



# STAG LANE JUNIOR SCHOOL

## Maths medium term plan: summer term

### Year 6

**Mental Maths objectives to be covered:**

**Number objectives should be covered at least 4 times a term.**

**Measurement/ geometry objectives should be covered at least 2 times a term.**

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

#### Starter suggestions for Number

- Know by heart facts for all multiplication tables up to  $12 \times 12$
- Find pairs of numbers with a sum of 100, decimals with a sum of 0.1, 1, 10.
- To derive related facts from those already known (e.g.  $4 \times 0.8$  linked to  $4 \times 8$  or  $3 + 7 = 10$  linked to  $0.3 + 0.7 = 1$ )
- Mentally multiply and divide two-digit and single-digit numbers. • Use partitioning to double or halve any number.
- Mentally multiply and divide pairs of multiples of 10 and 100
- Mentally multiply and divide two-digit decimals by a single digit number, e.g.,  $(U.t \times U \text{ or } U.t \div U)$ .
- Identify the multiples/factors of given numbers.
- Read and write any integer and use decimal notation for tenths, hundredths and thousandths and know what each digit represents.
- Compare and order two or more different positive and/or negative integers and/or decimal numbers with up to 3 decimal places, say which is the least / greatest; use the symbols  $<$   $=$  correctly and place on a number line.
- Calculate differences in temperature, including those that involve a positive and negative temperature.
- Count forwards and backwards in steps of 0.001, 0.01, 0.1, 1, 10, 100, 1000, 25, 2.5, 0.2, 0.25 from any positive or negative integer or decimal. • Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places).
- Multiply and divide whole numbers and decimals mentally by 10 or 100, and integers by 1000 and use this to convert between units of measurement, e.g. cm to m, g to kg etc.
- Round whole numbers to the nearest 10, 100, 1000 or a number with up to three decimal places to the nearest integer or number of decimal places.

#### Starter suggestions for Measurement, Geometry and Statistics

- Know and use standard metric units of measure.
- Estimate and calculate length (including perimeter), mass, volume/capacity and area.
- Convert between units by multiplying and dividing by powers of 10.
- Know metric and imperial equivalences of feet, inches, pints and pounds.
- Convert between miles and kilometres using knowledge that 5 miles is roughly equivalent to 8km.
- Read, write and convert between units of time.
- Identify and describe properties of 2D and 3D shapes, including regular and irregular.
- Find missing angles and lengths using properties of shape.
- Estimate and identify acute, obtuse and reflex angles.
- Describe positions on the first quadrant of a coordinate grid.
- Solve comparison, sum and difference problems using information presented in all types of graph.
- Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).

Unit	Strand	Learning Objectives
<b>Week 1</b>	<b>Place value, decimals and fractions</b>  <b>Consolidation of place value before end of KS2 SATs</b>	To count forwards or backwards in steps of integers, decimals or powers of 10 for any number. To order and compare numbers including integers, decimals and negative numbers. To identify, represent and estimate numbers using the number line. To find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more or less than a given number. To round decimals with three places to the nearest whole number or one or two decimal places. To use common factors to simplify fractions; use common multiples to express fractions in the same denomination. To compare and order fractions, including fractions $>1$ (including on a number line).
<b>Week 2</b>	<b>Mental and written calculation</b>	To perform mental calculations, including with mixed operations and large numbers and decimals. To identify, represent and estimate numbers using the number line. To add and subtract whole numbers and decimals using formal written

	<b>Consolidation of mental and written calculations prior to KS2 SATs.</b>	<p>methods (columnar addition and subtraction).</p> <p>To choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</p> <p>To select a mental strategy appropriate for the numbers involved in the calculation.</p> <p>To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To solve problems involving addition, subtraction, multiplication and division.</p> <p>To use their knowledge of the order of operations to carry out calculations involving the four operations.</p>
<b>Week 3</b>	<b>Ratio and proportion</b>	<p>To solve problems involving the relative sizes of two quantities</p> <p>To solve problems involving the relative sizes of two quantities.</p> <p>To solve problems those involve unequal sharing and grouping.</p> <p>To solve problems involving similar shapes or quantities where the scale factor is known or can be found</p>
<b>Week 4</b>	<b>WEEK BEFORE SATs</b>	<p>To consolidate KS2 learning in preparation for SATs.</p> <p>Preparation and practise using a variety of arithmetic and reasoning questions.</p>
<b>Week 5</b>	<b>SATs week</b>	<b>SATs week.</b>
<b>Week 6</b>	<p>Using and Applying Mathematics</p> <p><b>SPIRALS Project</b></p>	<p>To solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use (Y6)</p> <p>To tabulate systematically the information in a problem or puzzle; interpret solutions in the original context and check their accuracy</p> <p>To suggest, plan and develop lines of enquiry; collect, organise and present information, interpret results and review methods; identify and answer related questions.</p>
<b>Week 7</b>	<b>SPIRALS Project</b>	<p>To represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses.</p> <p>To explain reasoning and conclusions, using words, symbols or diagrams as appropriate.</p> <p>To develop and evaluate lines of enquiry; identify, collect, organise and analyse relevant information; decide how best to represent conclusions and what further questions to ask.</p>
<b>Week 8</b>	<b>Statistics</b>	<p>To calculate the mean average and understand what it represents</p> <p>To construct and interpret distance/time line graphs where intermediate points have meaning.</p> <p>To construct and interpret line graphs where intermediate points have meaning, including conversion line graphs</p> <p>To understand pie charts are a way of representing data using percentages, begin to interpret and construct pie charts</p> <p>To interpret and begin to construct pie charts, understand pie charts are a way of representing data using percentages</p>
<b>Week 9</b>	<b>Problem solving</b>	<p>To use mathematical reasoning to investigate and solve problems, solve problems using doubling, solve calculations with enormous numbers and</p>

		<p>estimate and predict using mathematical knowledge</p> <p>To recognise and use the term tessellate and begin to relate to knowledge of 2D shapes and angles and use knowledge of geometry to make tessellating patterns</p> <p>To find out about famous mathematicians including Brahmagupta (famous 7th century Indian mathematician) and use different methods to multiply</p> <p>To know John Napier was a famous mathematician and use his 'bones' to solve multiplications</p> <p>To use lattice multiplication to solve multiplications of 2-, 3-, and 4-digit numbers and begin to compare historical multiplication methods</p>
<b>Week 10</b>	<b>Problem solving</b>	<p>To explore binary numbers</p> <p>To solve mathematical puzzles</p> <p>To use multiplication facts to solve puzzles, find digital roots and look for patterns</p> <p>To explore Fibonacci sequences.</p> <p>To solve addition and subtraction problems in contexts, deciding which operations and methods to use and why.</p>
<b>Week 11</b>	<b>Fractions- including ratio</b>	<p>To solve addition and subtraction problems in contexts, deciding which operations and methods to use and why.</p> <p>To revise adding and subtracting fractions with different denominators, including those which give answers greater than 1</p> <p>To revise multiplying pairs of fractions and multiplying and dividing fractions by whole numbers</p> <p>To solve problems involving ratios</p> <p>To read intermediate points off scales</p>
<b>Week 12</b>	<b>ASSESS AND REVIEW</b>	

Need to build in assessment weeks for basic skills, superheroes, mid-term and end of year tests.