

SECTION **36**

VBQU139A

Work with a range of numbers and money in familiar and routine situations

Unit Code	VBQU139A
Unit Title	Work with a range of numbers and money in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to interpreting, using and calculating with a range of whole numbers, decimals, routine fractions and percentages and money in familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence at Level Three Numeracy: 3.9, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B, Appendix B.</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT**PERFORMANCE CRITERIA**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

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|---|---|---|
| 1 | Interpret and compare whole numbers, decimals, routine fractions and percentages | 1.1 <i>Place value concepts for whole numbers and decimals</i> are used to interpret and compare numbers
1.2 The meaning of <i>routine common fraction and percentages</i> is used to interpret and compare numbers
1.3 Conversions between <i>equivalent common fraction, decimal and percentage forms</i> are undertaken in order to use and compare numbers |
| 2 | Undertakes routine, multi-step calculations with numbers and money in familiar situations | 2.1 <i>Routine one or two step calculations</i> with numbers and money are performed <i>in familiar situations</i> including <i>making an estimate</i> and where appropriate converting between <i>equivalent common fraction, decimal and percentage forms</i>
2.2 <i>Order of arithmetic operations</i> is used and applied to solve <i>routine one or two step calculations</i>
2.3 <i>Common rates</i> are used and applied in <i>familiar or routine situations</i>
2.4 <i>The reasonableness of results</i> is checked against initial estimate, context of problem and personal knowledge/experience |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams, and undertake learning and assessment
- ability to read, write and interpret decimals, common fractions and percentages and use informal and formal language of number
- the ability to interpret, compare and calculate with whole numbers, decimals, common fractions and percentages, and money.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Place value concepts for whole numbers and decimals refers to

- the relationship between numeral position and numerical value
- the decimal point is clearly identified as a separator between whole number and part of a whole number (e.g. dollar and part of a dollar)
- learners should be familiar with a range of numbers from thousandths to millions. A transition needs to be made slowly from interpreting \$0.25 as 25 cents to 25 hundredths to a quarter of a dollar etc.

Routine, common fractions and percentages may include

- common fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, thirds, fifths, tenths
- common percentages such as 20%, 15%, 40%, 75%, 100%, etc.

Equivalent common fraction, decimal and percentage forms may include

- includes converting between common fraction, decimal and percentage forms for simplification of calculations, such as 0.25 or 25% to $\frac{1}{4}$, or halving instead of using 50%, or shifting decimal point instead of working out 10%
- common fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, thirds, fifths, tenths
- decimals to 3 decimal places
- common percentages such as 20%, 15%, 40%, 75%, 100%, etc.

Routine one or two step calculations include

- familiar/routine calculations that use one or two operations chosen from +, −, × or ÷
- calculations should be done using familiar ‘in head’ methods where appropriate (e.g. × or ÷ by 2, 10, 100 etc.) and also by pen and paper and by using a calculator or other technological processes and tools
- division by decimal values and long division may be worked out on a calculator
- when working with money, rounding off should be to the nearest 5 cent or 1 cent to reflect practical reality

Familiar or routine situations include

- situations that learners meet regularly in their daily lives including at work such as: shopping, planning holidays, gardening and other household purchase and activities, reading and working with household bills, advertising leaflets, catalogues, sale pricelists, Standard Operating

Procedures, financial papers such as bank statements, budgets, salary statements, pay packets, workplace calculations, etc.

Making an estimate

- number facts and rounding are used to get estimates - if it is not evident in the context, the accuracy required needs to be discussed and clearly established

Order of arithmetic operations

- only as applied to appropriate real life and familiar calculations such as shopping
- the priority order of multiplication and division over addition and subtraction and the use of brackets in writing down two-step calculations involving + or – , with \times is introduced and explained based on such examples and how it applies to the use of (some) calculators

Common rates

- learners should be able to understand and apply simple common routine rates such as \$/kg, \$/m, km/hr, etc. For example, how much would you pay for 2.5 kg of potatoes at \$1.69 per kg, about how many metres of material at \$5.99 per metre would you get for \$20?

The reasonableness of results

- where appropriate a comparison of final result to initial estimate is made to provide a reality check of the value
- referral to context to decide if the result is possible and relevant
- prior knowledge may lead to comparison to previous experiences and therefore decide whether result is appropriate

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners should be able to interpret, use and calculate with numbers and costs in familiar situations.

Where performance criteria include a list of concepts or knowledge (e.g., equivalent common fraction, decimal and percentage forms) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

Context of and specific resources for assessment

- The knowledge requirements of this unit
- The skill requirements of this unit.
- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in familiar and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources
- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:
 - online responses
 - interviews
 - self-assessment
 - verbal questioning
 - written questioning
- portfolios, for example:
 - samples of the learner’s written work
 - pictures, diagrams, models etc. created by the learner
 - records of teacher observations of learner’s activities, discussions and practical tasks

- third party feedback such as testimonials/reports from other teachers or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)
- some of these tasks may be classroom simulations, but where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.

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SECTION **36**

VBQU139B

Work with and interpret directions in familiar and routine situations

21772VIC Certificate I in General Education for Adults

Unit Code	VBQU139B
Unit Title	Work with and interpret directions in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to the interpretation and use of familiar maps or street directories, and giving and following directions which are part of the learners' familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence at Level Three Numeracy: 3.9, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B, Appendix B.</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

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|---|--|-----|---|
| 1 | Use knowledge of position and location to interpret and use familiar maps or street directories | 1.1 | <i>Key features</i> on <i>familiar maps and street directories</i> are read, interpreted and used to locate particular places or positions |
| | | 1.2 | <i>Simple scale indicators</i> on <i>familiar maps</i> are used to estimate and/or calculate distances, including that the results can be interpreted in terms of approximate travelling time |
| 2 | Interpret and use knowledge of position and location and routine maps or street directories to follow and give oral and written directions | 2.1 | <i>Sketch maps</i> are created and <i>oral and written directions</i> used to give and follow directions, checking on the effectiveness of the given directions |
| | | 2.2 | A range of <i>formal and informal language of position</i> is used |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams, and undertake learning and assessment
- the ability to use distance, directions, simple scales, labels, symbols and keys to read and use maps and plans and to give and follow directions.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Key features may include

- ability to use indexes in directories to identify pages and grid references (co-ordinates) and the ability to interpret some of the more common symbols such as those for information, police, public transport, main routes etc

Familiar maps and street directories may include

- maps of local area, street directories, maps or plans of shopping centres and educational institutions, etc.

Simple scale indicators include

- one which uses simple distance and length units (e.g. 1cm =

10km) – use of a ratio scale is not required at this level and a learner should use ruler, string or other aids to determine distance from a map

Sketch maps and oral and written directions may include

- sketch drawings, plans or maps created should be reasonably accurate, simple and uncluttered
- oral directions should be short, clear, with one or two given at a time
- locations might include between buildings in a large institution, from one workplace to another or from home to the local shopping centre
- written directions given should be simple and brief

formal and informal language of position includes

- over/under, in front/behind, left/right, up/down, through, opposite, on the corner, next to in between and the more formal North, South, East, West, clockwise/anticlockwise; ½ turn, ¼ turn; 180° degree turn, grid references

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners will be able to interpret and use position, location and maps to give and follow oral and written directions

Where performance criteria include a list of concepts or knowledge (e.g., a range of formal and informal language of position) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- The knowledge requirements of this unit
- The skill requirements of this unit.
- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in familiar and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Context of and specific resources for assessment

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources
- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:
 - online responses
 - interviews
 - self-assessment
 - verbal questioning
 - written questioning
- portfolios, for example:
 - samples of the learner’s written work
 - pictures, diagrams, models etc. created by the learner
 - records of teacher observations of learner’s activities, discussions and practical tasks
- third party feedback such as testimonials/reports from other teachers or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)
- some of these tasks may be classroom simulations, but

where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.

SECTION **37**

VBQU140A

Work with measurement in familiar and routine situations

21772VIC Certificate I in General Education for Adults

Unit Code	VBQU140A
Unit Title	Work with measurement in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to estimating, measuring and calculating everyday quantities including with time and dates, which are part of the learners' familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence at Level Three Numeracy: 3.09, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B Course Requirements of the <i>Certificate in General Education for Adults</i> (See: Appendix B).</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT**PERFORMANCE CRITERIA**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

- | | | |
|---|---|---|
| 1 | Estimate, measure and calculate routine quantities | <p>1.1 <i>Concepts and units of measure</i> for routine quantities are interpreted, used and described using <i>suitable symbols and abbreviations</i></p> <p>1.2 Initial <i>estimate of measurement</i> is made and the measurement is <i>performed correctly</i> using <i>appropriate tools and instruments</i></p> <p>1.3 Measures of length, mass, and capacity/volume are <i>converted within the metric system</i></p> <p>1.4 <i>Routine and familiar calculations</i> with relevant measurements are performed</p> <p>1.5 <i>Reasonableness of results</i> is checked and results are interpreted in terms of original purpose and the context</p> |
| 2 | Interpret, use and calculate with time in familiar and routine situations | <p>2.1 <i>Time measuring and/or recording devices</i> are read and used to interpret, estimate and calculate with time in <i>familiar and routine situations</i></p> <p>2.2 <i>Symbols and language related to time</i> are used to communicate results of <i>calculations involving time</i></p> <p>2.3 <i>Relationship between units of time</i> is identified and used to convert between units</p> |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams, and undertake learning and assessment
- ability to estimate, measure and calculate everyday quantities using familiar measuring instruments
- ability to read, write and interpret decimals, common fractions and percentages and use informal and formal language of number in relation to measurement and time.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Concepts and units of measure should include

- routine measurements for temperature, length, height, mass, volume/capacity
- routine measurements for perimeter, and simple area
- areas of non-rectangular shapes estimated by counting squares such as for areas of hands, leaves, curved shapes, etc.
- area related to rectangular areas only and based on an understanding of the formula Area = length x width based on counting squares and seeing the pattern and relationship between the whole units along the length and width
- angle as a rotation with a full turn = 360° and recognition of right angles as 90° and estimating angles in relation to less or more than 90° and 180°

Suitable symbols and abbreviations include

- use the words, symbols and conventions for familiar or routine measurement units and rates such as litres, l, millilitres, ml, \$/m, \$/l, \$/kg, etc
- names, abbreviations and symbols of the units of measurement within metric system eg centimetre (cm), millimetre (mm), kilometre (km), millilitre (ml)

Estimate of measurement means

- a rough estimate is appropriate unless a specific accuracy is requested by the assessor

Performed correctly means

- the measurement is made from starting point (especially where the instrument does not start at zero, the accuracy asked for is given

Appropriate tools and instruments

- tape measures, rulers, kitchen and bathroom scales, thermometers, measuring cups, medicine glasses, spoons

Converted within the metric system includes

- convert mm-cm-m-km, ml-l, g-kg and vice versa. Tonne and kilolitre only if specific need arises. Converting may require fractions or decimal notation where this is the appropriate form needed (e.g. 3,500 m is $3\frac{1}{2}$ km or 3.5km)

Routine and familiar calculations

- calculations can include familiar/routine calculations that use one or two operations chosen from +, -, x or \div
- calculations can be done using familiar 'in head' methods where appropriate and also by pen and paper and by using a

calculator

- division by small whole numbers only
- division by decimal values and long division may be worked out on a calculator
- learners should be able to understand and apply simple common routine rates related to measurement such as \$/kg, \$/m etc.

Reasonableness of results

- answers should be given in required units and accuracy is appropriate to task (e.g. sugar measure is in g not kg, *pinch* of salt is a few grams, etc.)
- amount is realistic given the context

Familiar and routine situations
may include

- household bills, advertising leaflets, catalogues, sale pricelists, Standard Operating Procedures, invitations, timetables, overdue notices etc.
- time related situations could include checking timetables, TV programs, marking appointments in calendars, noting due dates for payments etc.

Time measuring and/or recording devices include

- digital and analogue time pieces, calendars timers on ovens and washing machines, alarm clocks

Symbols and language related to time may include

- oral and written language of time such as hours, minutes, days, weeks, fortnight, months, years and their respective abbreviations
- semesters, seasons before/after, longer/shorter later, earlier, day before yesterday, first, second, between, due date

Calculations involving time may include

- total length of time for a number of different times (e.g. adding work shifts, TV programs, etc)
- difference in time between different durations or dates (e.g. work shifts, TV programs, days between two dates, etc.)

Relationship between units of time refers to

- units such as minutes and hours (60m=1hr, 30m=1/2hr) or weeks in a month or hours in a day, days in a year etc

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners will be able to estimate, measure and calculate everyday quantities.

Where performance criteria include a list of concepts or

knowledge (e.g., such as measurement units: centimetres, metres, kilograms, litres, degrees Celsius etc.) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- The knowledge requirements of this unit
- The skill requirements of this unit.
- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in appropriate and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Context of and specific resources for assessment

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources
- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:

- online responses
- interviews
- self-assessment
- verbal questioning
- written questioning
- portfolios, for example:
 - samples of the learner's written work
 - pictures, diagrams, models etc. created by the learner
 - records of teacher observations of learner's activities, discussions and practical tasks
- third party feedback such as testimonials/reports from other teacher or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)
- some of these tasks may be classroom simulations, but where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.

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SECTION **37**

VBQU140B

Work with design and shape in familiar and routine situations

21772VIC Certificate I in General Education for Adults

Unit Code	VBQU140B
Unit Title	Work with design and shape in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to identification, comparison, construction and drawing of familiar two-dimensional and three-dimensional shapes and designs which are part of the learners' familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence at Level Three Numeracy: 3.09, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B Course Requirements of the <i>Certificate in General Education for Adults</i> (See: Appendix B).</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

- | | | | |
|---|---|-----|---|
| 1 | Interpret illustrations, plans and diagrams of routine two and three-dimensional shapes | 1.1 | Common <i>two-dimensional</i> and <i>three-dimensional shapes</i> are classified, identified and described using both <i>informal and formal language of shape</i> |
| | | 1.2 | <i>Plans and diagrams</i> representing familiar three-dimensional objects are <i>read and interpreted</i> to see if they are representative of the original object and vice versa |
| 2 | Draw plans and assemble models of routine three-dimensional shapes | 2.1 | Common <i>two-dimensional</i> and <i>three-dimensional shapes</i> are drawn and represented by diagrams and plans |
| | | 2.2 | <i>Three-dimensional models are assembled</i> from given instructions and nets |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams, and undertake learning and assessment
- ability to estimate and measure using familiar measuring instruments
- ability to read, write and interpret decimals, common fractions and percentages and use informal and formal language of number in relation to design and shape.
- ability to interpret plans and draw and assemble shapes.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Two-dimensional shapes include

- Shapes visible in our environment in particular, square, rectangle, triangle, circle, diamond and where appropriate pentagon, hexagon and others which may appear as road signs and advertisements

Three-dimensional shapes include

- Cylinder, cone, cube, cuboid, pyramids and sphere (balls) since they represented in real objects in familiar situations

Informal and formal language

- rectangle, triangle, circle, sphere, cube, cylinder, pyramid,

of shape may include

etc. and descriptions such as horizontal, diagonal, vertical, parallel, sides, edges, corners and faces, curved, crescent, star, oval, heart-shaped

Three-dimensional models are assembled refers to

- models made from various materials and assembled following written instructions e.g., instructions to build a box; assembling shape from a net of the object; commercial instructions for creating Christmas decorations or bonbons

Plans and diagrams include

- routine and familiar drawings such as floor plans, garden plans, builders, architects or landscaping plans; assembly instructions; dressmaking, craft patterns

Read and interpreted implies

- a learner can identify and describe key features and conventions on plans or diagrams and match relevant aspects and characteristics between the plan and the actual item e.g. match sides/angles/corners/etc.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners will be able to interpret plans and draw and assemble shapes.

Where performance criteria include a list of concepts or knowledge (e.g., such as the range of two-dimensional and three-dimensional shapes) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- The knowledge requirements of this unit
- The skill requirements of this unit.

Context of and specific resources for assessment

- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in appropriate and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources
- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:
 - online responses
 - interviews
 - self-assessment
 - verbal questioning
 - written questioning
- portfolios, for example:
 - samples of the learner’s written work
 - pictures, diagrams, models etc. created by the learner
 - records of teacher observations of learner’s activities, discussions and practical tasks
- third party feedback such as testimonials/reports from other teacher or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)

- some of these tasks may be classroom simulations, but where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.

SECTION **38**

VBQU141A

Work with and interpret numerical information in familiar and routine situations

Unit Code	VBQU141A
Unit Title	Work with and interpret numerical information in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to locating and recognising a range of whole numbers, decimals, routine fractions and percentages which are part of numerical information partly embedded in routine texts. Learners can then use those numbers to perform simple multi-step calculations which are part of the learners' familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence Level Three Numeracy: 3.9, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B Course Requirements of the <i>Certificate in General Education for Adults</i> (See: Appendix B).</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT

Elements describe the essential outcomes of a unit of competency.

1 Interpret and comprehend numerical information partly embedded in familiar and routine texts

2 Interpret, use and undertake routine, multi-step calculations with numbers partly embedded in familiar and routine texts

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

1.1 ***Numerical information*** including whole numbers, decimals and ***routine, common fractions and percentages partly embedded*** in ***familiar and routine texts*** is interpreted and used orally and in writing

1.2 ***Place value concepts for whole numbers and decimals*** are used to interpret and compare numbers ***partly embedded*** in text

1.3 The meaning of ***routine common fraction and percentages*** is used to interpret and compare numbers ***partly embedded*** in text

2.1 ***Numerical information*** including whole numbers, decimals and routine fractions and percentages ***partly embedded*** in text is extracted and ***an appropriate process or calculation*** to solve a problem is determined

2.2 ***Routine one or two step calculations*** with numbers are performed ***in familiar situations*** including ***making an estimate*** and where appropriate converting between ***equivalent common fraction, decimal and percentage forms***

2.3 ***The reasonableness of results*** is checked against initial estimate, context of problem and personal knowledge/experience

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams, and undertake learning and assessment
- ability to read, write and interpret decimals, common fractions and percentages and use informal and formal language of number
- the ability to interpret, compare and calculate with whole numbers, decimals, common fractions and percentages, and money.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Numerical information may include

- numbers into the millions
- fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, thirds, fifths, tenths
- decimals to 3 decimal places
- common percentages such as 20%, 15%, 40%, 75%, 100%, etc.

Routine, common, fraction and percentages may include

- common fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, thirds, fifths, tenths
- common percentages such as 20%, 15%, 40%, 75%, 100%, etc.

Partly embedded

- the maths involved is found within a familiar and routine text where some scanning and reading is required to be able to interpret, locate and extract the necessary mathematics

Familiar and routine texts may include

- newspaper or magazine articles; workplace documents such as Standard Operating Procedures; relevant texts and information off the internet; public information documents, advertising leaflets, catalogues, etc

Place value concepts for whole numbers and decimals refers to

- the relationship between numeral position and numerical value
- the decimal point is clearly identified as a separator between whole number and part of a whole number (e.g. dollar and part of a dollar)
- learners should be familiar with a range of numbers from thousandths to millions. A transition needs to be made slowly from interpreting \$0.25 as 25 cents to 25 hundredths to a quarter of a dollar etc.

An appropriate process or calculation may include

- +, -, x, ÷, a conversion, ordering values, simple fractions of whole numbers, simple ‘% of’ (e.g. 50%, 25%, 10%, 20%)
- fractions, decimals, percentages are converted to equivalent values (e.g., 25% = $\frac{1}{4}$ = 0.25) in situations where fractions and percentages are quoted in the same problem making a comparison difficult; or where one form of a fraction may be more difficult to work with; or where a measurement is quoted in different ways (e.g., $2\frac{1}{4}$ m and 2.250 m) etc

Routine one or two step calculations

- calculations can include familiar/routine calculations that use one or two operations chosen from +, -, × or ÷

- calculations can be done using familiar ‘in head’ methods where appropriate (e.g. \times or \div by 2, 10, 100 etc.) and also by pen and paper and by using a calculator or other technological processes and tools
- division by decimal values and long division may be worked out on a calculator
- when working with money, rounding off should be to the nearest 5 cent or 1 cent to reflect practical reality

Making an estimate

- number facts and rounding are used to get estimates - if it is not evident in the context, the accuracy required needs to be discussed and clearly established

Equivalent common fraction, decimal and percentage forms may include

- includes converting between common fraction, decimal and percentage forms for simplification of calculations, such as 0.25 or 25% to $\frac{1}{4}$, or halving instead of using 50%, or shifting decimal point instead of working out 10%

The reasonableness of results

- where appropriate a comparison of final result to initial estimate is made to provide a reality check of the value
- referral to context to decide if the result is possible and relevant
- prior knowledge may lead to comparison to previous experiences and therefore decide whether result is appropriate

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners will be able to interpret, use and calculate with numerical information in familiar texts

Where performance criteria include a list of concepts or knowledge (e.g., the range of routine common fraction and percentages) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- The knowledge requirements of this unit
- The skill requirements of this unit.

Context of and specific resources for assessment

- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in appropriate and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources
- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:
 - online responses
 - interviews
 - self-assessment
 - verbal questioning
 - written questioning
- portfolios, for example:
 - samples of the learner’s written work
 - pictures, diagrams, models etc. created by the learner
 - records of trainer observations of learner’s activities,

discussions and practical tasks

- third party feedback such as testimonials/reports from other trainers or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)
- some of these tasks may be classroom simulations, but where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.

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SECTION **38**

VBQU141B

Work with and interpret statistical information in familiar and routine situations

Unit Code	VBQU141B
Unit Title	Work with and interpret statistical information in familiar and routine situations
Unit Descriptor	<p>The focus of this unit is on enabling learners to develop numeracy skills related to interpreting and comprehending familiar chance statements and working with, constructing and interpreting statistical tables and graphs related to learners' familiar and routine situations in their personal, public, work or education and training lives. Their communication about these mathematical ideas will be a combination of spoken and written responses.</p> <p>The required outcomes described in this unit relate directly to the <i>Australian Core Skills Framework (ACSF)</i>, (© Commonwealth of Australia, 2008). They contribute to the achievement of ACSF indicators of competence at Level Three Numeracy: 3.9, 3.10 & 3.11. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Employability Skills	<p>The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The qualification's Employability Skills Summary in which this unit is included will assist in identifying employability skill requirements. The summary is included in Part B Course Requirements of the <i>Certificate in General Education for Adults</i> (See: Appendix B).</p>
Application of the Unit	<p>People seeking to improve their educational, vocational or community participation options will need to develop a range of numeracy and mathematics skills.</p> <p>Numeracy is seen as making meaning of mathematics - mathematics is a tool to be used efficiently and critically, where mathematics is seen as the knowledge and skills to be applied and used for a range of purposes and in a variety of contexts. The goal is therefore to assist learners to develop mathematical concepts and relationships in ways that are personally meaningful.</p> <p>It is strongly recommended that this Unit is integrated with the delivery and assessment of other Numeracy and Mathematics Units. It is also recommended that application is also integrated with other units from across the CGEA. The links between the different units encourage co-delivery and assessment, and replicates real life situations where tasks and activities integrate a wide range of skills including literacy and numeracy.</p>

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range statement.

Assessment of performance is to be consistent with the evidence guide.

- | | | | |
|---|---|-----|--|
| 1 | Collect and organise familiar data and construct tables and familiar and routine graphs | 1.1 | <i>Data is collected, organised and recorded in tables</i> , manually or in spreadsheets |
| | | 1.2 | <i>Data</i> is represented in <i>graphical form</i> using the <i>key features and conventions of graphs</i> manually or using appropriate software |
| | | 1.3 | <i>The reasonableness of any statistical representation</i> is checked against context of problem and personal knowledge/experience |
| 2 | Interpret and comprehend statistical information in familiar and routine graphs | 2.1 | Meaning of data in tables, graphs or charts and /or accompanying <i>texts</i> , is <i>interpreted</i> using a range of <i>descriptive informal and formal language</i> |
| | | 2.2 | <i>The reasonableness of any statistical representation</i> is checked against context of problem and personal knowledge/experience |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

- knowledge that signs / prints/ symbols represent meaning
- communication and literacy skills to read relevant, familiar texts and diagrams including tables and graphs, and undertake learning and assessment
- ability to create and interpret tables and graphs in familiar and routine documents and identify and use their key features
- ability to read and say numbers and use informal and formal language of number, chance and data to talk about statistical information.

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different situations that may affect performance, e.g. access to resources, regional contexts. Bold italicised wording in the Performance Criteria is detailed below.

Data may include

- whole numbers, percentages, decimals and simple common fractions found in statistical information

Collected, organised and recorded in tables involves

- data collected can be existing data or new data collected via a survey/questionnaire (may need teacher/trainer support to

develop appropriate questions)

- deciding the categories/headings required may need assistance
- where data needs grouping assistance may be given
- data can be entered into hard copy tables or into a word processing package or spreadsheet

Graphical form includes

- pictographs
- column/bar graphs
- line graphs
- pie charts (when creating pie charts they should be produced using graphing tools in software such as Excel or Word or a pie chart template is provided)

Key features and conventions of graphs

- features and conventions such as values/variables are correctly identified, plotted and labelled, sensible scales and axes are used, etc.
- the scale should be worked out with assistance if requested and be appropriate in terms of size and readability
- scales created should count in 1's, 2's, 5's or 10's

The reasonableness of any statistical representation is in terms of

- referral to the context to decide if the results and interpretations are possible and relevant
- prior knowledge may lead to comparison to previous experiences and therefore decide whether result is appropriate
- personal implications, social consequences, and how the statistics were used and applied

Texts may include

- newspaper, magazine journal articles; workplace documents; relevant texts and information off the internet; public information documents, advertising leaflets, catalogues, timetables etc

Interpreted in terms of

- key results/outcomes, trends and behaviours, etc. – this may occur in response to teacher questioning

Descriptive informal and formal language includes

- maximum, minimum, same as, increasing, decreasing, constant, changing, etc.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Learners will be able to create and interpret simple tables and graphs.

Where performance criteria include a list of concepts or knowledge (e.g., the range of graphs such as pictographs, column/bar graphs, line graphs and pie charts) it is assumed that most of these will be included as part of the teaching/learning program. It is not envisaged that all the listed items be assessed individually - competence across a representative sample being sufficient evidence that the criterion can be met.

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- The knowledge requirements of this unit
- The skill requirements of this unit.

Context of and specific resources for assessment

- assessment of performance requirements in this unit is undertaken over the course of the program
- access to real/authentic or simulated tasks, materials and texts in appropriate and relevant contexts
- access to a computer and internet for information
- access to calculators, computers for word processing or spreadsheets as appropriate

Guidance information for assessment

A range of assessment strategies or options should be considered to suit the needs of the learner. The needs of the learner will be met by provision of:

- use concrete, relevant contexts and materials where the maths content is partly embedded but accessible
- a learning environment appropriate to the assessment task
- appropriate support allowing for full participation
- computer hardware and software, if appropriate

At this level, the learner can:

- use a combination of both informal and formal oral and written mathematical language, symbols, abbreviations and diagrams
- use own familiar support resources

- use a blend of “in the head” methods, pen and paper methods **and** calculators or technological processes and tools.

Appropriate assessment strategies include:

- records of teacher observations of students’ activities, discussions and practical tasks
- questioning, for example:
 - online responses
 - interviews
 - self-assessment
 - verbal questioning
 - written questioning
- portfolios, for example:
 - samples of the learner’s written work
 - pictures, diagrams, models etc. created by the learner
 - records of trainer observations of learner’s activities, discussions and practical tasks
- third party feedback such as testimonials/reports from other trainers or support workers
- at this level it would be appropriate if learners could be assessed undertaking real tasks (e.g. running a survey then interpreting and investigating the meaning /consequences of the results obtained, interpreting numerical/statistical information in newspaper articles, measuring property, giving and following directions or using plans in outside locations, etc.)
- some of these tasks may be classroom simulations, but where possible, it is preferable learners gain the skills and confidence through undertaking tasks in real situations.