The Australian Curriculum states the aims of the mathematics curriculum is to educate students to:

1. Be active, thinking citizens, appreciating and using the power of mathematical thinking and experience mathematics as enjoyable.
2. Be critical of how mathematics is used in their lives. Students will make predictions about chance events.
3. Be willing to take reasonable risks when solving problems.
4. Be adaptive thinkers, making of connections between related contexts.
5. Be strategic thinkers, expanding their repertoire of appropriate mathematical concepts and techniques.

Narangba Valley State School Support Documents and Strategies

**ASSESSMENT**

Teachers should use a variety of mathematical task types including those that give students choice of approach and those for which there is optimal strategy, those for which there are various possible solutions and those that have a single correct answer, those that incorporate ideas across content strands and those that require thinking in more than one discipline.

**REPORTING TO PARENTS OR TO SYSTEMS**

Based on the expectations for proficiency, it is essential that the content strands, proficiency strands, pedagogy, assessment and reporting requirements are connected coherently.

**THE RELATIONSHIP BETWEEN CONTENT AND PROFICIENCY STRANDS**

The four proficiency strands in the national mathematics curriculum are:

- Understanding, which includes building robust knowledge of adaptable and transferable mathematical concepts, the making and testing of generalisations, and the use of specific concepts, the confidence to use familiar to new contexts and the ability to ‘why’ and the ‘how’ of mathematics.
- Fluency, which includes skill in choosing appropriate procedures, carrying out procedures flexibly, accurately and efficiently, and applying algorithms effectively.
- Reasoning, which includes understanding and using mathematical processes of proving, evaluating, explaining, inferring, generalising and justifying.
- Problem Solving, which includes the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively.

The emphasis is on knowing what mathematics is and how it can be used. The numerate person:

- Chooses and uses mathematical tools appropriate for purpose
- Uses mathematical confidently and fluently in familiar and unfamiliar contexts
- Takes risks mathematically - willing to 'try out'
- Uses a range of informal and idiomatic strategies based on features of context
- Adapts approaches to context and personal
- Demonstrates orientation towards personal
- Checks for reasonableness of results in relation to context
- Demonstrates working with others
- Demonstrates a positive response to the use of Mathematics in a variety of contexts

The four content strands in the national mathematics curriculum are:

- Number & Algebra
- Measurement & Geometry
- Statistics and Probability
- Data Sense: Data and chance

**WHAT NUMERACY LOOKS LIKE**

Preparatory to Year 2 (students from 5 to 8 years of age)

The early years lay the foundation for learning mathematics. Children at this level can access powerful mathematical ideas that are relevant to their current lives, and it is the relevance to them of learning that prepares them for the following years. Learning the language of mathematics is vital in these years.

This can be achieved by developing a sense of number, order, sequence and pattern; understandings of quantities and their relationships, and attributes of objects and collections, and position, movement and direction, and an awareness of the collection, presentation and variation of data and its capacity to make predictions about chance events.

Year 3 to 6 (students from 8 to 12 years of age)

In these years there is importance placed on students studying coherent, meaningful and purposeful mathematics that is relevant to their lives. Students will require active experiences that allow them to construct key mathematical ideas, but there is a trend to move to using models, pictures and symbols to represent ideas. The curriculum will develop key understandings by extending the number, measurement, geometric and statistical learning from the early years to build foundations for future studies by emphasising patterns that lead to generalisations and describing relationships from data collected and represented, to make predictions and introducing topics that represent a key challenge in these years such as fractions and decimals.

**NUMERACY STRATEGY**

**DEFINITION**

Numeracy is defined as the capacity, confidence and disposition to use mathematics to meet the demands of learning, school, home, work, community and civic life. This involves choosing and using mathematical concepts to solve problems in a range of contexts.

**AIMS OF NUMERACY**

In school education, numeracy is a fundamental component of learning needed across all areas of the curriculum. It involves the disposition to use, in context, knowledge and skills from mathematics.

- Underpinning mathematical concepts and skills from across the discipline (in numerical, spatial, graphical, statistical and algebraic)
- Mathematical thinking and strategies
- General thinking skills
- Grounded appreciation of content

Unlike mathematics, which focuses on generalisation and abstraction, numeracy is embodied in specific contexts and has real-world purposes. People who are numerate draw on three kinds of know-how:

- Using mathematical concepts and skills
- Making sense of unfamiliar situations
- Being critical of how mathematics is used

Being numerate requires students to use and adapt intuition, tools and rules of thumb to meet specific circumstances and solve problems. Within a school setting, the teaching and learning of the students’ numeracy involves developing their ability to: be adaptive thinkers, be confident in applying mathematical knowledge in a range of contexts, be flexible in their thinking and be willing to take reasonable risks when solving problems.

**THE ROLE OF DIGITAL TECHNOLOGIES**

An important consideration in the structure of the curriculum is to embed digital technologies so that they are not seen as optional tools. Digital technologies allow new approaches to explaining and presenting mathematics, as well as assisting in connecting representations and deepening understanding.

**CONTENT STRANDS**

The content strands describe the ‘what’ that is to be taught and learnt while the proficiency strands describe the ‘how’ of the way the content is explored or developed i.e. the thinking and doing. The first strand describes the ‘content descriptors’. The four content strands of the Australian Curriculum include terms related to understanding, fluency, problem solving or reasoning.

In this way, proficiency strands describe how students interact with the content i.e. they describe how the mathematical content strands are enacted via mathematical behaviours. They provide the language to build in the developmental aspects of the learning of mathematics.

**NUMERACY STRANDS**

- Number Sense
- Data Sense
- Measurement
- Geometry
- Statistical Sense
- Algebraic Sense

**DATA SENSE**

- Inference
- Variation
- Association
- Randomness

**MEASUREMENT**

- Quantity
- Spatial
- Relative

**GEOMETRY**

- Position
- Movement
- Direction

**STATISTICAL SENSE**

- Data
- Chance

**ALGEBRAIC SENSE**

- Patterns
- Relationships

**CONNECTIONS TO OTHER LEARNING AREAS**

In this content strand the concentration in the early years to 8 years old (years 3 to 6) is the understanding of basic multiplication and division and the development of strategies for these operations. The term fraction is usually introduced from around 8 years of age (years 3 to 6) and then the term ratio is introduced from around 8 years of age (years 3 to 6). In many curricula includes functions, sets and logic.

The curriculum will develop key understandings by extending the number, measurement, geometric and statistical learning from the early years to build foundations for future studies by emphasising patterns that lead to generalisations and describing relationships from data collected and represented, to make predictions and introducing topics that represent a key challenge in these years such as fractions and decimals.

**FLUENCY STRANDS**

- Numeracy Strategy
- Numeracy Activities
- NVSS Algorithm Strategy
- NVSS Number Whiz
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**REASONING STRANDS**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**PROBLEM SOLVING STRANDS**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**NUMERACY STRAND**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**THEME: TECHNOLOGICAL INNOVATIONS**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**THEME: MULTICULTURAL AND CULTURAL DIVERSITY**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**THEME: DIVERSITY IN LEARNING**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz

**THEME: ENVIRONMENT AND SUSTAINABILITY**

- NVSS Numeracy Strategy
- NVSS Number Facts Program
- NVSS Model for Explicit Teaching
- NVSS Nuwhiz