subtraction:** money context (coins to 10)	**Measures: Length and height** Compare, describe and solve practical problems for lengths and heights using language of	**Addition and Subtraction:** length context	**Measures: Time** Recognise and use language relating to dates including days of the week, weeks, months and years.

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				long / short, longer / shorter, tall / short, double / half. Measure and record lengths and heights		
Spring One	**Number and Place Value** (beyond 20) Recap prior learning. Read and write numbers 1 -20 in numerals and words. Count in multiples of 2, 5 and 10.		**Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20 One step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems.		**Geometry:** Properties of 3D shapes Recognise and name common 3-D shapes including cuboids, cubes, pyramids and spheres. Know that cuboids and pyramids are not always similar to each other.	
Spring Two	**Measures: Length and height** Compare, describe and solve practical problems for lengths and heights using language of long / short, longer / shorter, tall / short, double / half. Measure and record lengths and heights **Measure: Mass / Weight**			**Measure:** Capacity and Volume Compare, describe and solve practical problems for capacity and volume using the language of full / empty, more than, less than, half full, quarter full **Addition and Subtraction:** capacity context		

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	Compare, describe and solve practical problems for mass and weight using the language of heavy / light, heavier than, lighter than. Measure and begin to record mas **Addition and Subtraction:** Length and mass context and weight.			
Summer One	**Multiplication and division** Solve one-step problems involving multiplication and division, by calculating using concrete objects and pictorial representations and arrays with the support of the teacher.	**Measure: Time** Measure and begin to record the following: hours, minutes and seconds Use o'clock and half past	**Measure: Money** Coins above 10p and notes. **Addition and Subtraction: money context**	
Summer Two	**Geometry: Position and Direction** Describe position, direction and movement including whole, half, quarter and three-quarter turns. (Language: left, right, top, middle, bottom, on top of, in front of, above, between, around, near, close and far, up and down	**Statistics:** Introduction to statistics Basic pictograms **Addition and Subtraction:** Statistics context	**Fractions** Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	

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Lower Formal							
Week	Week One	Week Two	Week Three	Week Four	Week Five	Week Six	Week Seven
Autumn One	**Number and Place Value** Recognise the place value of each digit in a two-digit number (tens and ones) Compare and order numbers from 0-100 using < > = Reading and write numbers to at least 100 in numerals and words.		**Addition and Subtraction:** (within 20) Solve problems with addition and subtraction using concrete and pictorial including numbers, quantities and measures. Recall addition and subtraction facts to 20 fluently. Show that addition of two numbers can be done in any order (commutative) but subtraction cannot. Recognise the inverse and using this to solve missing number problems.		**Geometry: 2D and 3D shape** Identify and describe the properties of 2-D shapes including the number of sides and lines of symmetry. Identify and describe the properties of 3-D shape including the number of edges, vertices and faces. Identify 2-D shapes on the surface of 3-D shapes. Compare and sort common 2-D and 3-D shapes and everyday objects. Draw line and shapes using a straight edge.		
Autumn Two	**Addition and Subtraction** Recall addition and subtraction facts to 100. Add and subtract numbers using concrete, pictorial and mentally including: o A two-digit number and ones o A two-digit number and tens o Two two-digit numbers o Adding three one-digit numbers		**Measure: Money** Recognise and use symbols for pounds and pence. Combine amounts to make different values. Find different combinations of coins that equal the	**Addition and subtraction:** money context	**Multiplication and Division** Mental maths – recall and use multiplication and division facts for the 2, 5 and 10 times tables. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equals signs. Solve problems involving multiplication and division using objects, repeated addition and arrays.		**Statistics** Read charts, interpret simple pictograms, tally charts, block diagrams and simple tables.

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	Recognise the inverse and that this can be used to solve missing number problems.	same amount of money.			
Spring One	**Measure: Money** Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. **Addition and Subtraction:** money context (giving change)	**Multiplication and Division** Mental maths – recall and use multiplication and division facts for the 2, 5 and 10 times tables. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equals signs. Solve problems involving multiplication and division using objects, repeated addition and arrays. Solve multiplication and division problems in context.			
Spring Two	**Number and Place Value** Identify, represent and estimate numbers using different representations including the number line. **Number and Place Value** Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward.	**Measure:** Length and Height Choose and use appropriate standard units to measure length/height in any direction to the nearest appropriate unit using rulers (m/cm). Compare and order lengths using < > = **Addition and Subtraction:** Length and Height context **Measure: Mass, capacity and volume** Choose and use appropriate standard units to measure mass to the nearest appropriate unit using scales (kg/g). Compare and order mass using < > = **Addition and Subtraction** Capacity and volume context			
Summer One	**Fractions** Recognise, find, name and write fractions 1/3, 1/4, 2/4, 3/4 of a length, shape, set of objects or quantity. Write simple fractions, for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	**Statistics:** Reading charts Interpret simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of	**Measure: Time** Minutes, hours and intervals of time – link to the 5 times table		

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	Fractions of amounts.	objects in each category and sorting these by quantity. Totalling and comparing data **Addition and Subtraction** statistics context		
Summer Two	**Geometry: Position and Direction** Order and arrange combinations of mathematical objects in patterns and sequences. Use mathematical vocabulary to describe position, direction and movement including rotation and turns, right angles for quarter, half the three-quarter turns.	**Measures: Time** Read and tell the time to five minutes, including quarter past / to the hour and draw the hands on a clock face to show these times. (Link back to position and direction)	**Measure: Temperature** Choose and use appropriate standard units to measure temperature to the nearest appropriate unit using scales (°C)Compare and order temperature using < > = **Addition and Subtraction:** Temperature context	

Upper Formal							
Week	Week One	Week Two	Week Three	Week Four	Week Five	Week Six	Week Seven
Autumn One	**Number and Place Value** Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Compare and order numbers up to 1000. Identify, represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words. **Addition and Subtraction** (mental maths)			**Measures: Time** (telling the time on an analogue clock moving onto time intervals using a number line)		**Multiplication and Division** Multiplication tables, associated division facts and mental methods.	
Autumn Two	**Addition and subtraction:** Beginnings of formal written	**Multiplication and Division** (two-digit by one-digit progressing to	**Fractions and Decimals** Recognise, find, name and write fractions 1/3, 1/4, 2/4, 3/4 of a length, shape, set of objects or quantity. Write		**Measures: Length and height (m, cm, mm)**	**Measures: Mass (g, kg)** Choose and use appropriate	**Four Operations:** Length and Mass context

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	methods with up to 3 digits	formal written for both)	simple fractions, for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2. Fractions of amounts. Introduce tenths.	Choose and use appropriate standard units to measure length/height in any direction to the nearest appropriate unit using rulers (m/cm). Compare and order lengths using < > =	standard units to measure mass. Compare and order mass using < > =	
Spring One	**Number and Place Value** Revision of value of 4-digit numbers moving beyond 1000.		**Four Operations:** Formal methods	**Measures: Length (m, cm, mm) Measures: Perimeter**		
Spring Two	**Geometry: Properties of shape (2D)** **Geometry: Properties of shape** (2D – right angles and turns) **Geometry: Properties of shape (3D)** **Geometry: Properties of shape** (horizontal, vertical, parallel and perpendicular lines)		**Measures: Volume and Capacity** (link to 3D shapes)	**Fractions and Decimals** Recognise, find, name and write fractions 1/3, 1/4, 2/4, 3/4 of a length, shape, set of objects or quantity. Write simple fractions, for example, 1/2 of 6 = 3. Recognise the equivalence of simple fractions as decimals. ½ = 0.5		
Summer One	**Measures: Mass Four Operations:** Length and Mass context **Four Operations:** Measures context		**Measures: Time** (12 and 24 hour clock and Roman Numerals) **Measures: Time** (seconds, days, weeks, months and leap years)	**Statistics: Interpreting and presenting data** **Four operations: Statistics** answering questions presented in tables and graphs		

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Summer Two	**Measures: Money** **Four Operations:** Money Context	**Fractions and Decimals** Revision of tenths and introduction to hundredths and decimal equivalents. Dividing by 10 and 10 Compare numbers with up to two decimal places. Rounding and comparing decimals.	

Year 10 and 11 Pearson Entry Exams							
Week	Week One	Week Two	Week Three	Week Four	Week Five	Week Six	Week Seven
Autumn One	**Number and Place Value** Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) and beyond. Compare and order numbers up to 1000. Identify, represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words. **Addition and Subtraction** (mental maths)			**Pearson Mock Exams**		**Multiplication and Division** Multiplication tables, associated division facts and mental methods.	
Autumn Two	**Addition and subtraction:** Beginnings of formal written methods with up to 3 digits **Multiplication and Division** (two-digit by one-digit progressing to formal written for both)			**Pearson Exams**			
The curriculum coverage includes all mathematical skills required to sit up to Entry Level 3. All pupils will start at Entry Level 1 then progress through the qualifications. All pupils can sit an exam up to three times. If a pupil does not pass entry level 1 after three attempts, then they are to progress to the PFA Hub functional mathematics curriculum. After an exam pupils continue on the curriculum coverage appropriate for their level of learning.							

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PFA Hub						
Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
All maths skills are applied to life skills and problem solving.						
	Leisure Maths Components **Time** • Planning time to attend leisure facilities – day of the week, morning or afternoon, calendar skills. • Reading leisure facility schedule. • Plan when to eat before or after activity. **Money** • Know the amount needed for entry. Ensure right coins – for example £1 for swimming locker. **Shape and space** • Be able to pack a kit bag or locker. **Position and Direction** • Plan route to the leisure facilities. Follow directions within leisure facility. Class teaching allows for pupils to be as independent as possible in these elements. Skills recorded for OCR accreditation.		**Shopping Maths Components** **Time** • Planning time to go to shops – day of the week, morning or afternoon, calendar skills. • Plan meals – when and what to eat to create shopping list. **Number** • Know quantities required on the shopping list. **Money** • Have money to cover shopping. **Shape and space / measure (mass / temperature)** • Be able to pack shopping back and kitchen cupboards / fridge / freezer. **Position and Direction** • Plan route to shops. Follow directions within a store to find an item. Class teaching allows for pupils to be as independent as possible in these elements. Skills recorded for OCR accreditation.		**Home and Community Maths Components** **Time** • Planning daily or weekly schedule, including chores and access to their local community. • Travel training including reading bus timetables. **Number** • Apply division and fractions when sharing with others. **Money** • To organise money to cover living expenses and access to community activities. **Position and Direction** • Plan access to community. Class teaching allows for pupils to be as independent as possible in these elements. Skills recorded for OCR accreditation.	
All maths is assessed through the OCR functional skills criteria – see PFA Hub curriculum document.						

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