

Numeracy

POLICY

Responsibility: James Sait (Numeracy Co-ordinator)

Rationale:

- Implementation of the Australian Curriculum AusVELS in Mathematics across the school will provide all students with a sequential curriculum framework that guides their learning, as well providing measures of learning achievement that allow students, teachers and parents the opportunity to assess student performance against expected achievement standards in Mathematics.

Aims:

- To optimise student learning through the implementation of the Australian Curriculum AusVELS in Mathematics across each learning area from Foundation to Year 6 in a manner consistent with departmental requirements and locally identified needs.

Implementation:

- Our school is committed to the successful implementation of each of the Australian Curriculum AusVELS learning areas from Foundation to Year 6.
- School staff will take on the responsibility of developing and implementing a strategic plan for the integration of the Australian Curriculum in Mathematics from Foundation to Year 6 and other curriculum issues as they arise.
- In doing so, all Department of Education timelines and reporting requirements will be met.
- Whole school professional development opportunities will be provided, as well as personal professional development plans developed that cater for the Australian Curriculum understanding and implementation needs of each staff member.
- All teachers are required to work together to contribute to the development and implementation of guaranteed and viable Australian Curriculum based courses for all students, and to implement student needs based lessons using whole school agreed planning templates, assessment tools and lesson structures.
- Student achievement will be measured and reported to students, parents, Department of Education and the wider community against the Australian Curriculum achievement standards, in each of the mathematics learning areas.
- All staff will participate in the collection of student achievement data, and all staff will have input into school decisions resulting from interpretations of student achievement data.
- School staff will investigate and develop a teaching framework that encourages mathematical teaching through problem solving, encouraging students to use their learning to solve related problems.
- School council and allocated budgets will provide adequate resources for the implementation of the Australian Curriculum and associated professional development etc.

Method:

- Near-ability groupings across year levels
- Classroom teachers teach mathematics. Teachers work together to plan and teach effectively and will pursue opportunities for team teaching and whole group mathematics lessons where appropriate.

Timetable:

- 5 blocks of one hour per week.

Programs:

- Teaching is based off Michael Ymer's philosophies
- Problem Solving based learning
- Mathematics (Used a reinforcement of mathematics learning)

Lesson structure and strategies:

- 5min Lesson Warm Ups
- Modelled/Shared/Explicit Teaching
- Whole-part-whole teaching
- Grouped, paired and individual investigation / problem solving
- Homogenous and heterogeneous grouping
- Cater for all learning styles
- Provide an appropriate variety of learning tools
- Promote use of technology to expand learning

Assessment:

We follow the schools numeracy assessment schedule that we revise each year. Types of assessment across the school consist of On Demand, Numeracy Interviews, observation, anecdotal notes, work samples etc.

All students will have an Individual Learning Plan which is to be reviewed regularly.

Planning:

Staff will create an annual Numeracy Plan in alignment with AusVELS, the schools' Strategic Plan and Annual Implementation Plan.

Staff will plan across the network with teachers in like schools, teaching like grades.

Professional Development:

Staff are to attend any professional development available in the network, including PLT's and Numeracy coordinators meetings. The current focus in numeracy is Number and Problem Solving led by Michael Ymer. Professional Development will also be sought if whole school needs development.

Budget:

A budget is allocated to Numeracy each year, which is managed by staff in alignment with the schools' Strategic Plan, Annual Implementation Plan and Annual Numeracy Plan.

Content:

The AusVELS Curriculum: Mathematics is organised around the interaction of three content strands and four proficiency strands.

The content strands are *Number and Algebra*, *Measurement and Geometry*, and *Statistics and Probability*. They describe what is to be taught and learnt.

The proficiency strands are *Understanding*, *Fluency*, *Problem Solving*, and *Reasoning*. They describe how content is explored or developed, that is, the thinking and doing of mathematics. They provide the language to build in the developmental aspects of the learning of mathematics and have been incorporated into the content descriptions of the three content strands described above. This approach has been adopted to ensure students' proficiency in mathematical skills develops throughout the curriculum and becomes increasingly sophisticated over the levels of schooling.

Content strands

Number and Algebra

Number and Algebra are developed together, as each enriches the study of the other. Students apply number sense and strategies for counting and representing numbers. They explore the magnitude and properties of numbers. They apply a range of strategies for computation and understand the connections between operations. They recognise patterns and understand the concepts of variable and function. They build on their understanding of the number system to describe relationships and formulate generalisations. They recognise equivalence and solve equations and inequalities. They apply their number and algebra skills to conduct investigations, solve problems and communicate their reasoning.

Measurement and Geometry

Measurement and Geometry are presented together to emphasise their relationship to each other, enhancing their practical relevance. Students develop an increasingly sophisticated understanding of size, shape, relative position and movement of two-dimensional figures in the plane and three-dimensional objects in space. They investigate properties and apply their understanding of them to define, compare and construct figures and objects. They learn to develop geometric arguments. They make meaningful measurements of quantities, choosing appropriate metric units of measurement. They build an understanding of the connections between units and calculate derived measures such as area, speed and density.

Statistics and Probability

Statistics and Probability initially develop in parallel and the curriculum then progressively builds the links between them. Students recognise and analyse data and draw inferences. They represent, summarise and interpret data and undertake purposeful investigations involving the collection and interpretation of data. They assess likelihood and assign probabilities using experimental and theoretical approaches. They develop an increasingly sophisticated ability to critically evaluate chance and data concepts and make reasoned judgments and decisions, as well as building skills to critically evaluate statistical information and develop intuitions about data.

Proficiency strands

The proficiency strands describe the actions in which students can engage when learning and using the content. While not all proficiency strands apply to every content description, they indicate the breadth of mathematical actions that teachers can emphasise. They are represented across and within the Level Descriptions, Content Descriptions and Achievement Standards.

Understanding

Students build a robust knowledge of adaptable and transferable mathematical concepts. They make connections between related concepts and progressively apply the familiar to develop new ideas. They develop an understanding of the relationship between the 'why' and the 'how' of mathematics. Students build understanding when they connect related ideas, when they represent concepts in

different ways, when they identify commonalities and differences between aspects of content, when they describe their thinking mathematically and when they interpret mathematical information.

Fluency

Students develop skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily. Students are fluent when they calculate answers efficiently, when they recognise robust ways of answering questions, when they choose appropriate methods and approximations, when they recall definitions and regularly use facts, and when they can manipulate expressions and equations to find solutions.

Problem Solving

Students develop the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively. Students formulate and solve problems when they use mathematics to represent unfamiliar or meaningful situations, when they design investigations and plan their approaches, when they apply their existing strategies to seek solutions, and when they verify that their answers are reasonable.

Reasoning

Students develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying and generalising. Students are reasoning mathematically when they explain their thinking, when they deduce and justify strategies used and conclusions reached, when they adapt the known to the unknown, when they transfer learning from one context to another, when they prove that something is true or false and when they compare and contrast related ideas and explain their choices.

This policy is to be implemented in conjunction with the Mathematics Scope and Sequence AusVels documentation.

Evaluation:

- This policy will be reviewed as part of the school's review cycle.

This policy was last ratified by School Council

June 2015