Personal Futures

Mathematics

Essential Numeracy Level 1
COURSE DOCUMENT

PHASE 4
DRAFT FOR
CONSULTATION

Catholic
Education
Tasmania

INDEPENDENT
SCHOOLS
TASMANIA

Years 9 to 12 Learning

Tasmanian
Government

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Essential Numeracy, 150 hours – Level 1

This course is the Level 1 component of the proposed *Essential Numeracy* program.

Focus Area – Personal Futures

Courses aligned to the [Years 9 to 12 Curriculum Framework](#) belong to one of the five focus areas of Discipline-based Study, Transdisciplinary Projects, Professional Studies, Work-based Learning and Personal Futures.

Essential Numeracy Level 1 is a Personal Futures course.

Personal Futures courses prepare students to be independent young adults, able to lead healthy, fulfilled and balanced lives. Learning is highly personalised. Students develop strategies to optimise learning, make decisions, solve problems, set career and life goals, and pursue areas of strong personal interest. Personal Futures supports students to develop the required knowledge, skills and understandings to make informed choices that enhance their own and others' health and wellbeing. The inclusion of Personal Futures as a focus area responds to a range of contemporary research findings highlighting the importance of students having broad educational goals that include individual and collective wellbeing and opportunities for student agency as they navigate a complex and uncertain world.

Personal Futures courses have three key features that guide teaching and learning
- theory and dialogue
- informed action
- reflection and dialogue.
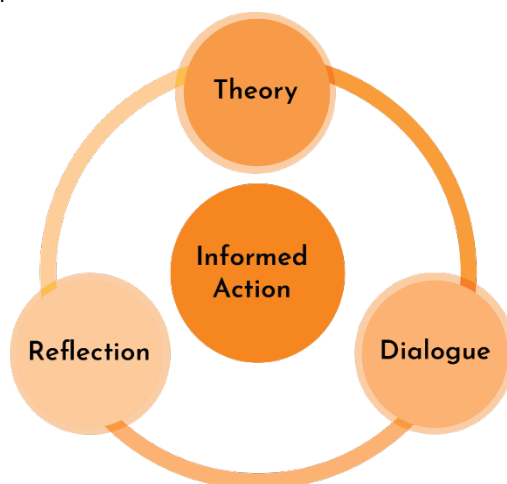
In this course learners will do this by:
- developing fundamental mathematics skills and numerate behaviours for life in meaningful contexts
- interacting and working with other people, engaging in mathematical discussions to explore ideas and compare solutions
- engaging with numbers to develop number sense and basic number skills to identifying challenges and solve problems
- using mathematical reasoning and reflection to trial strategies, check solutions, generate knowledge and take informed action.

Rationale

The proposed *Essential Numeracy* Level 1 course is designed to develop learners' fundamental mathematics skills and numerate behaviours and their ability to apply mathematical thinking and reasoning in real world contexts. In doing so, the course enables learners to understand how mathematics can support them to understand and take informed action in familiar and personally relevant contexts.

This course will promote numeracy outcomes that aim to enable learners to:

- use basic number skills independently in situations involving money, routine fractions, decimals and percentages
- recognise and interpret patterns, shapes, maps and plans
- estimate, calculate, measure and solve problems involving time, temperature, length, perimeter, mass, volume and capacity
- understand the likelihood of chance events and engage with information found in tables, graphs and charts.

This course is specifically designed for learners who require flexible and individualised learning programs. Successful completion of the course will provide learners with a level of numeracy that will enable them to move toward greater autonomy and independence in everyday living and the workforce.

The purpose of Years 9 to 12 Education is to enable all students to achieve their potential through Years 9 to 12 and beyond in further study, training or employment.

Years 9 to 12 Education enables Personal Empowerment, Cultural Transmission, Preparation for Citizenship and Preparation for Work.

This course is built on the principles of: Access, Agency, Excellence, Balance, Support and Achievement as part of a range of programs that enables students to access a diverse and flexible range of learning opportunities suited to their level of readiness, interests and aspirations.

Learning Outcomes

On successful completion of this course, learners will be able to:

1. communicate thinking, strategies and solutions using appropriate mathematical or statistical language
2. plan, organise and manage learning to complete basic tasks and assess progress
3. understand and use number properties and basic operations to represent familiar and personally relevant situations and solve problems
4. apply mathematical reasoning to make predictions, represent relationships and explain thinking in familiar and personally relevant situations
5. act as creative, critical and reflective thinkers to outline ideas and take informed action in familiar and personally relevant situations
6. identify and use routine fractions, decimals, percentages, money amounts and interpret patterns in familiar and personally relevant situations
7. gather, organise and interpret basic data, and describe likelihood of chance events in familiar and personally relevant situations
8. recognise, measure and estimate quantities and interpret basic shapes, maps and plans in familiar and personally relevant situations

Integration of General Capabilities and Cross-Curriculum Priorities

The general capabilities addressed specifically in this course are:

- Critical and creative thinking
- Literacy
- Numeracy
- Personal and social capability

The cross-curriculum priorities which may be enabled through this course are:

- Aboriginal and Torres Strait Islander Histories and Cultures
- Sustainability

Course Description

Essential Numeracy Level 1 is designed to develop learners' fundamental mathematical skills and numerate behaviour. This will enable learners to take informed action in familiar and personally relevant contexts that they will encounter in everyday living and at work.

This course will promote numeracy outcomes that aim to enable learners to:

- use basic number skills independently in situations involving money, routine fractions, decimals and percentages
- recognise and interpret patterns, shapes, maps and plans
- estimate, calculate, measure and solve problems involving time, temperature, length, perimeter, mass, volume and capacity
- understand the likelihood of chance events and engage with information found in tables, graphs and charts

Learners will refine their thinking by exploring concepts using hands-on concrete materials, sharing strategies and solutions with their peers, practicing new skills and engaging in mathematical discussions.

Pathways

The *Essential Numeracy* Level 1 course is designed to enable learning continuity for learners who have successfully completed Preliminary Mathematics Stage 4.

Essential Numeracy Level 1 will provide the fundamental number skills and numerate behaviour for learners pursuing further mathematics study in *Essential Mathematics* Level 1.

Course Requirements

Access

This course requires learners to collaborate with others.

Resource Requirements

The learning outcomes in this course require learners to have access to specific mathematics manipulatives and concrete materials including play money (Australian denominations), counters, dice, spinners, blocks, and three-dimensional models.

Learners will require occasional access to general calculators in this course. On occasions, computers and the internet will be required to enable learners' access to interactive models, information and simple data sources such as newspaper articles or store catalogues.

Course Structure and Delivery

Structure

This course consists of three 50-hour modules.

Modules Available
- Module 1: Numbers and patterns
- Module 2: Everyday chance and data
- Module 3: Everyday measurement and shapes

Delivery

Module 1 should be delivered first, or concurrently with Module 2 and Module 3 which can be taught in any order.

Course Content

Module 1 – Numbers and patterns

This module contains four topics:

- Understanding number properties
- Decimals, percentages and money
- Fractions
- Patterns

In this module, learners will review the basic properties of numbers, use of simple mathematical operations and the concept of place value. They will carry out simple money calculations, describe patterns in their surrounding environment and explore different representations of numbers. The knowledge, understanding and skills and understanding in this module are fundamental for engagement in the rest of the course.

Module 1 Learning Outcomes

The following Learning Outcomes are a focus of this module:

1. communicate thinking, strategies and solutions using appropriate mathematical or statistical language
2. plan, organise and manage learning to complete basic tasks and assess progress
3. understand and use number properties and basic operations to represent familiar and personally relevant situations and solve problems
4. apply mathematical reasoning to make predictions, represent relationships and explain thinking in familiar and personally relevant situations
5. act as creative, critical and reflective thinkers to outline ideas and take informed action in familiar and personally relevant situations
6. identify and use routine fractions, decimals, percentages, money amounts and interpret patterns in familiar and personally relevant situations

Module 1 Content

Key knowledge and skills

Topic 1 - Understanding number properties

This topic has two sub-topics:

- Basic number skills and operations
- Place value

Basic number skills and operations:

- recognise language related to numbers, for example:
  - few, less, more, none, all, double, triple, halve, third, first
- count in different contexts, for example:
  - count forward by tens
  - count backwards
  - count with coins
  - count time on the clock in five-minute intervals
- use ordinal terms and post determiners in everyday contexts, for example:
  - 'it was Frederick's *first (1ˢᵗ)* birthday'
  - '*Next* you need to add the cherries'
- recognise factors and multiples of numbers
- recognise fractions in everyday contexts, for example:
  - add ¼ cup sugar to the cake mix
- recognise the concepts of percentage increase and percentage decrease
- recognise decimals and percentages in everyday contexts, for example:
  - a 30% off sale
  - purchasing 1.5 kg of pumpkin
- use addition, subtraction, multiplication and division in everyday contexts, for example:
  - if I have $10 and want to buy two loaves of bread that each cost $4.50, do I have enough money?
- complete number sentences involving one or more operations by calculating missing values, for example:
  - $8 \times ? = 24, ? - ? = 5, ? + 7 - 3 = 8$, and relate to everyday contexts
- use the 'for each' idea to find the different combinations available in situations involving 2 or 3 choices, for example:
  - Simon has a red shirt and a blue shirt. He has black shorts, blue shorts and green shorts. How many different combinations of outfit can Simon make?
- use a calculator to solve number problems, for example:
  - how many cans of soft drink will I have if there are 6 cans in a carton and I buy 3 cartons? If I am having a party with 20 people, will there be enough soft drink for everyone to drink 1 can?
- solve number problems and explain the strategies used

Place value:

- identify which digit is in a given place value for a number, for example:
  - identify how many hundreds there are in 523
- match place value to the digits of an integer

- recognise, read and record numbers and interpret numerical information in various contexts, for example:
  - numbers in sports scores and statistics
  - residential and commercial building addresses
- compare and order numbers in various contexts, for example:
  - least to most expensive property sale
  - events occurring over time
- partition numbers into place number parts, including to aid with addition and subtraction

Topic 2 - Decimals, Percentages and Money
- read, write, order and compare decimal numbers
- recognise, match, sort, order and use Australian currency to purchase items
- read and write money amounts in numerals and words
- estimate costs and change on single item purchases, for example:
  - select appropriate coins and notes to tender after estimating costs
  - use rounding to estimate the amount of change due such as to the whole dollar or 50c
  - recognise whether they have been given the correct change during a purchase
- recognise, read and write the % symbol as 'per cent'
- recognise and explain the meaning of a percentage as a part of 100
- describe the use of percentages in everyday life, for example:
  - what is meant by '25% off' in a sale, or an '80% goal-kicking success rate'
- recognise that there are alternate methods of using a calculator to calculate percentages of amounts, for example:
  - using a % key or using 'percentage ÷ 100 × amount' or using the decimal equivalent of the percentage

Topic 3 - Fractions
- recognise language related to fractions, for example:
  - equal parts, share, divide, whole, half, quarter
- identify routine fractions in written and numeric form, for example:
  - halves, quarters, thirds, tenths, ½, 1/3, 2/3, ¼, ¾, 4/10 etc
- identify fractions in everyday contexts, for example:
  - walking a third of the way up the street
  - going to a half-price sale
  - buying half a dozen eggs
- recognise fractions as part-whole relationships. That is a fraction represents a whole divided into a number of equal parts
- recognise the numerator as the number of equal fractional parts and the denominator as the number of equal parts the whole has been divided into, for example:
  - $\frac{3}{4}$ means three out of four equal parts
- recognise how many parts are needed to make a whole or 100%, for example:
  - four quarters = one whole
- represent fractions using a variety of strategies, including concrete materials, diagrams and numerals as appropriate
- represent fractions for given situations, for example:
  - write the fraction $\frac{1}{4}$ when they eat 2 out of 8 slices of pizza
  - express 50c as $\frac{1}{2}$ of a dollar

- describe each region of a netball court as a one-third
- compare fractions, using language relating to size for example:
  - recognise that half of something is more than a quarter of it
  - recognise that two-thirds of something is twice as much as one-third of something
- divide diagrams, objects, groups of objects or numbers into fractional parts, for example:
  - divide a group of objects into quarters
  - cut a sandwich in half
  - divide a flag into thirds
- represent equivalent fractional parts in different ways, for example:
  - how many different ways can you represent one half of this rectangle?
- solve simple problems involving addition and subtraction of routine fractions using concrete materials, diagrams, formal recording methods or calculators
- represent decimals as fractions of 10, 100, etc, for example:
  - $0.3 = \frac{3}{10}$
- represent percentages as fractions of 100, for example:
  - $40\% = \frac{40}{100}$

Topic 4 - Patterns
- recognise patterns in the environment, for example:
  - in nature
  - in artwork
  - in company logos
  - in the home
  - in the classroom
  - in pictures
  - online
- recognise, copy and continue simple shape and whole number patterns
- create simple shape and whole number patterns
- describe simple shape and whole number patterns informally, for example:
  - 'the house numbers on this side of the street are all odd and go up by twos'
- develop a rule for a given simple whole number pattern and express it mathematically, for example:
  - add five to the previous number
  - double the number and take away 1
  - for each bulls-eye, add 10 to the competitor's total

Module 1 Work Requirements Summary
The work requirements of a course are processes, products or performances that provide a significant demonstration of achievement that is measurable against the course's standards. Work requirements need not be the sole form of assessment for a module.

This module includes 10 short responses as work requirements.

See Appendix 3 for summary of Work Requirement specifications for this course.

Module 1 Assessment
This module has a focus on criteria 1, 2, 3, 4, 5 and 6.

Module 2 – Everyday chance and data

This module contains four topics:

- Gathering data
- Organising and displaying data
- Modelling and interpreting situations
- Probability of events

In this module, students will learn about and apply different data collection techniques. They will practice organising and displaying data, describe chance events, explore simple mathematical models, and draw simple conclusions based on given information.

Module 2 Learning Outcomes

The following Learning Outcomes are a focus of this module:

1. communicate thinking, strategies and solutions using appropriate mathematical or statistical language
2. plan, organise and manage learning to complete basic tasks and assess progress
3. understand and use number properties and basic operations to represent familiar and personally relevant situations and solve problems
4. apply mathematical reasoning to make predictions, represent relationships and explain thinking in familiar and personally relevant situations
5. act as creative, critical and reflective thinkers to outline ideas and take informed action in familiar and personally relevant situations
7. gather, organise and interpret basic data, and describe likelihood of chance events in familiar and personally relevant situations

Module 2 Content

Key knowledge and skills

Topic 1 - Gathering data

- recognise information in a variety of simple tables and graphs
- recognise features of simple tables and graphs
- recognise examples of basic data observable in their everyday life
- identify the purpose of collecting a set of data, for example:
  - identify why the owner of the local shop may want to know the most popular flavour of drink purchased
- pose a question that may be answered by a basic set of data
- identify a range of ways that data can be collected to answer a given question, for example:
  - a verbal or written survey
  - observations
  - research on the internet
- use digital technology to conduct surveys, for example:
  - online survey tools
- select the best method to collect desired data
- design an appropriate data-collection tool for a given purpose
- explain the need to avoid bias when collecting data and suggest ways to do so
- read a range of simple graphs and tables to gather information

- investigate basic datasets related to a range of cross-curricular focus areas, for example:
  - data on the environment
  - data related to Australia's neighbouring regions and cultures
  - local, state and national census data from the Australian Bureau of Statistics

Topic 2 - Organising and displaying data

- record collected data using a variety of means, for example:
  - tally marks
  - concrete materials
  - symbols
  - digital technologies
- order and sort numbers using terms, for example:
  - ascending, descending
  - 'from 1 to 10 inclusive'
- order and sort data into groups, categories or ranges
- complete pre-constructed data tables either on paper or digitally, for example:
  - a spreadsheet

Topic 3 - Modelling and interpreting situations

- read, describe and draw conclusions from simple graphs that model real situations, for example:
  - use a graph of blood alcohol content levels over time to estimate when a person could safely drive a car after drinking alcohol
- display information from real-life situations in simple graphs, for example:
  - plot the cost of watering the vegetable garden against the number of litres of water required on a line graph
- complete a table of values from a simple graph, for example:
  - tabulate the number of various food items sold at the canteen by day for the past month.

Topic 4 - Probability of events

- recognise language related to chance and probability, for example:
  - certain, highly likely, likely, probably, unlikely, impossible, 50:50
- recognise the elements of chance in everyday events
- recognise that some events are entirely related to chance, for example:
  - purchasing the winning raffle ticket
- recognise that the range of probabilities is from 0 to 1, or from 0 to 100% in percentage terms
- represent probabilities using a range of notations, for example:
  - words, fractions, percentages
- recognise equally likely events, for example:
  - getting heads or tails on a coin
- recognise non-equally likely events, for example:
  - randomly selecting a green marble from a bag containing unequal numbers of each colour marble
- order events based on their probability
- understand the term 'random' as applied to probability, for example:
  - 'a participant will be selected at random'
  - describe the likelihood of familiar events

Module 2 Work Requirements Summary

The work requirements of a course are processes, products or performances that provide a significant demonstration of achievement that is measurable against the course's standards. Work requirements need not be the sole form of assessment for a module.

This module includes one (1) project as the work requirement.

See Appendix 3 for the full specifications of the Work Requirements of this course.

Module 2 Assessment

This module has a focus on criteria 1, 2, 3, 4, 5 and 7.

Module 3 – Everyday measurement and shape

This module contains four topics:

- Length and perimeter
- Shapes, maps and plans
- Time and temperature
- Mass, capacity and volume

A major focus of this module is developing learners' skills in measuring time, length, mass, temperature and capacity using appropriate measuring devices and metric units. Where appropriate, the skills developed should be applied to relevant real-life situations. Additionally, learners will explore the properties of two-dimensional shapes and three-dimensional objects, measure perimeters, recognise the connection between mass, capacity and volume and interpret familiar maps and plans.

Module 3 Learning Outcomes

The following Learning Outcomes are a focus of this module:

1. communicate thinking, strategies and solutions using appropriate mathematical or statistical language
2. plan, organise and manage learning to complete basic tasks and assess progress
3. understand and use number properties and basic operations to represent familiar and personally relevant situations and solve problems
4. apply mathematical reasoning to make predictions, represent relationships and explain thinking in familiar and personally relevant situations
5. act as creative, critical and reflective thinkers to outline ideas and take informed action in familiar and personally relevant situations
8. recognise, measure and estimate quantities and interpret basic shapes, maps and plans in familiar and personally relevant situations

Module 3 Content
Key knowledge and skills
Topic 1 - Length and Perimeter

- recognise and use terminology and comparative language that relates to length, for example:
  - tall, short, height, length, longer, shorter, ruler, tape measure, odometer, distance
- recognise metric units of length, their abbreviations and conversions between them
- recognise appropriate units and devices to measure lengths
- estimate and compare lengths and distances, for example:

- the length of a deck compared to the length of an outdoor dining table that would go on the deck
- estimate and measure lengths using a range of devices in everyday situations
- use and describe the accuracy of different devices in everyday contexts, for example:
  - measure the length of a modular lounge with a tape measure and a 30-centimetre ruler and describe which is more accurate
- investigate ways to measure distances that are not straight or accessible, for example:
  - using a piece of string on a map, using a smartphone app, using a trundle wheel or taking readings on the car odometer
- convert between metric units of length
- solve problems involving length, for example:
  - buying a garden hose that is long enough for a yard that is 20 m long
  - buying bird netting to cover a garden bed
- recognise and use terminology and comparative language that relates to perimeter, for example:
  - longer than
  - shorter than
  - distance
  - ruler
  - tape measure
- recognise the perimeter of simple two-dimensional shapes
- recognise metric units of perimeter, their abbreviations and conversions between them
- recognise appropriate units and devices to measure perimeter
- identify or describe the perimeter of simple two-dimensional shapes using everyday language
- estimate and compare perimeter, for example:
  - how much fencing is required to surround the paddock?
- estimate and measure perimeter using a variety of strategies, for example:
  - using a tape measure
  - using string and measuring the string
  - using a smartphone app
- calculate perimeters by measuring sides and adding them together
- calculate perimeters by adding given side lengths from diagrammatic representations of shapes
- solve problems involving perimeter, for example:
  - calculate how much barricade tape is required to cordon off the cricket pitch area of the school oval

Topic 2 - Shapes, maps and plans
This topic has two sub-topics:

- Two-dimensional and three-dimensional shapes
- Maps and plans

Two-dimensional and three-dimensional shapes
- recognise, identify, match and sort shapes in the environment, for example:
  - in nature
  - in artwork
  - in company logos
  - in the home

- – in the classroom
- – in pictures
- – online
- recognise attributes, similarities and differences of shapes in the environment and in a range of contexts, for example:
  - – putting a round tablecloth on a square table
- identify or describe attributes, similarities and differences of shapes in the environment and in a range of contexts using everyday language, for example:
  - – stacked rolls of toilet paper in the cupboard
  - – the shapes made by line markings on a netball court
- make representations of simple two-dimensional shapes using technology as appropriate, for example:
  - – a house plan
  - – a courtyard
- recognise tessellations, identifying the shapes involved
- continue or create tessellations using different methods, for example:
  - – grids or graph paper, technology or concrete materials
- explore the attributes of three-dimensional objects, for example:
  - – number of faces, edges and corners
  - – whether the faces are flat or not
  - – whether the shape can be stacked, packed or rolled
- make representations of simple three-dimensional shapes using technology as appropriate, for example:
  - – using nets to construct a model of a biscuit tin or letterbox

Maps and plans
- recognise and respond to the language of simple maps, for example:
  - – scale
  - – direction
  - – north
- recognise the purpose and functions of maps
- recognise that maps represent and describe real things, for example:
  - – regions
  - – road types
- use simple maps to locate positions or gather information, for example:
  - – the nearest petrol station
- identify typical features of a map, for example:
  - – key, scale, grid, compass rose
- identify directions on simple maps in a variety of ways, for example:
  - – using compass directions and their abbreviations
  - – using directional language eg left and right
- develop skills in using maps, for example:
  - – locate something or describe the location of something on a map using simple grid references
  - – read and use a map key (legend)
- recognise and respond to the language of position, for example:
  - – inside, outside, above, below, beside, behind, in-front, left, right, across, opposite
- recognise the purpose and functions of plans

- recognise that plans represent real things, for example:
  - buildings
  - traffic flow
- identify typical features that are represented on a plan, for example:
  - identify doors and windows on a building plan
  - direction of traffic
- use simple plans to locate positions or gather information, for example:
  - interpret a plan of their school
  - use a plan of a theatre to locate their allocated seat
  - use the floorplan of a shopping centre to find a toilet
- use the language of position
- recognise different elevation views of a building and match elevation drawings to aspects of a building
- construct simple plans, for example:
  - complete a floor plan of their bedroom or home using models or drawings
- interpret the key (legend) on a plan

Topic 3 - Time and Temperature

- recognise language that relates to time, for example:
  - first, before, next, during, after
- identify names and sequence of days of the week, months of the year and seasons
- associate activities with times of day or periods of time, for example:
  - eat breakfast in the morning
  - go to the bathroom at lunchtime
  - catch the bus after packing my bag at the end of the lesson
  - doctor's appointment at 4 pm, call friends in the afternoon
  - shower in the evening
  - complete homework for tomorrow
  - go on an overnight school trip
  - go shopping on the weekend
- associate events with days of the week, months and seasons, for example:
  - sport training on Friday
  - favourite TV show airing every evening from Monday to Friday
  - no school on the weekend
  - Mum's birthday is in March
  - swim at the beach in summer
  - wear warm clothes in winter
- follow sequences of events, for example:
  - eat breakfast/wash dishes/brush teeth/travel to school
  - put hat in bag after lunch/go to the toilet/wash hands
- read digital time using am and pm notation
- identify analogue time initially to the hour, half hour and quarter hours
- recognise the passage of time, for example:
  - the lunch bell will ring in 5 minutes
  - the bus is running half an hour late
  - my birthday is next Thursday

- – the school dance is in a fortnight
- order units of time, for example:
  - – seconds, hours, months, centuries
- describe and compare events using appropriate units and language to represent time, for example:
  - – weekly exercise
  - – an annual celebration
  - – arrive at work 10 minutes earlier than usual
  - – the journey takes longer on the train than in the car
  - – it is faster to dry my hair with the hairdryer than it is to let it drip-dry
- relate times on digital and analogue clocks and watches to activities, for example:
  - – watching a favourite TV show that airs at 7.00 pm
  - – catching the bus that leaves at 3.30 pm
- use calendars and planners to identify and relate times, dates, months and special occasions, for example:
  - – I will go to lunch after this class
  - – I have production rehearsals on Thursday
  - – Anzac Day is 18 days away
- measure the time taken for various events
- plan personal events or schedules, taking into account the best time to do them and how long they will take, for example:
  - – planning a party (sending invitations, buying a present, ordering a cake, buying party supplies)
  - – meeting a friend for lunch before going to the movies
  - – taking the dog for a walk before preparing dinner
  - – submitting a job application, paying bills on time
- estimate time of the day, for example:
  - – it is nearly time to go home
  - – it is close to midday
  - – it will be dark outside soon
- estimate and measure passage of time, for example:
  - – how long it takes to get to the city
  - – the parking meter must be close to expiring
  - – my baby brother must be due for a nap
- estimate and measure passage of time using a range of devices including stopwatches and personal devices, for example:
  - – how long it takes to cook a meal, play a sport, complete a task at work
- use units of time and their abbreviations, for example:
  - – hr, min
- calculate elapsed time, for example:
  - – the flight leaves at 11:30am and we disembark at 3.15 pm
  - – the number of hours between start and finish work times
  - – the number of holiday days between Christmas and New Year

- convert units of time, for example:
  - 60 minutes = 1 hour
  - 90 minutes = 1½ hours
  - 1 day = 24 hours
  - 7 days = 1 week

- recognise and use terminology and comparative language that relates to temperature, for example:
  - hot
  - boiling
  - lukewarm
  - colder than
  - thermometer
  - degree
  - Celsius
- recognise the unit °C and its abbreviation
- recognise familiar temperatures, for example:
  - human body
  - freezing water
  - boiling water
- recognise alternate units and measuring devices
- estimate and measure temperatures using a range of devices

- apply knowledge of temperature to make judgements or decisions, for example:
  - if a baby has a body temperature above 38°C you should call a doctor
  - a weather prediction of 32°C will mean you should wear cool clothes and pack sun protection and a drink of water
  - do not put your hand in boiling water or get in a steaming hot bath
- solve problems involving temperature, for example:
  - if the fridge is set for 4.2°C and I turn it down another half a degree, what temperature will it be set to?

Topic 4 - Mass, capacity and volume

- recognise and use terminology and comparative language that relates to mass, for example:
  - light
  - heavy
  - lighter
  - heavier
  - weight
  - scales
  - gram
- recognise metric units of mass, their abbreviations and conversions between them
- recognise appropriate units and devices to measure mass
- estimate and measure masses using a range of devices in everyday situations, for example:
  - a packed suitcase
  - a cat when establishing how much medicine to administer
  - ingredients when following a recipe

- estimate and compare masses, for example:
  - the mass of different brands of hand luggage
- measure masses with a requested degree of accuracy, for example:
  - cooking ingredients to the nearest gram when following a recipe
- convert between metric units of mass
- solve problems involving mass, for example:
  - how many oranges to use in a recipe that needs 1.2 kg of oranges
  - what can be stored on a shelf if the maximum mass the shelf can hold is 10 kg
- recognise language and comparative language that relates to volume, for example:
  - size
  - space
  - cubic units
- recognise and use terminology and comparative language that relates to capacity, for example:
  - full
  - empty
  - filling
  - fuller
- recognise the concept of capacity and how it relates to volume
- solve problems involving capacity, for example:
  - how many 600mL bottles of water can be filled from the 4.8L drum before it empties?

Module 3 Work Requirements Summary
The work requirements of a course are processes, products or performances that provide a significant demonstration of achievement that is measurable against the course's standards. Work requirements need not be the sole form of assessment for a module.

This module includes 10 short responses as work requirements.

See Appendix 3 for summary of Work Requirement specifications for this course.

Module 3 Assessment
This module has a focus on criteria 1, 2, 3, 4, 5 and 8.

Assessment
Criterion-based assessment is a form of outcomes assessment that identifies the extent of learner achievement at an appropriate end-point of study. Although assessment – as part of the learning program – is continuous, much of it is formative, and is done to help learners identify what they need to do to attain the maximum benefit from their study of the course. Therefore, assessment for summative reporting to TASC will focus on what both teacher and learner understand to reflect end-point achievement.

The standard of achievement each learner attains on each criterion is recorded as a rating 'A', 'B', or 'C', according to the outcomes specified in the standards section of the course.

A 't' notation must be used where a learner demonstrates any achievement against a criterion less than the standard specified for the 'C' rating.

A 'z' notation is to be used where a learner provides no evidence of achievement at all.

Internal assessment of all criteria will be made by the provider. Providers will report the learner's rating for each criterion to TASC.

TASC will supervise the external assessment of designated criteria which will be indicated by an asterisk (*). The ratings obtained from the external assessments will be used in addition to internal ratings from the provider to determine the final award.

Criteria

	Module 1	Module 2	Module 3
Criteria Assessed	1,2,3,4,5,6	1,2,3,4,5,7	1,2,3,4,5,8

The assessment for *Essential Numeracy* Level 1 will be based on the degree to which the learner can:

1. interpret and communicate mathematical information and ideas and apply mathematical conventions in familiar and personally relevant contexts
2. manage and take responsibility for learning and assess mathematical development
3. interpret and use number properties and basic operations to represent familiar and personally relevant situations and solve problems
4. apply mathematical reasoning to make inferences, generalise relationships and explain thinking in familiar and personally relevant contexts
5. create, apply and reflect on mathematical strategies to solve problems, refine personal decisions and take informed action
6. apply knowledge and techniques to solve problems and make informed choices in situations involving number and pattern
7. apply knowledge and techniques to solve problems and make informed choices in situations involving chance and data
8. apply knowledge and techniques to solve problems and make informed choices in situations involving measurement and shape

Standards

Criterion 1: interpret and communicate mathematical information and ideas and apply mathematical conventions in familiar and personally relevant contexts

Standard Element	Rating C	Rating B	Rating A
E1 – interprets information	interprets mathematical information and ideas with support[†] in routine texts in familiar and personally relevant contexts	interprets mathematical information and ideas in routine texts in familiar and personally relevant contexts	interprets and sequences mathematical information and ideas in routine texts in familiar contexts

Standard Element	Rating C	Rating B	Rating A
E2 – describe mathematical situations	recalls and uses some mathematical facts, with support[†] to describe mathematical situations that are familiar and personally relevant	recalls and uses some mathematical facts, rules and definitions to describe mathematical situations that are familiar and personally relevant	selects, recalls and uses some mathematical facts, rules and definitions to describe familiar mathematical situations
E3 – uses conventions	with support[†] uses given formal and informal mathematical conventions	uses a combination of formal and informal mathematical conventions and informal symbolism	uses formal mathematical conventions, including formal symbolic expressions and rules appropriately on most occasions
E4 - expresses ideas	recognises and uses language to express ideas and reacts to the ideas of others	recognises and uses mathematical language to express ideas and recalls the ideas of others	selects, uses and refines mathematical language to respond to ideas of others
E5 – identifies solutions	presents work with the final answer apparent.	presents work with the final answer clearly identified.	presents work with the final answer clearly identified and articulated in terms of the question where necessary.

[†]support in this course refers to allowing the student to work alongside a teacher / mentor / aide. This person will differentiate the level of support required to support the student, for example: prompt the student to identify planning strategies, recall their input to a group task, identify a goal on a learning activity.

Criterion 2: manage and take responsibility for learning and assess mathematical development

Standard Element	Rating C	Rating B	Rating A
E1 – self-awareness	recognises some learning strengths and weaknesses with support[†]	recognises personal traits that promote and inhibit learning performance and understanding	identifies own learning strengths and weaknesses and establishes processes to plan, monitor and assess understanding and performance
E2 – time management	identifies a goal with support[†] for individual learning activities, and recalls when prompted	sets goals and timelines and assesses progress with support[†]	sets goals and timelines and assesses progress

Standard Element	Rating C	Rating B	Rating A
E3 – planning and organisation	follows given planning strategies to complete set tasks with support[†]	organises and plans with support[†] in order to manage resources and complete set tasks	displays organisational, planning and self-management skills to manage resources and consistently complete tasks
E4 - collaboration	identifies tasks to be completed in individual and collaborative activities with support[†]	identifies tasks to be completed in individual and collaborative activities	performs tasks as directed to contribute to the completion of individual and collaborative activities
E5 – self-monitoring	identifies own contribution in collaborative activities.	describes own contribution in collaborative activities.	describes how own contributions assisted in the completion of collaborative activities.

[†]support in this course refers to allowing the student to work alongside a teacher / mentor / aide. This person will differentiate the level of support required to support the student, for example: prompt the student to identify planning strategies, recall their input to a group task, identify a goal on a learning activity.

Criterion 3: interpret and use number properties and basic operations to represent familiar and personally relevant situations and solve problems

Standard Element	Rating C	Rating B	Rating A
E1 – recognises and uses counting numbers in a range of contexts	recognises, names and counts forward and backward for any whole number up to 10000	recognises, names and counts forward and backward by 10's and 100's for any whole number up to 10000	recognises, names and counts forward and backwards appropriately in context for any number[†]
E2 – uses properties of numbers	identifies odd and even numbers and explains if an integer is divisible by two with or without remainder	identifies factors of whole numbers up to 50 using divisibility of the number by 2, 3, 5 and 10 and can find multiples as an application of repeated division or by representing in an array	identifies factors of whole numbers up to 50 using divisibility of the number by 2, 3, 4, 5, 7 and 10 and multiples using mental and written computation strategies

Standard Element	Rating C	Rating B	Rating A
E3 – uses place value	identifies and matches digits to a given place value between ones and tens of thousands and reads whole numbers up to 10000 in context	reads, renames, makes, compares and orders whole numbers up to 10000 in context	reads, renames, makes, compares and orders numbers involving decimal fractions of tenths and hundredths in context
E4 – applies basic operations	uses basic operations to solve simple number problems involving whole numbers in number sentence and worded formats.	applies order of operations to solve two-step calculations involving whole numbers in number sentence and worded formats, including where the answer may be a fraction.	applies order of operations to solve multi-step involving any number in context in number sentence and worded formats.

†any number in context in this course includes whole numbers, routine decimals, fractions and percentages that are familiar and personally relevant to the learner. Examples include counting time intervals of 5 minute periods on a clock face, counting in quarters, counting eggs by the dozen, counting days until an event by sevens on a calendar, counting out $20 notes

Criterion 4: apply mathematical reasoning to make inferences, generalise relationships and explain thinking in familiar and personally relevant contexts

Standard Element	Rating C	Rating B	Rating A
E1 – makes inferences	makes observations and responds to patterns or data sets	makes inferences that may be able to be tested mathematically	makes inferences that can be tested mathematically
E2 – generalises relationships	recognises simple arithmetic relationships	identifies and describes simple arithmetic relationships that can be generalised using a rule	explores and makes predictions about patterns and identifies generalisations based on known information
E3 – explains thinking about mathematical techniques	identifies the mathematical techniques used in calculations.	describes how the mathematical techniques were used.	describes and explains how the mathematical techniques were used.

Criterion 5: create, apply and reflect on mathematical strategies to solve problems, refine personal decisions and take informed action

Standard Element	Rating C	Rating B	Rating A
E1 – creates mathematical strategies	with support[†], generates ideas and approaches to solve problems	generates ideas and approaches to solve problems	generates ideas and refines chosen approaches to solve problems
E2 – reflects and builds understanding	uses reflective thinking strategies to recall what they know from prior learning	uses reflective thinking strategies to recall what they learned in a mathematical situation	uses reflective thinking strategies to describe their own understanding of a situation in mathematical terms
E3 – checks solutions	with support[†], uses a given method of solution and checks solution against given answer	uses a given method of solution and checks solution against given answer	chooses and applies an appropriate method of solution from a limited range of mathematical processes and checks outcomes using a given method
E4 –plans and takes action	with support[†], develops a possible plan to take action in a familiar and personally relevant context.	with support[†] implements a plan and takes action in a familiar context.	plans and takes action in a given context and discusses results.

[†]support in this course refers to allowing the student to work alongside a teacher / mentor / aide. This person will differentiate the level of support required to support the student, for example: prompt the student to think about a different approach to a mathematical problem, check their thinking and solutions with a peer or identify possible ways mathematics could help in understanding a familiar context.

Criterion 6: apply knowledge and techniques to solve problems and make informed choices in situations involving number and pattern

Standard Element	Rating C	Rating B	Rating A
E1 – recognises decimals, percentages and fractions	reads, writes and orders routine percentages, fractions or decimals when in one format	reads, writes, orders, and identifies equivalent routine percentages, fractions and decimals	converts between different representations of routine fractions, decimals and percentages

Standard Element	Rating C	Rating B	Rating A
E2 – applies knowledge of decimals and percentages to financial situations	reads, writes and adds together money amounts in numerals and words, and identifies amounts in Australian currency	interprets and calculates percentage decreases on quantities and relates to familiar and personally relevant financial situations	calculates the purchase cost on multiple items where discounts are applied and recognises how much change they should receive in familiar situations
E3 – applies techniques to solve problems involving fractions	identifies routine fractions by name and in numeric form, and compares fractions using concrete materials and comparative language	represents fractions by name, in numeric form and using concrete materials, and performs addition and subtraction of fractions with the same denominator	represents equivalent fractional parts in different ways, performs addition and subtraction of fractions with mixed denominators, and multiplies and divides quantities by different sized fractional parts
E4 - identifies, continues and creates patterns	recognises, copies and continues shape and whole number patterns	describes shape and whole number patterns informally and create patterns of their own	explains patterns using a generalised rule and creates patterns of their own following a generalised rule
E5 – recognises decimals, percentages and fractions	reads, writes and orders routine fractions, decimals and percentages in one format.	reads, writes and matches equivalent routine fractions, decimals and percentages.	converts between different representations of routine fractions, decimals and percentages.

Criterion 7: apply knowledge and techniques to solve problems and make informed choices in situations involving chance and data

Standard Element	Rating C	Rating B	Rating A
E1 – gathers data	identifies the purpose of collecting a set of data and identifies a range of ways that basic data can be collected	identifies different ways data could be collected and applies a familiar data collection process to collect basic data to answer a simple statistical question	designs and applies an appropriate data collection tool and process to collect data to answer a statistical question

Standard Element	Rating C	Rating B	Rating A
E2 – organises data	records and totals collected data using a variety of means including tally marks, symbols and concrete materials	orders and sorts collected numerical or categorical information and represents using pre-constructed data tables	organises collected numerical or categorical information and constructs tables, graphs and charts using given scales and axes
E3 – models and interprets situations	displays information from familiar and personally relevant situations in tables and simple graphs	identifies and interprets information in tables and simple graphs that model familiar and personally relevant situations	interprets information in and draws simple conclusions from graphs that model familiar situations
E4 – describes chance	identify elements of chance in familiar and personally relevant contexts and describe likelihood using simple language.	recognise likelihood and randomness in events where chance is equally likely or non-equally likely and describe and order likelihood using simple language and routine fractions.	compares the likelihood and describes randomness of everyday chance events using qualitative terms including certain, likely, impossible and relates these to routine fractions, and percentages.

Criterion 8: apply knowledge and techniques to solve problems and make informed choices in situations involving measurement and shape

Standard Element	Rating C	Rating B	Rating A
E1 – estimate and measures	uses simple scaled instruments to measure lengths, masses, capacity, time and temperature and uses comparative language to describe quantities	uses simple scaled instruments to measure and compare lengths, masses, capacity, time and temperature and estimates unknown measurements in familiar and personally relevant situations	uses scaled instruments appropriately to measure and compare lengths, masses, capacity, time and temperature and estimates and calculates perimeter of linear two-dimensional shapes using metric units
E2 – recognises and converts between units	identifies metric units, standard units of time and temperature, and their abbreviations	uses and converts between metric units, standard units of time and temperature, and their abbreviations	uses and converts between metric units, standard units of time and temperature, and their abbreviations, and recognises alternative units

Standard Element	Rating C	Rating B	Rating A
E3 – uses properties of shape, maps and plans	identifies the attributes of basic shapes and key features of simple maps and plans	describes and compares the attributes of basic shapes, recognises and continues tessellations and uses simple maps and plans to locate position or gather information	makes representations of three-dimensional objects, creates tessellations and interpret or construct maps and plans to describe location and position and orientation
E4 – solves problems involving time and temperature	tells digital time and identifies analogue time to the hour, and identify, sequence and relate events and activities to time and/or temperature	tells digital time and identifies analogue time to the half hour, recognises passages of time or changes in temperature and compare duration of events using appropriate units	tells digital time and identifies analogue time to the quarter hour, calculates elapsed time and applies knowledge of temperature to make judgements or decisions and solve calculations
E5 – solves problems involving length, perimeter, mass, capacity and volume	calculates solutions using given numerical information.	calculates solutions that require identifying mathematical information from diagrams or worded problems.	calculates solutions that require the measurement of attributes and identifying mathematical information from diagrams or worded problems.

Quality Assurance

- This will be determined by TASC at time of accreditation.

Qualifications and Award Requirements

Level 1

The final award will be determined by the Office of Tasmanian Assessment, Standards and Certification from 8 ratings.

The minimum requirements for an award are as follows:

EXCEPTIONAL ACHIEVEMENT (EA)
6 'A' ratings, 2 'B' rating

HIGH ACHIEVEMENT (HA)
3 'A' ratings, 4 'B' ratings, 1 'C' rating

COMMENDABLE ACHIEVEMENT (CA)
4 'B' ratings, 3 'C' ratings

SATISFACTORY ACHIEVEMENT (SA)
6 'C' ratings

PRELIMINARY ACHIEVEMENT (PA)

4 'C' ratings

A learner who otherwise achieves the rating for a CA (Commendable Achievement) or SA (Satisfactory Achievement) award but who fails to show any evidence of achievement in one or more criteria ('z' notation) will be issued with a PA (Preliminary Achievement) award.

Course Evaluation

- This will be confirmed by time of accreditation.

Course Developer

This course has been developed by the Department of Education's Years 9 to 12 Learning Unit in collaboration with Catholic Education Tasmania and Independent Schools Tasmania.

Accreditation and Version History

- Details to be determined by TASC at time of accreditation.

Appendix 1 - Line of Sight
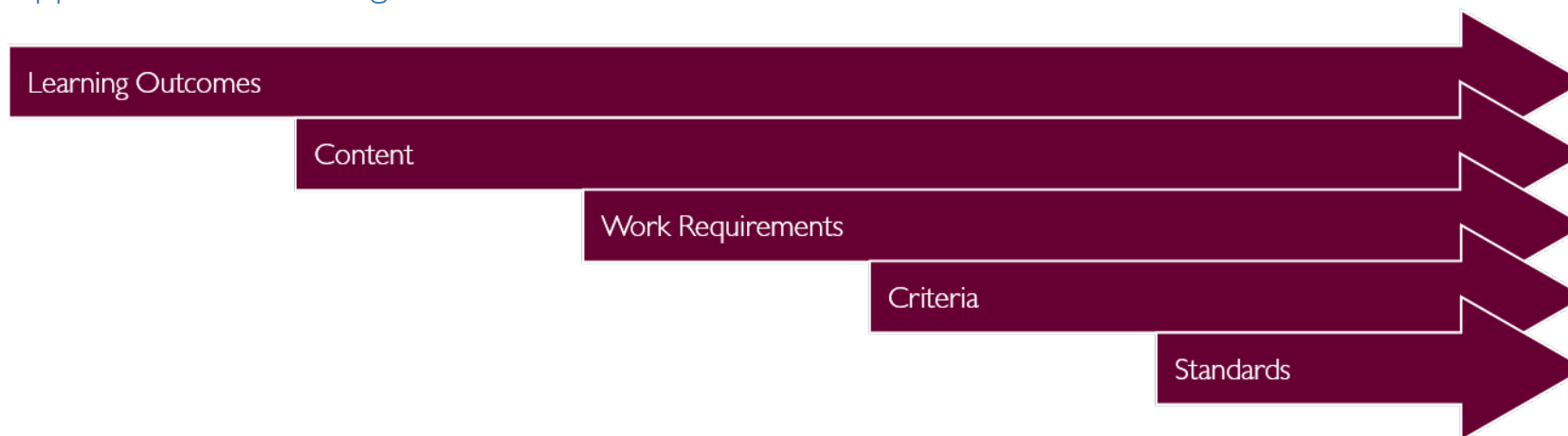
Learning Outcomes	Course Content	Work Requirements	Criteria	Standards	General Capabilities (GC)
1. communicate thinking, strategies and solutions using appropriate mathematical or statistical language	Module 1, 2, 3	Module 1, 2, 3	C 1	E 1, 2, 3, 4, 5	GC:
2. plan, organise and manage learning to complete basic tasks and assess progress	Module 1, 2, 3	Module 1, 2, 3	C 2	E 1, 2, 3, 4, 5	GC:
3. understand and use number properties and basic operations to represent familiar and personally relevant situations and solve problems	Module 1, 2, 3	Module 1, 2, 3	C 3	E 1, 2, 3, 4	GC:
4. apply mathematical reasoning to make predictions, represent relationships and explain thinking in familiar and personally relevant situations	Module 1, 2, 3	Module 1, 2, 3	C 4	E 1, 2, 3	GC:

Learning Outcomes	Course Content	Work Requirements	Criteria	Standards	General Capabilities (GC)
5. act as creative, critical and reflective thinkers to outline ideas and take informed action in familiar and personally relevant situations	Module 1, 2, 3	Module 1, 2, 3	C 5	E 1, 2, 3, 4	GC:
6. identify and use routine fractions, decimals, percentages, money amounts and interpret patterns in familiar and personally relevant situations	Module 1	Module 1	C 6	E 1, 2, 3, 4, 5	GC:
7. gather, organise and interpret basic data, and describe likelihood of chance events in familiar and personally relevant situations	Module 2	Module 2	C 7	E 1, 2, 3, 4	GC:
8. recognise, measure and estimate quantities and interpret basic shapes, maps and plans in familiar and personally relevant situations	Module 3	Module 3	C 8	E 1, 2, 3, 4, 5	GC:

Appendix 2 - Alignment to Curriculum Frameworks

Essential Numeracy Level 1 aligns with course content and illustrations of performance contained in:

- Numeracy Level 1 and 2 of the Australian Core Skills Framework (ACSF)
- Australian Curriculum Mathematics

Appendix 3 - Work Requirements

Module 1 Work Requirements Specifications

Focus Area: Personal Futures
Title of Work Requirement: Pattern and algebraic reasoning
Mode /Format: Folio of short responses (written question and answer / oral interview and mathematical calculations or manipulation of materials).
Description: Learners will complete a series of short responses where they will employ a range of mathematical techniques and procedures, problem solving strategies and mathematical reasoning to make informed choices relating to familiar and personally relevant contexts involving numbers and patterns.

Evidence of mathematical thinking and calculations can be captured through observation and/or recording of use of manipulatives and learner responses and discussion can be captured through written, oral or AAC methods as appropriate for the learner. Additionally, where possible, learners should be provided with opportunities to collaborate in pairs, or small groups and enabled to engage in mathematical discussion to share ideas, solutions and thinking.

Size: Between 6 and 10 responses equivalent to 2-3 written sentences each and associated mathematical calculations.
Timing: Ongoing throughout module.
External agencies: At teacher discretion.
Relevant criteria:
- Criterion 1: E1, E2, E3, E5 and where relevant E4
- Criterion 2: E1, E2, E3, E4 and E5 as appropriate
- Criterion 3: E1, E2 and where relevant E3 and E4
- Criterion 4: all elements
- Criterion 5: E1, E2, E3 and where relevant E4
- Criterion 6: all elements

Module 2 Work Requirements Specifications

Focus Area: Personal Futures
Title of Work Requirement: Using data to answer a question
Mode /Format: Project – Multimodal presentation
Description: Learners will complete a data collection and representation project where they will employ a range of mathematical techniques and procedures, problem solving strategies and mathematical reasoning to make informed choices relating to a familiar and personally relevant context.

Evidence of data collection, organisation and representation can be captured through observation and/or recording of use of manipulatives and learner responses and discussion can be captured through written, oral or AAC methods as appropriate for the learner. Additionally, where possible,

learners should be provided with opportunities to collaborate in pairs, or small groups and enabled to engage in mathematical discussion to discuss their findings.

Size: Multimodal presentation must include the representation of data in tables and charts and discussion of findings and an answer to the statistical question in any format appropriate to the learner.

Timing: Ongoing throughout module.

External agencies: At teacher discretion.

Relevant criteria:
- Criterion 1: E1, E2, E3, E5 and where relevant E4
- Criterion 2: E1, E2, E3, E4 and E5 as appropriate
- Criterion 3: E1, E2 and where relevant E3 and E4
- Criterion 4: all elements
- Criterion 5: E1, E2, E3 and where relevant E4
- Criterion 7: all elements

Module 3 Work Requirements Specifications

Focus Area: Personal Futures

Title of Work Requirement: Everyday measurement and shape

Mode /Format: Folio of short responses (written question and answer / oral interview and mathematical calculations or manipulation of materials).

Description: Learners will complete a series of short responses where they will employ a range of mathematical techniques and procedures, problem solving strategies and mathematical reasoning to make informed choices relating to familiar and personally relevant contexts involving measurement and shapes.

Evidence of mathematical thinking and calculations can be captured through observation and/or recording of use of manipulatives and learner responses and discussion can be captured through written, oral or AAC methods as appropriate for the learner. Additionally, where possible, learners should be provided with opportunities to collaborate in pairs, or small groups and enabled to engage in mathematical discussion to share ideas, solutions and thinking.

Size: Between 6 and 10 responses equivalent to 2-3 written sentences each and associated mathematical calculations.

Timing: Ongoing throughout module.

External agencies: At teacher discretion.

Relevant criteria:
- Criterion 1: E1, E2, E3, E5 and where relevant E4
- Criterion 2: E1, E2, E3, E4 and E5 as appropriate
- Criterion 3: E1, E2 and where relevant E3 and E4
- Criterion 4: all elements
- Criterion 5: E1, E2, E3 and where relevant E4
- Criterion 8: all elements

Appendix 4 – General Capabilities and Cross-Curriculum Priorities

Learning across the curriculum content, including the cross-curriculum priorities and general capabilities, assists students to achieve the broad learning outcomes defined in the *Alice Springs (Mparntwe) Education Declaration (December 2019)*.

General Capabilities:

The general capabilities play a significant role in the Australian Curriculum in equipping young Australians to live and work successfully in the twenty-first century.

In the Australian Curriculum, capability encompasses knowledge, skills, behaviours and dispositions. Students develop capability when they apply knowledge and skills confidently, effectively and appropriately in complex and changing circumstances, in their learning at school and in their lives outside school.

The general capabilities include:

- Critical and creative thinking
- Ethical understanding
- Information and communication technology capability
- Intercultural understanding
- Literacy
- Numeracy
- Personal and social capability

Cross-Curriculum Priorities:

Cross-curriculum priorities enable students to develop understanding about and address the contemporary issues they face, for their own benefit and for the benefit of Australia as a whole. The priorities provide national, regional and global dimensions which will enrich the curriculum through development of considered and focused content that fits naturally within learning areas. Incorporation of the priorities will encourage conversations between students, teachers and the wider community.

The cross-curriculum priorities include:

- Aboriginal and Torres Strait Islander Histories and Cultures
- Asia and Australia's Engagement with Asia
- Sustainability

Appendix 5 – Glossary

Term	Definition	Source Acknowledgement	Course Context
array	An array is an ordered collection of objects or numbers. Rectangular arrays are commonly used in primary mathematics. For example, two arrays of dots (2 by 12 and 4 by 6) produce two different representations of the number 24.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
calculates	Determine or find (eg a number, answer) by using mathematical processes; obtain a numerical answer showing the relevant stages in the working; ascertain/determine from given facts, figures or information.	QCAA	Essential Numeracy 1
capacity	The amount that a container will hold. For example, the amount of water (mL) required to fill a fish tank is its capacity. Volume is the space (cm3) occupied.	ACARA	Essential Numeracy 1: • Module 3 – Mass, capacity and volume
estimation	A skill requiring being able to conceptualise and mentally manipulate numbers or quantities to find an approximate answer. The capacity to make reasonable adjustments to numbers is essential in estimating.	ACARA	Essential Numeracy 1: • Module 1 – Decimals, percentages and money • Module 3 – Length and perimeter • Module 3 – Time and temperature • Module 3 – Mass, capacity and volume
equivalence	Two expressions are said to be equivalent if they are equal in value.		Essential Numeracy 1

Term	Definition	Source Acknowledgement	Course Context
equivalent fractions	Equivalent fractions are alternative ways of writing the same fraction. For example: ½ = 2/4 = 5/10	ACARA	Essential Numeracy 1: • Module 1 – Fractions
expected results	The results expected from calculating the probability.	ACARA	Essential Numeracy 1: Module 2 – Probability of events
face (shape)	Any of the individual flat surfaces of a solid object.	mathsisfun.com	Essential Numeracy 1: Module 3 – Shapes, maps and plans
factors	Numbers are factors (or divisors) of another number if they multiply to give that number. For example: 3 and 4 are factors of 12 as 3 × 4 = 12.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
for each	The 'for each' idea of multiplication is sometimes used as a way of describing the product of different combinations. For example, if for each sandwich there are two choices of bread and for each choice of bread there are three choices of filling there will be six different sandwich options (2 × 3).	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties

Term	Definition	Source Acknowledgement	Course Context
fractions as part-whole relationships	Dividing quantities using fractions as part-whole relationships requires maintaining the multiplicative relationship between each part and the whole. For example, sharing in the ratio 2 parts to 1 part means 2/3 and 1/3 of the whole	ACARA	Essential Numeracy 1: • Module 1 – Fractions
grid reference	A grid reference identifies a region on a map. Coordinates and gridlines are used to refer to specific features or locations. For example, in the map below, the school is located at the grid reference C4.	ACARA	Essential Numeracy 1: • Module 3 – Shapes, maps and plans
number sentence	A number sentence is typically a statement of equality or inequality using numbers and common symbols. For example: 8 + 5 = 13 and 16 - □ = 10 are both number sentences.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
order of operations	The order of performing mathematical operations: 1. evaluate brackets or grouping symbols first 2. evaluate any powers and roots 3. working left to right, evaluate any multiplication and division working left to right, evaluate any addition or subtraction (may also be known as BODMAS, BIDMAS, BEDMAS, etc).	QCAA	Essential Numeracy 1

Term	Definition	Source Acknowledgement	Course Context
partitioning	Partitioning means dividing a quantity into parts. In the early years, it commonly refers to the ability to think about numbers as made up of two or more parts, such as, 10 is 8 and 2 or 126 is 100 and 20 and 6. In later years it refers to dividing both continuous and discrete quantities into equal parts.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
picture graph	A picture graph is a statistical graph for organising and displaying categorical data.	ACARA	Essential Numeracy 1: Module 2 – organising and displaying data
place value system	The place value system of our numbers is based on 10. The value of a digit in a numeral is determined by multiplying its face value by the power of ten assigned to its position ($283 = 2 \times 100 + 8 \times 10 + 3 \times 1$). The quantity represented by a numeral is then the sum of the values represented by its individual digits ($283 = 200 + 80 + 3$). The base-ten place value system used to write numerals has both multiplicative and additive properties.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
probability	The likelihood or chance of something; the relative frequency of the occurrence of an event as measured by the ratio of the number of cases or alternatives favourable to the event to the total number of cases or alternatives.	QCAA	Essential Numeracy 1: • Module 2 – Probability of events

Term	Definition	Source Acknowledgement	Course Context
product	A product is the result of multiplying together two or more numbers. For example, 36 is the product of 9 and 4.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
recognise numerals	Selects a named numeral from a randomly displayed group of displayed numerals.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
renames	Expresses a number in equivalent ways by interpreting the relationship between the place value powers of ten. For example, 243 can be renamed 2 hundreds and 43 ones or 24 tens and 3 ones.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
repeated addition	Adding the same number again and again. A strategy sometimes used for multiplication.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties

Term	Definition	Source Acknowledgement	Course Context
rounding	The decimal expansion of a real number is rounded when it is approximated by a terminating decimal that has a given number of decimal digits to the right of the decimal point. Rounding to decimal places is achieved by removing all decimal digits beyond (to the right of) the digit to the right of the decimal place and adjusting the remaining digits where necessary. If the first digit removed (the digit) is less than 5 the preceding digit is not changed. For example, 4.02749 becomes 4.027 when rounded to 3 decimal places. If the first digit removed is greater than 5, or 5 and some succeeding digit is non-zero, the preceding digit is increased by 1. For example, 6.1234586 becomes 6.12346 when rounded to 5 decimal places.	ACARA	Essential Numeracy 1: • Module 1 – Decimals, percentages and money
routine fractions	Routine fractions are those fractions commonly used in estimating and for making comparisons to other numbers eg. ½, 1/3, ¼, 3/4	ACARA	Essential Numeracy 1: • Module 1 – Fractions

Term	Definition	Source Acknowledgement	Course Context
sharing model of division	In the sharing model of division, the divisor indicates a whole number of equal groups and the quotient, the result of division, is the size of each part. In 12 ÷ 3 = 4, twelve is shared into 3 equal groups and there are 4 in each group.	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties
skip counting	Skip counting is counting in multiples (eg. three, six, nine, twelve, …).	ACARA	Essential Numeracy 1: • Module 1 – Understanding number properties