

Preliminary Mathematics Stage 1

| LEVEL PRE | 0 TCE CREDIT POINTS |
|---------------------------------|------------------------|
| COURSE CODE | PRM005119 |
| COURSE SPAN | 2019 — 2025 |
| READING AND WRITING STANDARD | NO |
| MATHEMATICS STANDARD | NO |
| COMPUTERS AND INTERNET STANDARD | NO |

This course is current for 2024.

Preliminary Mathematics caters for learners who require flexible and individualised programs

Learners will experience a range of learning activities in familiar contexts that will assist them to attend to and explore the world around them with as much independence as possible.

Course Description

This course is organised into four sequential stages. Each stage includes a learning focus statement and examples of student learning. Each stage is designed to accommodate a learner's level of readiness and reflects their stage of development. It may be likely that a learner will engage in only one stage of learning in their study of this course.

The learning program focuses on ideas, skills, techniques and processes. It includes engagement in concepts that emerge from a range of starting points and stimuli. Learners explore experiences, ideas, feelings and understandings through making and responding.

This document represents **Stage 1** of the course *Preliminary Mathematics*.

Introduction to Preliminary to Level 1 courses

This course has been accredited under Section 55ZI of the *Office of Tasmanian Assessment, Standards and Certification Act 2003* - Other education. 'Other education' is defined by the Act as including 'education specifically designed for a person with a disability'.

Section 55ZM of the Act requires that providers of this course issue qualifications to learners who achieve a Preliminary Achievement (PA) award or higher at any stage or size value. For further information and examples, see the Supporting Documents section of this course.

In addition to provider-issued qualifications, course providers may report learner results to the Office of TASC in late November each year using prescribed methods. Reported results will be used by TASC for inclusion on students' Qualification Certificates (QCs) and may form part of the evidence base for a Tasmanian Certificate of Educational Achievement (TCEA) for eligible learners.

Achievement in courses Preliminary to Level 1 does not contribute to the Tasmanian Certificate of Education (TCE). This allows for greater flexibility in regard to learner movement between stages and their learning time (reflected in variable size values for this course) than are available in Level 1 and higher senior secondary courses.

Learners

The Preliminary to Level 1 suite of courses are designed for learners whose circumstances significantly impact their learning – in an ongoing manner or for extended periods of time.

These learners include:

- learners with disability as defined by the *Disability Discrimination Act (DDA) 1992*, whose disability requires educational adjustments to support access and participation in learning
- learners whose circumstances have significantly impacted their ability to attend school for extended periods of time or engage in courses with higher levels of complexity
- learners who require significant support for learning English as an additional language or dialect.

Content and Proficiency Strands

CONTENT STRANDS

The content strands describe what is to be taught and learnt. They are outlined below.

Number and algebra

Within this strand, learners will engage in activities designed to develop their understanding of number and place value, react to situations involving money and identify, explore and predict patterns. They will correspond quantities with names and numerals and use this information to perform simple addition and subtraction. They will explore sharing quantities through partitioning. They will identify, relate and extend patterns and attributes in number series such as even numbers.

Measurement and geometry

Within this strand, learners will engage in activities designed to develop their understanding of the physical attributes of the world around them. They will define, sort and classify shapes and measure attributes including length, weight, temperature, time and capacity. They will describe, change and interpret location, position and movement of objects and show an awareness of time, both in intervals and the concept of time passing.

Statistics and probability

Within this strand, learners will engage in activities designed to develop their understanding of statistical information. They will experience data collection through observations, surveys and through the use of measurement instruments. They will explore ways that data can be represented using tables and charts. They will answer closed questions to describe data e.g. which response was the most popular?

PROFICIENCY STRANDS

The proficiency strands below describe how content is explored or developed and the actions in which learners can engage when learning and using the content.

Understanding

Understanding involves making connections between related concepts and progressively applying the familiar to develop new ideas. This includes connecting names, numerals and quantities, partitioning and combining numbers flexibly and identifying the relationship between addition and subtraction. It involves identifying, describing and manipulating attributes of shapes, using appropriate language to communicate properties of time and interpreting simple data sets.

Fluency

Fluency includes readily counting numbers in sequence, recalling addition and multiplication number facts and using estimation to check the reasonableness of answers to calculations. It includes using instruments to measure accurately and selecting appropriate units of measurement to order, compare and calculate attributes. It supports identifying and describing outcomes of chance experiments, interpreting maps and communicating directions and position.

Problem-solving

Problem-solving includes using materials to model authentic problems and using number sentences that represent problem solutions, using familiar counting sequences to solve unfamiliar problems and discussing the reasonableness of the answer. It involves comparison of large numbers, currency or time durations and using properties of numbers to find and extend patterns. It involves the ability to formulate and solve authentic problems through modelling and pattern.

Reasoning

Reasoning includes explaining comparison of quantities through direct and indirect comparison and through the use of informal and formal units. It includes explaining and justifying patterns, representations of data and results to problems. It involves using known facts to derive strategies for unfamiliar calculations and posing appropriate questions for data investigations and interpreting data sets.

Course Relationship to Australian Curriculum

This Preliminary to Level 1 course is organised using the three interrelated content strands from the Australian Curriculum: Mathematics and structured so that teachers can recognise how the four proficiency standards from the Australian Curriculum: Mathematics can be applied to assist content exploration and skill development.

Rationale

Mathematics is the study of order, relation and pattern. From its origins in counting and measuring it has evolved in highly sophisticated and elegant ways to become the language now used to describe much of the modern world. Mathematics is also concerned with collecting, analysing, modelling and interpreting data in order to investigate and understand real-world phenomena and solve problems in context. Mathematics provides a framework for thinking and a means of communication that is powerful, logical, concise and precise. It impacts upon the daily life of people everywhere and helps them to understand the world in which they live and work.

Preliminary Mathematics caters for learners who require flexible and individualised programs. Learners will experience a range of learning activities in familiar contexts that will assist them to attend to and explore the world around them with as much independence as possible. Learning experiences in this course are designed to move learners from an emergent level of responding to a level where the response indicates intention. *Preliminary Mathematics* aims to offer better outcomes in all aspects of learners' lives, and assist learners' access to achievable pathways to further education, training and/or employment outcomes.

Learning Outcomes

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

1. identify whole numbers and apply fundamental number skills to everyday mathematical situations
2. use units of measurement
3. use spatial awareness to describe position, location and shape

Stages of Learning at Preliminary to Level 1

This course focuses on progressing learners from a pre-intentional to intentional state. It encourages learners to develop their independence as they explore, participate and engage in the world around them. Expectations for learner achievement are set at four stages which are not associated with any set age or year level that links chronological age to developmental progress. As learners progress through these stages the level of coactive support required decreases as they proceed towards becoming independent learners.

This document is **Stage 1** in four Stages of the course Preliminary Mathematics.

Stage 1

At this stage learners experience a range of learning activities that will assist them to attend to and explore the world around them with as much independence as possible. Experiences are designed to move Learners from a pre-intentional level of responding to a level where the response indicates beginning intention. Learners will need high levels of coactive support and focused attention from the teacher to help them initiate and refine their responses. Learners demonstrate some awareness and recognition of familiar people and routine activities.

Stage 2

Learners at this stage become less reliant on high levels of coactive support and become more reliant on verbal prompts and gestures to facilitate their learning. They begin to explore their world independently and engage in simple cause-and-effect play activities. Learners are able to focus on structured learning activities for short periods of time. They respond to familiar people and events and begin to use 'yes/no' responses.

Stage 3

Learners at this stage are less dependent on coactive support and respond more consistently to prompts and simple clear directions from the teacher to support them in their learning. They are displaying the first signs of independence and becoming more peer focused. Learners participate in structured learning activities with others and they begin to use pictures, photos and objects to communicate personal interests and experiences. They start to use and link some familiar words and images to form a meaningful communication.

Stage 4

With teacher support and curriculum scaffolding, learners at this stage participate cooperatively in group learning activities. They express their feelings, needs and choices in increasingly appropriate ways and combine and sequence key words and images to communicate personal interests and to recount significant experiences. They indicate beginning understanding of social rules and expectations and are beginning to reflect on their own behaviour.

Access

Learners can enter the course at any of the four stages depending upon their level of readiness or ability. Providers will determine the entry point for learners based on each learner's level of readiness.

All learners have a right to an education that meets their needs through full participation and engagement with learning. Providers enhance the quality of all students' learning through responsive and planned learning programs that optimise achievement using inclusive practices.

Learners will have access to appropriate resources such as professional support staff (or adult) assistance, and equipment such as assistive technology or modified facilities, as required. The *Disability Standards for Education Act 2005* outline the obligations that educational providers must meet in supporting the needs of learners with disability through reasonable adjustments.

Adjustments include a range of supports and accommodations including but not limited to:

- supportive learning environments
- tailored delivery models
- visual and organisational supports
- multimodal learning and assessment opportunities
- varying levels of prompting and adult assistance.

'Adjustment' does not mean the lowering or removal of standards but rather it means allowing learners appropriate means to demonstrate their learning and achievement against standards.

In the instance of online, distance or flexible delivery, adjustments may be made in the delivery of the courses by providers to suit the individual student's learning environment. This may involve differentiation to reflect the resources readily available to the learner within their home or community.

Pathways

This course is preparatory to *Everyday Maths* Level 1.

Course Size And Complexity

This course has a complexity Preliminary to level 1.

Each stage of the course has a size value of 5 or 10 or 15 depending upon learners needs. A learner will undertake a minimum of 50 hours study in this course, through to a maximum of 150 hours dependent on learner needs.

There are many possible ways of combining the Stages of learning and the size value of 5 or 10 or 15 depending upon learners needs. For example:

- A learner might study Preliminary to Level 1, Stage 3 of the course and complete it in 50 hours. This learner might then study Preliminary to Level 1, Stage 4 of the course and require 100 hours to achieve this. After successful completion, this learner might then undertake Everyday Maths Level 1 in the following year.
- In one year a learner might study Preliminary to Level 1, Stage 2 of the course and complete it in 50 hours. This learner might then also study Preliminary to Level 1, Stage 3 of the course and require 100 hours to achieve this
- A learner may study Preliminary to Level 1 Stage 1 in 150 hours.

Course Structure

This course is organised into four sequential stages. Learners can enter the course at any of the four stages depending upon their level of readiness or ability. Providers will determine the entry point for learners.

This document is Stage 1 of the four stages in this course.

Course Delivery

The sequence of delivery for each stage is at the discretion of the provider. A personalised learning program will be developed for each learner, dependent on their needs. Not all learners will achieve all stages of the course content.

While there is no prescribed order of delivery within each stage, the course material from each content strand must be completed and assessed against criterion 1 (number and algebra), criteria 2-3 (measurement and geometry) and criterion 4 (statistics and probability). To support effective learning it is recommended that providers design a program of study that combines/concurrently delivers the content in criterion 1 alongside the content in criteria 2 – 4. While not all proficiency strands apply to every part of the course content, they provide a meaningful basis for the development of concepts within mathematics and as such indicate the breadth of mathematical actions that teachers can emphasise to support learning of the prescribed content.

Course Content

STAGE 1: (50, 100 AND 150 HOURS)

This stage has a size value of 5, 10 or 15.

In Stage 1, learners begin to engage, participate and respond to experiences through communication with known adults, teachers and peers.

Within number and algebra, learners will demonstrate an awareness of counting by responding to stimuli such as stories and games. They will participate in making groups of familiar everyday objects and respond to situations involving sharing. They will explore the sensory characteristics of coins and notes. They will participate in activities where data is collected and organised in displays.

Learners will:

- experience and respond to number symbols, names and quantities within everyday activities
- participate in familiar activities (e.g. songs, games or stories) that involve counting and/or making groups
- react to ordinal terms 'first' and 'then' to sequence events
- group and order sets of physical objects using terms such as 'more', 'same' or 'less'
- indicate choice for one object over another
- react to objects being added to or taken away from a group
- indicate a need/want for 'more' or 'less'
- respond to practical situations of sharing (e.g. pass an object to another)
- experience the sensory characteristics of coins and notes
- experience money being exchanged, counted and stored in various situations
- react to objects being grouped according to a known criterion
- react to data displays being interpreted.

Within measurement and geometry, learners will explore space through movement, by responding to objects of varying shapes, lengths, weight, and texture. They will recognise activities according to the equipment. They will manipulate malleable materials to develop an awareness of changing shapes.

Learners will:

- explore a range of objects that have various properties including length
- react to two-dimensional objects in everyday situations with the use of sensory input (e.g. build, stack, construct, order, classify)
- use malleable materials to explore changing the attributes of shapes
- respond to objects being moved
- indicate possible ways of getting from one place to another (both locations within sight)
- move themselves to gain a better view
- indicate an awareness of familiar places
- participate in class activities involving some measurement concepts (e.g. simple food preparation, cutting cardboard to size).

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.

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.

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.

NOTATION ON EVIDENCE OF LEARNING

Some of the criteria standard elements use the terms reacting, responding and recognising.

In the context of this preliminary level course reacting/responding might be defined as:

- an intentional repeatable and observable behaviour that can be interpreted simply, objectively and conclusively.

In the context of this preliminary level course recognising might be defined as:

- intentionally signalling identification of (someone or something) through gesture, facial expression or sound from having encountered them before.

Quality Assurance Process

Each provider is responsible for ensuring the integrity and validity of their assessment results against the requirements of the course, including standards, and for maintaining records and documentation that will demonstrate the integrity, accuracy and validity of the award decisions they make each year.

Under Section 55ZN of the *Office of Tasmanian Assessment, Standards and Certification Act 2003*, TASC may give a provider written direction regarding the provision and assessment of an accredited other education course.

Criteria

The assessment of *Preliminary Mathematics* Stage 1 will be based on whether the learner can:

1. Identify whole numbers and apply fundamental number skills
2. Use units of measurement
3. Use spatial awareness to describe position, location and shape

Criterion 1: Identify whole numbers and apply fundamental number skills

The learner:

| Rating C |
|---|
| responds to number names 'one', 'two' and 'three' in sequence to count |
| reacts to ordinal terms 'first' and 'then' |
| responds to objects being counted and distributed |
| responds to the removal or addition of familiar items and objects in practical situations |
| responds to situations where two collections of objects are compared |
| reacts to practical situations involving sharing |
| reacts to everyday financial situations involving money |
| reacts to objects relevant to a given context |
| reacts to objects being moved and organised to make a data display |
| reacts to data displays being interpreted |

Criterion 2: Use units of measurement

The learner:

| Rating C |
|--|
| responds to simple measurements |
| responds to objects based on length |
| responds to personally relevant regular everyday events (e.g. lunch time). |

Criterion 3: Use spatial awareness to describe position, location and shape

The learner:

| Rating C |
|--|
| recognises key attributes of familiar shapes and objects |
| arranges different shaped objects |
| responds to objects being moved (e.g. added to or taken away from a group) |
| recognises familiar locations (such as inside, outside, school, home, playground). |

Qualifications Available

Preliminary Mathematics to Level 1: Stage 1, 2, 3 or 4 (with the award of):

SATISFACTORY ACHIEVEMENT

PRELIMINARY ACHIEVEMENT.

Award Requirements

The final award for Preliminary Mathematics Stage 1 will be determined by the provider from three (3) ratings.

The minimum requirements for an award in each Stage of this course are as follows:

Satisfactory Achievement (SA)
3 'C' ratings

Preliminary Achievement (PA)
1 'C' rating

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 forward 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.

Course Developer

The Department of Education acknowledges the significant leadership of Joshua Moore in the development of this course.

Accreditation

The accreditation period for this course is from 1 January 2019 until 31 December 2025.

During the accreditation period required amendments can be considered via established processes.

Should outcomes of the Years 9-12 Review process find this course unsuitable for inclusion in the Tasmanian curriculum, its accreditation may be cancelled. Any such cancellation would not occur during an academic year.

Version History

Version 1 - This course was accredited on 14 December 2018 for use from 1 January 2019 until 31 December 2023.

Version 2 - 28 April 2020. Corrections: addition of elements 2, & 8-10 to Criterion 1; and 3rd and last two learning outcome to numbers and algebra.

Appendix 1

GLOSSARY OF VERBS

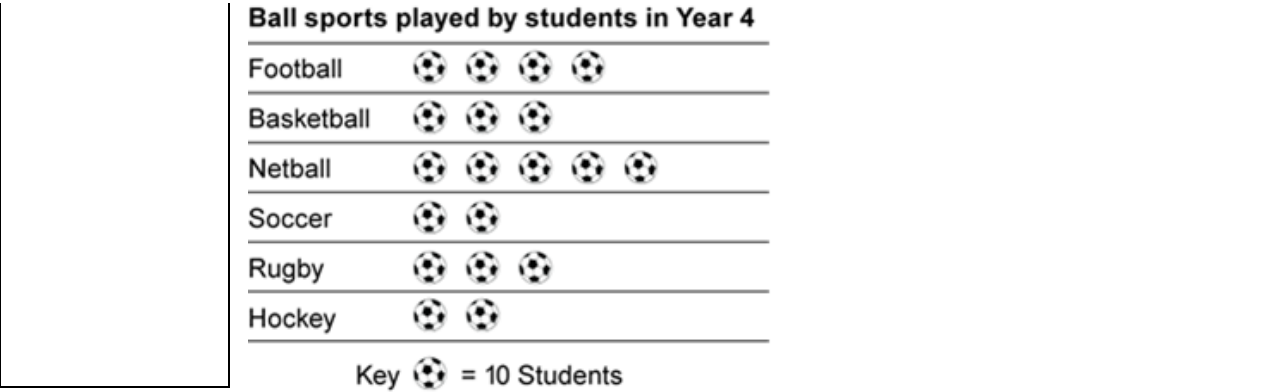
| | |
|-------------|---|
| add | to find the sum of |
| arrange | place in proper, desired or convenient order |
| associate | combine or connect relating ideas |
| choose | decide or select the most suitable from a number of different options |
| classify | sort items into distinct groups with common elements |
| collect | to gather together |
| communicate | to impart knowledge of something through words, gestures or other non-verbal means |
| compare | to examine (two or more objects) in order to note similarities |
| copy | to follow as a pattern or model; imitate |
| count | to list or name the numerals up to (in order) |
| demonstrate | to impart knowledge of something through actions |
| describe | <p>in the context of this course, 'describing' might be done via methods such as</p> <ul style="list-style-type: none">• an oral description• a written list of characteristics• a series of actions• a series of images |
| follow | act in accordance to instructions |
| give | impart or communicate instructions |
| identify | recognise the name or indicate who or what someone or something is |
| indicate | show through verbal or non-verbal means |
| interpret | to bring out the meaning of |
| label | identify by placing a name, word or picture used to describe an object or attribute |
| make | put together |
| match | to cause to correspond (e.g. name with quantity) |
| model | explain using materials |
| name | identify as proper/common noun |
| organise | group according to system |
| react | a deliberate, repeatable and observable behaviour that can be interpreted simply, objectively and conclusively |
| recognise | be aware of or acknowledge |
| | |

| | |
|----------|---|
| respond | provide an answer; reply |
| select | choose in preference to another or others |
| sequence | arrange in order |
| share | divide and distribute |
| sort | arrange by feature |
| subitise | to perceive at a glance the number of items presented |
| use | to employ for some purpose |

Appendix 2

GLOSSARY – KEY TERMS

| area | a measure of how many units are required to cover a surface. The units are usually standard units, such as square centimetres or square metres | | | | | | | | | | | | | | |
|---------------------------|--|---------|-----------|------|--|--------|--|-----|---|-------------------|--|---------------------|--|-------|--|
| axis | in the given context, axis is a function of a graph as a fixed reference in conjunction with another fixed reference for determining the position of a point or series of points | | | | | | | | | | | | | | |
| capacity | in the given context, capacity is a term that describes how much a container will hold | | | | | | | | | | | | | | |
| data | a general term for information (observations and/or measurements) collected during any type of systematic investigation | | | | | | | | | | | | | | |
| direction | in the given context, direction refers to the line along which anything lies, faces, moves etc. | | | | | | | | | | | | | | |
| fraction | a number expressed in the form $\frac{a}{b}$, representing a part divisible by a whole | | | | | | | | | | | | | | |
| frequency table | <p>a data display to list possible outcomes and show the number of times each outcome occurred in a given context e.g.</p> <p><u>Paint Job Quality Control Checklist</u></p> <table border="1"> <thead> <tr> <th>Problem</th><th>Frequency</th></tr> </thead> <tbody> <tr> <td>Chip</td><td> </td></tr> <tr> <td>Bubble</td><td> </td></tr> <tr> <td>Run</td><td> 1</td></tr> <tr> <td>Scrape or scratch</td><td></td></tr> <tr> <td>Inadequate coverage</td><td> </td></tr> <tr> <td>Other</td><td></td></tr> </tbody> </table> | Problem | Frequency | Chip | | Bubble | | Run | 1 | Scrape or scratch | | Inadequate coverage | | Other | |
| Problem | Frequency | | | | | | | | | | | | | | |
| Chip | | | | | | | | | | | | | | | |
| Bubble | | | | | | | | | | | | | | | |
| Run | 1 | | | | | | | | | | | | | | |
| Scrape or scratch | | | | | | | | | | | | | | | |
| Inadequate coverage | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | |
| location | a particular place or position | | | | | | | | | | | | | | |
| mass | the measure of how much matter is in a person, object, or substance | | | | | | | | | | | | | | |
| model | a standard or example for imitation or comparison | | | | | | | | | | | | | | |
| one-to-one correspondence | refers to the act of simultaneously counting in sequence by saying number names and selecting/identifying the correct number of objects e.g. a child not using one-to-one correspondence when counting objects will not co-ordinate saying the number names with gesturing to the objects and may say more than one number per object or miss objects | | | | | | | | | | | | | | |
| order | in the given context order refers to the arrangement of numbers in relation to each other according to a particular sequence, pattern, or method | | | | | | | | | | | | | | |
| ordinal | of or relating to order, rank, or position in a series | | | | | | | | | | | | | | |
| partition | a division into or distribution in portions or shares | | | | | | | | | | | | | | |
| pattern | a regular and intelligible form or sequence discernible by following a rule or rules | | | | | | | | | | | | | | |
| picture graph | a statistical graph for organising and displaying categorical data e.g. | | | | | | | | | | | | | | |



| | |
|-------------------|--|
| place value | the value of a digit as determined by its position in a number, relative to the ones (or units) place. For integers, the ones place is occupied by the rightmost digit in the number |
| position | a particular way in which someone or something is placed or arranged |
| scale | in the given context, scale refers to a series of marks laid down at determinate distances, as along a line, for purposes of measurement |
| sequence | the following of one thing after another |
| subitise | to perceive at a glance the number of items presented |
| survey | in the given context,a survey refers to the sampling or partial collection, of facts, figures, or opinions taken and used to approximate or indicate what a complete collection and analysis might reveal |
| three-dimensional | an object is three-dimensional when it possesses the dimensions of height, width and depth.Two dimensional objects only have two dimensions: length and width. A solid is any geometrical object with three-dimensions |
| two-dimensional | a shape is two-dimensional when it only possesses the dimensions of length and width |
| volume | a measure of the space enclosed by a solid. For a rectangular prism, $\text{Volume} = \text{Length} \times \text{Width} \times \text{Height}$ |


Line Of Sight

Line of sight for *Preliminary Mathematics* (Stages 1 - 4). Stage 1 here highlighted.

Note: Criterion 4 is *not* assessed in Stage 1.

| Learning Outcome | Criterion | Content | Criterion and elements |
|--|-------------|---|---|
| identify whole numbers and apply fundamental number skills to everyday mathematical situations | Criterion 1 | Stage 1: Number and algebra Stage 2: Number and algebra Stage 3: Number and algebra Stage 4: Number and algebra | Stage 1 C1 All elements Stage 2 C1 All elements Stage 3 C1 All elements Stage 4 C1 All elements |
| use units of measurement | Criterion 2 | Stage 1: Measurement and geometry Stage 2: Measurement and geometry Stage 3: Measurement and geometry Stage 4: Measurement and geometry | Stage 1 C2 All elements Stage 2 C2 All elements Stage 3 C2 All elements Stage 4 C2 All elements |
| use spatial awareness to describe position, location and shape | Criterion 3 | Stage 1: Measurement and geometry Stage 2: Measurement and geometry Stage 3: Measurement and geometry Stage 4: Measurement and geometry | Stage 1 C3 All elements Stage 2 C3 All elements Stage 3 C3 All elements Stage 4 C3 All elements |
| collect, represent and interpret statistical information | Criterion 4 | Stage 1: *No content Stage 2: *No content Stage 3: Statistics and probability Stage 4: Statistics and probability | Stage 1 *No assessment Stage 2 *No assessment Stage 3 C5 All elements Stage 4 C5 All elements |

Supporting documents including external assessment material

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[TASC - Preliminary Level Courses - Issuing Qualifications.PDF](#) (2024-01-16 08:35am AEDT)

