Lockhart State School
Maths Plan 2012
To be numerate is to use mathematics confidently, fluently and effectively to meet the demands of life at home, at work and in civic life. This involves choosing and using mathematical knowledge and concepts to solve problems in a range of contexts.

Roadmap for P-10 curriculum teaching, assessment and reporting. Teaching and Learning Branch, Education Queensland

In school education, numeracy is a fundamental component of learning … across all areas of the curriculum. It involves the disposition to use, in context, a combination of:

- underpinning mathematical concepts and skills from across the discipline (numerical, spatial, graphical, statistical and algebraic)
- mathematical thinking and strategies
- general thinking skills
- grounded appreciation of context

Rationale

At Lockhart, mathematics is an integral and highly valued component of the curriculum. Students identify and explore mathematics concepts through active investigation of real-life situations involving mathematics. They understand that mathematics can help them to make meaning of their world.

When learning about mathematics, students recognise that there are particular ways of working with concepts in mathematics. Students also recognise that there are particular facts and procedures required for knowing and understanding in mathematics. Students and teachers value mathematics as a way of investigating, thinking, reasoning and relating to real-life situations.

Mathematics is a way of making sense of the world. The mathematics Key Learning Area helps students to know about mathematics, know how to do mathematics, and know when and where to use it. All people need the capacity to make sense of and be critical about numerical information. To achieve this they need a disposition to think and act mathematically, and the confidence and intuition to apply mathematical concepts to explore and solve everyday problems that confront them.
Skills needed for mathematics include mental computation and deep understandings of how numbers work. They also require meta-cognitive/higher order skills such as reflection, analysis, estimation, justification, synthesis and communication skills. These skills are needed to describe each of these in appropriate language and format, and are learned through working mathematically. The ways of working will be used to provide guidance of what students will be expected to do.

At Lockhart State School, mathematics is seen as a dynamic field of study. Students from our Prep Year to students in Year 12 will be led to discover the power and place of mathematics, both as a discipline, as it relates to learning in each of the other Key Learning Areas, and in our everyday encounters at work and play outside school.

**Numeracy — our view**

Mathematics and numeracy are **not** the same thing.

To be numerate is to use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life. In school education, numeracy is a fundamental component of learning … across all areas of the curriculum. It involves the disposition to use, in context, a combination of:

- underpinning mathematical concepts and skills from across the discipline
- mathematical thinking and strategies
- general thinking skills
- grounded appreciation of context.


Numeracy within the mathematics classroom is identifying the mathematics in a context relevant to the student. The teacher’s role is to provide students with the skills and confidence to use the mathematics they have identified. In applying and using this mathematics, independently and outside the mathematics ‘lesson’, students demonstrate numerate behaviour. In the early phase, numeracy is primarily about teaching children the skills they need to give them confidence in using mathematics — an essential ingredient if students are to be numerate. Teachers should also model this confidence at every opportunity.

It is also essential for classroom teachers to teach mathematics in ways that instil the confidence and attitudes needed to choose and use mathematics outside the mathematics lesson. They do this by creating an environment that encourages risk-taking, doesn’t solely focus on right and wrong answers (tick-cross approaches), and engages students in activities, discussions, explorations and investigations where deep learning is promoted and where children have fun. Where this doesn’t occur, children might know a lot of mathematics — or procedures to ‘get sums right’ — but might not be numerate because they don’t have the confidence to draw on this knowledge when not directed to by a teacher.

**Math Programs at LSS**

Early Years – Pre-Prep – Year 3
This program is designed to allow students to engage in deep and meaningful numeracy and literacy activities. It aims to build children’s mathematical language in play based situations and to support their understanding of representations commonly used to express mathematical concepts. This program allows students to experience everyday mathematics with hands on learning experiences.

Electronic teaching collection in the Learning Place.
Lessons and resources for each year level are accessed to assist in teaching concepts across all sub-strands of the maths curriculum.
(link here)

JEMMs and EMMs

*Junior Elementary Math Mastery (JEMM)* and *Elementary Math Mastery (EMM)* is a meticulously designed, highly innovative mental math program that has been specifically developed to embrace the Australian Mathematical Curriculum Profile. Within itself it is a fully comprehensive mathematics program that requires only fifteen minutes daily to implement, plus five minutes for feedback, diagnosis, and correction problems

**Assessment**

See attached assessment framework.
<table>
<thead>
<tr>
<th>Maths</th>
<th>Me myself and I</th>
<th>Myself and others</th>
<th>How things grow</th>
<th>What's out there</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In this unit students build upon prior learning. They will: • explore numbers to 100, including partitioning and the use of number lines • skip counting by twos, fives, and tens • solve simple addition and subtraction problems • recognise part-whole relationships • tell time to the half-hour • describe duration, using months, weeks days and hours • connect days of the week to familiar events and actions • describe position and movement.</td>
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<td>In this unit students build upon Term 1 concepts. They will: • investigate, explore and describe patterns in number including partitioning and the use of number lines • skip count by twos, fives, and tens • solve simple addition and subtraction problems • measure using uniform informal units • measure and compare the length and capacity of objects</td>
<td>In this unit students build upon Term 1 and 2 concepts. They will: • apply knowledge of number to practical situations, including addition, subtraction and partitioning • skip count by twos, fives and tens • solve simple addition and subtraction problems • measure attributes of coins • classify two-dimensional shapes and three-dimensional</td>
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  - explore number sequencing, counting, grouping, partitioning and ordering collections to at least 1000  
  - investigate the connection between addition and subtraction through mental and written strategies and representations of problems  
  - recognise and represent multiplication as arrays, groups, and patterns  
  - read time to the quarter hour  
  - explore monthly and seasonal data and use in the creation of data displays. | In this unit students build upon prior learning. They will:  
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<td>• investigate odd and even numbers</td>
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<td>• recall and use single digit addition facts</td>
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<td>• solve problems involving multiplication</td>
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<td>• apply place value to 10 000</td>
<td>• apply place value to 10 000</td>
<td>• model and represent unit fractions</td>
<td>• recall and use multiplication facts of 2, 3, 5 and 10</td>
<td>• solve problems involving multiplication</td>
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<td>• represent money and count change</td>
<td>• recognise and explain the connection between addition and subtraction</td>
<td>• represent unit fractions</td>
<td>• recall and use multiplication facts and</td>
<td>• conduct simple money transactions to the nearest five</td>
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| 4 | **In this unit students build upon prior learning.** They will:  
- recognise, represent, order and apply place value of numbers up to tens of thousands  
- investigate properties of odd and even numbers  
- recall multiplication facts (2,3,4,5,10)  
- investigate equivalent fractions used in context (count by halves, quarters and thirds)  
- investigate multiplication number patterns. | **In this unit students build upon prior learning.** They will:  
- recognise, represent, order and apply place value of numbers up to tens of thousands  
- recall multiplication and related division facts (2,3,4,5,6,9,10)  
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- recall multiplication facts (2,3,4,5,10)  
- investigate equivalent fractions used in context (count | **In this unit students build upon Term 1 concepts.** They will:  
- apply place value to partition, rearrange and regroup numbers to at least tens of thousands  
- recall multiplication and related division facts 0-9  
- use efficient written and mental strategies for | **In this unit students build upon Term 1 and 2 concepts.** They will:  
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- apply place value to partition, rearrange and regroup numbers to at least tens of thousands  
- solve word problems for multiplication and division using a variety of strategies  
- explore everyday chance events. |
| 5 | In this unit students build upon prior learning. They will:  
identify and describe factors and multiples  
use estimation, rounding and efficient mental and written strategies to solve problems | In this unit students build upon prior learning. They will:  
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| 6 | In this unit students build upon prior learning. They will:  
• identify and describe prime, composite, square and triangular numbers  
• use efficient mental and written strategies for all four operations with whole numbers | In this unit students build upon Term 1 concepts. They will:  
• identify and describe prime, composite, square and triangular numbers  
• investigate positive and negative numbers | In this unit students build upon Term 1 concepts. They will:  
• investigate positive and negative numbers  
• use efficient mental and written strategies for all four operations | In this unit students build upon Term 1 and 2 concepts. They will:  
• multiply decimals by whole numbers and perform  
• use equivalent number sentences involving multiplication and division to find unknown quantities  
• use appropriate units of measurement for length, area, volume, capacity and mass  
• estimate, measure, compare and construct angles. | Addition and subtraction of fractions with the same denominator  
• use equivalent number sentences involving multiplication and division to find unknown quantities  
• use grid references for locations and use directional language. |
| 7 | In this unit students build upon prior learning. They will:  
• apply associative, commutative and distributive laws  
• compare, order, add and subtract integers  
• compare fractions and mixed numbers and represent these on a number line | In this unit students build upon prior learning. They will:  
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<td>• solve addition and subtraction problems involving fractions</td>
<td>• add and subtract integers</td>
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<td>• express quantity as a fraction of another</td>
<td>• compare fractions and mixed numbers and represent these on a number line</td>
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<tr>
<td>• solve simple linear equations</td>
<td>• solve addition and subtraction problems involving fractions</td>
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<tr>
<td>• construct sample spaces</td>
<td>• express quantity as a fraction of another</td>
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<tr>
<td>• investigate probabilities of events.</td>
<td>• introduce the concept of variables when creating algebraic expressions</td>
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<td>• solve addition and subtraction problems involving fractions</td>
<td>• solve simple linear equations</td>
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<tr>
<td>• compare fractions and mixed numbers and represent these on a number line</td>
<td>• draw views of three-dimensional shapes</td>
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<td>• investigate and calculate best buys</td>
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<tr>
<td>• construct and analyse data displays.</td>
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<td>• investigate linear and non-linear relationships</td>
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<td>• establish formulas for area</td>
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<td>• fractions, decimals and percentages</td>
<td>• classify triangles and describe quadrilaterals</td>
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<td>• round decimals to a specific number of decimal places</td>
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<td>• construct and analyse data displays.</td>
<td>• calculate and interpret mean, median, mode, and range.</td>
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<td>• fractions, decimals and percentages</td>
<td>• the Cartesian plane and find coordinates for given points</td>
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<td>• investigate linear and non-linear relationships</td>
<td>• explore corresponding, alternate and co-interior angles</td>
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<tr>
<td>• establish formulas for area</td>
<td>• investigate angles, parallel lines, translation, symmetry, reflection, rotation and coordinates on the Cartesian plane.</td>
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<td>• classify triangles and describe quadrilaterals</td>
<td>• calculate and interpret mean, mode, median and range.</td>
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<td>• interpret data.</td>
<td>• construct, compare and analyse a range of data displays</td>
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<td>• investigate, interpret and analyse graphs</td>
<td>• investigate the collation of large count data.</td>
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<td>• calculate and interpret mean, median, mode, and range.</td>
<td>• distributive laws to algebraic equations</td>
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<td>• the Cartesian plane and find coordinates for given points</td>
<td>• calculate the volume of rectangular prisms</td>
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<td>• investigate, interpret and analyse graphs</td>
<td>• relate the calculation of areas and volumes to substitution and the solution of simple equations.</td>
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