Essential Skills - Maths

LEVEL 2	10 TCE CREDIT POINTS
COURSE CODE	MTN210114
COURSE SPAN	2014 — 2025
READING AND WRITING STANDARD	NO
MATHEMATICS STANDARD	YES
COMPUTERS AND INTERNET STANDARD	NO

This course was delivered in 2023. Use A-Z Courses to find the current version (if available).

Maths impacts upon the daily life of people everywhere and helps them to understand the world in which they live and work

The Essential Skills - Maths course is designed for learners who require a structured and tightly focused course to develop their numeracy skills to the standard expected by the TCE requirement for everyday adult mathematics. The course has been designed to enable learners to achieve the standard required by the TCE for everyday adult mathematics. Course delivery must be flexible in order to meet the needs of a range of learners and to enable them to achieve the course's stated learning outcomes in a timeframe appropriate to their background skills and knowledge. This course focuses on the aspects of numeracy required by the TCE standard and does not replace the study of the subject Mathematics.

Overview

This course has been developed to align with the content and standards expected at Australian Core Skills Framework (ACSF) Level 3 in numeracy and with the competencies expected at this level in relevant units of competency from the FSK13 Foundation Skills Training Package.

Rationale

Maths impacts upon the daily life of people everywhere and helps them to understand the world in which they live and work. The Essential Skills - Maths course is designed for learners who require a structured and tightly focused course to develop their numeracy skills to the standard expected by the TCE requirement for everyday adult mathematics.

Aims

The course has been designed to enable learners to achieve the standard required by the TCE for everyday adult mathematics. Course delivery must be flexible in order to meet the needs of a range of learners and to enable them to achieve the course's stated learning outcomes in a timeframe appropriate to their background skills and knowledge.

This course focuses on the aspects of numeracy required by the TCE standard and does not replace the study of the subject Mathematics.

Learning Outcomes

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

1. interpret and calculate with whole numbers and familiar fractions, decimals and percentages in an everyday adult context
2. estimate, measure and calculate routine metric measurements in an everyday adult context
3. interpret, draw and construct 2D and 3D shapes in an everyday adult context
4. use routine maps and plans in an everyday adult context
5. construct routine tables and graphs in an everyday adult context
6. interpret routine tables, graphs and charts in an everyday adult context
7. use basic functions of a calculator.

Access

Access to this course is **restricted to learners who cannot meet the learning outcomes before entry** to the course. Providers of this course **must** have an assessment process to identify the level of support learners need to attain requisite levels of numeracy competence.

Pathways

This course provides the opportunity for a learner to achieve the standard required by the TCE for everyday adult mathematics. For some learners, it may provide a pathway to Workplace Maths Level 2.

Course Size And Complexity

This course has a complexity level of 2.

At Level 2, the learner is expected to carry out tasks and activities that involve a range of knowledge and skills, including some basic theoretical and/or technical knowledge and skills. Limited judgement is required, such as making an appropriate selection from a range of given rules, guidelines or procedures. VET competencies at this level are often those characteristic of an AQF Certificate II.

This course has a size value of 10.

Course Delivery

The course may be delivered in a multitude of ways and would lend itself to teaching and learning set in contexts other than the traditional maths classroom. For example parts of the course might be incorporated into a VET program. Some teachers might design a program that allows their learners to develop and demonstrate numeric competency while working on tasks other than traditional maths exercises. Examples of settings for such tasks might be project-based learning, presentations, or a journal of numeracy.

Course Content

This course comprises six (6) units. All units are **compulsory**.

Unit 1: *Use basic functions of a calculator for problem solving, investigations and applications*, including:

- identifying and using the four operation keys, cancel, memory and the result key, and other necessary function keys, on calculators
- calculating using whole numbers, money and routine decimals and percentages
- calculating with routine fractions
- applying order of operations to solve multi-step calculations
- interpreting display and record results
- making estimations and using them to check the reasonableness of the answer to a problem
- using formal and informal mathematical language and appropriate symbolism and conventions to communicate the result of the task.

Unit 2: *Interpret and calculate with whole numbers and familiar fractions, decimals and percentages in an everyday adult context*, including:

- interpreting and comprehending whole numbers and routine or familiar fractions, decimals and percentages
- demonstrating understanding of place value by ordering numbers
- performing calculations using the four basic operations (addition, subtraction, multiplication, division) which may involve a number of steps
- converting between equivalent forms of fractions, decimals and percentages
- applying order of operations to solve multi-step calculations
- locating required numerical information to perform task
- using formal and informal mathematical language and symbolism to communicate the result of the task
- recognising Australian coins and notes according to value and write money as symbols up to $100
- recognising and naming money amounts up to one thousand
- rounding to the nearest 5 cents
- performing simple and familiar calculations with money, using basic operations
- making estimations to check the reasonableness of the answer to a problem.

Unit 3: *Estimate, measure and calculate routine metric measurements in everyday adult situations*, including:

- understanding metric units and the common prefixes
- selecting and interpreting measurement information in tasks and texts
- identifying appropriate routine measuring equipment
- using appropriate routine equipment accurately (for example, setting weight scales at zero before weighing)
- making estimations to check the reasonableness of the answer to a problem
- estimating routine measurements and calculating using correct units
- calculating areas of squares and rectangles
- performing conversions between routinely used metric units
- relating a real world problem to mathematical processes
- recording information using mathematical language and symbols.

Unit 4: *Interpret, draw and construct 2D and 3D shapes*, including:

- identifying two dimensional shapes and routine three dimensional shapes in everyday objects and in different orientations
- explaining the use and application of shapes
- using formal and informal mathematical language and symbols to describe and compare the features of two dimensional shapes and common three dimensional shapes
- identifying common angles using simple tools
- estimating common angles in everyday objects
- using common geometric instruments to draw two dimensional shapes
- constructing routine three dimensional objects from given nets.

Unit 5: *Use routine maps and plans*, including:

- identifying features in routine maps and plans
- explaining symbols and keys in routine maps and plans
- demonstrating understanding of direction and location
- applying simple scale to estimate length of objects, or distance to location or object
- giving and receiving directions using both formal and informal language.

Unit 6: *Construct and interpret routine tables, graphs and charts*, including:

- identifying features of common tables, graphs and charts in predominantly familiar texts and contexts
- identifying uses of different tables and graphs
- identifying common types of graphs and their different uses
- selecting a method to collect data, determine variables and collate information in a table
- determining a suitable scale and axes, draft and draw graphs from collated data
- reporting and discussing information using formal and informal mathematical language
- performing calculations to interpret information
- explaining how statistics can inform and persuade
- identifying misleading statistical information.

Work Requirements

As the course comprises six (6) compulsory units to be delivered sequentially, a minimum of 12 hours must be spent covering the content in each unit. Providers can design the course to allow for crossover of the content allowing for elements of different units to be taught concurrently to reinforce learning outcomes.

Learners will develop a range of numeric skills, including:

- interpretation and calculation with whole numbers, familiar fractions, decimals and percentages
- using basic functions of a calculator
- estimation, measurement and calculation using routine metric units
- interpretation, drawing and constructing 2D shapes and 3D objects
- those pertaining to the construction and interpretation of maps, plans and routine tables and graphs.

Over the duration of the course, students will provide evidence by completing a minimum of two (2) major and four (4) minor assessments. These minimum requirements should be scheduled so that each of the six (6) compulsory units include one of the major or minor assessments and so that students have multiple opportunities for assessment against each of the seven (7) course criteria.

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 of 'C' (satisfactory standard) according to the outcomes specified in the standards section of the course document.

A 't' notation must be used where a learner demonstrates any achievement against a criterion less than the standard specified for the 'C' rating. The 't' notation is not described in course standards.

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

Providers offering this course must participate in quality assurance processes specified by TASC to ensure provider validity and comparability of standards across all awards. To learn more, see TASC's quality assurance processes and assessment information.

Internal assessment of all criteria will be made by the provider. Assessment processes must gather evidence that clearly shows the match between individual learner performance, the standards of the course and the learner's award. Providers will report the learner's rating for each criterion to TASC.

The following processes will be facilitated by TASC to ensure there is:

- a match between the standards of achievement specified in the course and the skills and knowledge demonstrated by individual learners
- community confidence in the integrity and meaning of the qualification.

Process

TASC will verify that the provider's course delivery and assessment meet the course requirements and community expectations for fairness, integrity and validity of qualifications TASC issues. This will involve checking:

- Provider standard 1: scope and sequence documentation:
    - course delivery plan
    - course assessment plan, assessment matrix
- Provider standard 2: student attendance records
- Provider standard 3: examples of assessments tools and instruments and associated rubrics and marking guides
- Provider standard 1 and 3: examples of student work including that related to any work requirements articulated in the course document
- Provider standard 4: class records of assessment

This process will be scheduled by TASC using a risk-based approach.

Criteria

The assessment for Essential Skills – Maths Level 2 will be based on the degree to which the learner can:

1. demonstrate mathematical understanding
2. solve real world problems using mathematics
3. demonstrate basic arithmetic skills
4. demonstrate basic skills in measurement
5. demonstrate functional skills in geometrics and using routine maps and plans
6. demonstrate functional skills in the use and interpretation of simple tables, graphs and charts
7. use appropriate mathematical representation

Criterion 1: demonstrate mathematical understanding

The learner:

Rating C
identifies place value and uses zero as required
correctly compares and orders whole numbers, fractions and decimals
correctly converts between common fractions, decimals and percentages
recognises the relationship between operations
uses numerical or measurement information appropriately in tasks and texts
identifies main steps to complete calculations or reach a location
correctly compares the features of shapes
explains the use and application of shapes
uses visual presentation of data appropriately
interprets information in a map, chart, table or graph
recognises that statistics can inform, persuade and mislead
clarifies intended meaning of activities by asking questions which go beyond repetition and rephrasing.

Criterion 2: solve real world problems using mathematics

The learner:

Rating C
interprets and appropriately relates mathematical knowledge being learned to real life problems
locates relevant numerical or measurement information in a text
decides on steps to solve a problem
checks reasonableness of an answer against an estimate
plans and organises how to gather data to investigate
uses a calculator and relevant ICT appropriately for a range of simple mathematical computations.

Criterion 3: demonstrate basic arithmetic skills

The learner:

Rating C

accurately performs multi-step calculations using the four basic operations and the order of operations
accurately calculates with whole numbers and decimals, and uses these appropriate to context
accurately calculates simple fractions (e.g. $\frac{1}{2} \times \frac{1}{4} = ?$) and percentages (e.g. $45\% \, of \, 200 = ?$), and uses these appropriate to context
correctly compares and orders simple fractions, decimals and percentages
correctly rounds money figures to the nearest 5 cents
accurately adds and subtracts figures expressed as dollars/cents (e.g. $\$9.50 + \$12.70 = \$?$ or $\$10.00 - \$8.75 = \$?$)
accurately multiplies money figures using base ten multiples (e.g. $100 \times 0.5c = \$?$)
accurately calculates simple divisions involving figures expressed as money (e.g. $\$100 \div 3 = \$?$)
accurately calculates the solution to simple and familiar problems involving figures expressed as money (e.g. adding prices in a catalogue; calculating change from \$20; keeping a record of casual hours; calculating gross pay, 'Fred gets \$25 an hour, but pays 20% tax. How much will Fred have to spend if he works 15 hours?')

Criterion 4: demonstrate basic skills in measurement

The learner:

Rating C
correctly identifies common metric units, their prefixes (milli, centi and kilo), their common use and relationships (e.g. mm = millimetres, mm; m and km are all measures of distance; mm^2 is a measure of area, not a measure of distance)
correctly converts simple metric units (e.g. 120 mm = ? m)
accurately uses basic measuring instruments such as rulers, scales, dials and angle measurement tools
accurately calculates length, perimeter and area of simple shapes such as rectangles and squares
accurately calculates time intervals and simple equivalences (e.g. 2 hours less 75 minutes = ?, 265 minutes = ? hours ? minutes)
makes reasonable estimates using routine measurements (e.g. approximate distance in metres between two objects)
accurately solves basic problems involving different kinds of measurement (e.g. 'A car travels constantly at 110 km for 1 hour, 35 minutes. How far has it travelled?').

Criterion 5: demonstrate functional skills in geometrics and using routine maps and plans

The learner:

Rating C
correctly identifies two dimensional and routine three dimensional shapes in the real world, and can make such shapes using common instruments/given nets
correctly numbers the sides/edges, corners/vertices and flat faces of common shapes
identifies common angles using simple tools

makes reasonable estimates of angles in everyday objects
uses features, symbols and scales on simple maps and plans to answer questions about distance, direction and location
accurately applies simple scales (e.g. can reproduce a regular shape at a $1:2$ scale)
accurately finds locations on a map using given co-ordinates (and vice versa) and calculates distance using given scales.

Criterion 6: demonstrate functional skills in the use and interpretation of simple tables, graphs and charts

The learner:

Rating C
correctly identifies common types and features of routine tables, graphs and charts and their uses
accurately reads information expressed in simple tables, graphs and charts (e.g. finds the time of the next bus from a bus timetable, identifies the difference between figures represented in a bar graph or finds their average)
makes simple tables and appropriate types of graphs to represent information (e.g. can create a bar graph showing the heights of 8 people or a table representing traffic flow: number of different types of vehicles at 10 minute intervals)
performs calculations to interpret information from routine tables, graphs and charts.

Criterion 7: use appropriate mathematical representation

The learner:

Rating C
gives and follows verbal and written instructions
asks questions and listens to replies
uses formal and informal written mathematical language and symbolism to communicate the result of calculations
communicates, in writing or orally, by explaining and/or describing results
records measurements accurately using suitable units
collects, organises and presents mathematical information using appropriate symbolism and conventions
chooses appropriate axes for a graph to represent the data without being misleading.

Relationship With The Australian Core Skills Framework (ACSF)

TASC recommends that providers use the ACSF to *guide understanding* of the appropriate levels of performance in the 5 core skills of Learning, Reading, Writing, Oral Communication and Numeracy as they relate to the course content.

Those participants aiming for an award that meets TCE standards requirements should be demonstrating the core skills at ACSF level 3 (or above) in reading and writing (to meet the everyday adult reading and writing standard) and/or in numeracy (to meet the everyday adult mathematics standard).

The performance features and sample activities of the ACSF are **not** in themselves equivalent to the TCE's 'everyday adult' standards. Rather they are *illustrative* of these standards.

The performance features and sample activities of the ACSF **do not** replace the criteria or standards in this TASC accredited course document.

The performance features and sample activities of ACSF level 3 can be used to *help* teachers develop and evaluate assessment instruments and can be used to *inform* final (summative) assessment judgements.

See the Australian Core Skills Framework for further information.

Qualifications Available

Essential Skills – Maths Level 2 (with the award of):

SATISFACTORY ACHIEVEMENT

PRELIMINARY ACHIEVEMENT

Award Requirements

The final award will be determined by the Office of Tasmanian Assessment, Standards and Certification from 7 ratings.

The minimum requirements for an award in Essential Skills – Maths Level 2 are as follows:

Satisfactory Achievement
7 'C' (satisfactory standard) ratings

Preliminary Achievement
5 'C' (satisfactory standard) ratings

Course Evaluation

The Department of Education's Curriculum Services will develop and regularly revise the curriculum. This evaluation will be informed by the experience of the course's implementation, delivery and assessment.

In addition, stakeholders may request Curriculum Services to review a particular aspect of an accredited course.

Requests for amendments to an accredited course will be forwarded by Curriculum Services to the Office of TASC for formal consideration.

Such requests for amendment will be considered in terms of the likely improvements to the outcomes for learners, possible consequences for delivery and assessment of the course, and alignment with Australian Curriculum materials.

A course is formally analysed prior to the expiry of its accreditation as part of the process to develop specifications to guide the development of any replacement course.

Expectations Defined By National Standards

The statements of standards in this section, from the nationally agreed Common Curriculum and Assessment Framework for Languages (CCAFL), are to be used to define expectations for the meaning (nature, scope and level of demand) of relevant aspects of the sections in this document setting out course requirements, learning outcomes, the course content and standards in the assessment.

This Essential Skills – Maths course meets the requirements of units of competence from the Foundation Skills (FSK130) training package. Any references in these units to the 'workplace' should be taken to refer to 'real life everyday adult contexts, which include but are not limited to the workplace':

> Use beginning skills with whole numbers and money up to one hundred for work (FSKNUM01)
>
> Interpret and calculate with whole numbers and familiar fractions, decimals and percentages for work (FSKNUM14)
>
> Estimate, measure and calculate routine metric measurements for work (FSKNUM15)
>
> Interpret, draw and construct 2D and 3D shapes for work (FSKNUM16)
>
> Use routine maps and plans for work (FSKNUM17)
>
> Construct routine tables and graphs for work (FSKNUM18)
>
> Interpret routine tables, graphs and charts for work (FSKNUM19)
>
> Use basic functions of a calculator (FSKNUM20)

A learner who gains a qualification in this course with a Satisfactory Achievement award may reasonably expect a Registered Training Organisation with the units on its scope to grant direct recognition (Recognition of Prior Learning/credit transfer) on the basis of successful achievement in this TASC accredited course.

The relationship between Essential Skills – Maths and these units of competence is shown below.

Essential Skills - Maths Course Content	
Essential Skills - Maths	**Units of Competence FSK13**
1. *Use basic functions of a calculator for problem solving, investigations and applications*, including: • identify and use the four operation keys, cancel, memory and the result key, and other necessary function keys, on calculators • calculating using whole numbers, money and routine decimals and percentages • calculating with routine fractions • applying order of operations to solve multi-step calculations • interpreting display and record results • making estimations and using them to check reasonableness of the mathematical process • using formal and informal mathematical language and appropriate symbolism and conventions to communicate the result of the task.	Use basic functions of a calculator (FSKNUM20)
2. *Interpret and calculate with whole numbers and familiar fractions, decimals and percentages in an everyday adult context*, including: • interpreting and comprehending whole numbers and routine or familiar fractions, decimals and percentages • demonstrating understanding of place value by ordering numbers • performing calculations using the four basic operations (addition, subtraction, multiplication, division) which may involve a number of steps • converting between equivalent forms of fractions, decimals and percentages • applying order of operations to solve multi-step calculations • locating required numerical information to perform task	Interpret and calculate with whole numbers and familiar fractions, decimals and percentages for work (FSKNUM14) Use beginning skills with whole numbers and money up to one hundred for work (FSKNUM01)

- using formal and informal mathematical language and symbolism to communicate the result of the task - recognising Australian coins and notes according to value and write money as symbols up to $100 - recognising and naming money amounts up to one thousand - rounding to the nearest 5 cents - performing simple and familiar calculations with money, using basic operations - making estimations to check reasonableness of the answer to a problem. **Criterion 3: Demonstrate basic arithmetic skills**	
3. *Estimate, measure and calculate routine metric measurements in everyday adult situations*, including: - understanding metric units and the common prefixes - selecting and interpreting measurement information in tasks and texts - identifying appropriate routine measuring equipment - using appropriate routine equipment accurately (for example, setting weight scales at zero before weighing) - estimating and checking answer against estimate and relative to the task - estimating making routine measurements and calculating using correct units - calculating areas of squares and rectangles - performing conversions between routinely used metric units - relating a real world problem to mathematical processes - recording the information using mathematical language and symbols. **Criterion 4: Demonstrate basic skills in measurement**	Estimate, measure and calculate routine metric measurements for work (FSKNUM15)
4. *Interpret, draw and construct 2D and 3D shapes*, including: - identifying two dimensional shapes and routine three dimensional shapes in everyday objects and in different orientations - explaining the use and application of shapes - using formal and informal mathematical language and symbols to describe and compare the features of two dimensional shapes and common three dimensional shapes - identifying common angles using simple tools - estimating common angles in everyday objects - using common geometric instruments to draw two dimensional shapes - constructing routine three dimensional objects from given nets. **Criterion 5: Demonstrate functional skills in geometrics and using routine maps and plans**	Interpret, draw and construct 2D and 3D shapes for work (FSKNUM16)
5. *Use routine maps and plans*, including: - identifying features in routine maps and plans - explaining symbols and keys in routine maps and plans - demonstrating understanding of direction and location - applying simple scale to estimate length of objects, or distance to location or object - giving and receiving directions using both formal and informal language. **Criterion 5: Demonstrate functional skills in geometrics and using routine maps and plans**	Use routine maps and plans for (FSKNUM17)
6. *Construct and interpret routine tables, graphs and charts*, including:	Construct routine tables and graphs for work (FSKNUM18)

- identifying features of common tables, graphs and charts in predominantly familiar texts and contexts - identifying uses of different tables and graphs - identifying common types of graphs and their different uses - selecting a method to collect data, determine variables and collate information in a table - determining a suitable scale and axes, draft and draw graphs from collated data - report and discuss information using formal and informal mathematical language. **Criterion 6: Demonstrate functional skills in the use and interpretation of simple tables, graphs and charts**	Interpret routine tables, graphs and charts for work (FSKNUM19)

Accreditation

Renewal of accreditation on 14 December 2018 for the period 1 January 2019 until 31 December 2025.

Version History

Version 1 – Accredited on 3 July 2013 for use in 2014 to 2018. This course replaces Essential Skills – Numeracy (MTN210113) that was due to expire on 31 December 2014.

Version 1.a – Removal of reference to 'A' ratings in ASSESSMENT section.

Version 2 - Renewal of accreditation on 14 December 2018 for the period 1 January 2019 until 31 December 2021. Amendments: clarification that the six (6) compulsory units are to be to be delivered *sequentially*; and addition to Quality Assurance section.

Version 3 - Renewal of accreditation on 14 July 2021 for the period 1 January 2022 until 31 December 2023. Amendment: removal of compulsory delivery order of Units.

Tasmanian Government