

DEMONSTRATE NUMERACY SKILLS

UNIT CODE: COD/OS/SW/BC/02/5/A

UNIT DESCRIPTION

This unit covers the competencies required to perform numerical functions. The person who is competent in this unit shall be able to: Calculate with whole numbers and familiar fractions, decimals and percentages for work; Estimate, measure, and calculate with routine metric measurements for work; Use routine maps and plans for work; Interpret, draw and construct 2D and 3D shapes for work; Interpret routine tables, graphs and charts for work; Collect data and construct routine tables and graphs for work; and Use basic functions of calculator

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range.</i>
1. Calculate with whole numbers and familiar fractions, decimals and percentages for work	1.1 Mathematical information that may be partly embedded in routine workplace tasks and texts is selected and interpreted 1.2 Whole numbers and routine or familiar fractions, decimals and percentages including familiar rates are interpreted and comprehended 1.3 Calculations which may involve a number of steps are perform 1.4 Calculations done with whole numbers and routine or familiar fractions, decimals and percentages 1.5 Conversion between equivalent forms of fractions, decimals and percentages is done 1.6 Order of operations is applied to solve multi-step calculations 1.7 Problem solving strategies are appropriately applied 1.8 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task 1.9 Formal and informal mathematical language and symbolism are used to communicate the result of the task
2. Estimate, measure, and calculate with routine	2.1 Measurement information in workplace tasks and texts are selected and interpreted in accordance with workplace

metric measurements for work	<p>requirements</p> <p>2.2 Appropriate routine measuring equipment are identified and selected in accordance with workplace requirements</p> <p>2.3 Measurements are estimated and made using correct units</p> <p>2.4 Estimations and calculations done using routine measurements</p> <p>2.5 Conversions performed between routinely used metric units</p> <p>2.6 Problem solving processes are used to undertake the tasks</p> <p>2.7 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task</p> <p>2.8 Information is recorded using mathematical language and symbols appropriate to discuss the task</p>
3. Use routine maps and plans for work	<p>3.1 Features are identified in routine maps and plans</p> <p>3.2 Symbols and keys in routine maps and plans are clearly explained</p> <p>3.3 Orientation of map to North is identified and interpreted</p> <p>3.4 Understanding of direction and location is clearly demonstrated</p> <p>3.5 Simple scale is applied to estimate length of objects, or distance to location or object</p> <p>3.6 Directions are given and received using both formal and informal language</p>
4. Interpret, draw and construct 2D and 3D shapes for work	<p>4.1 Two dimensional shapes and routine three dimensional shapes identified in everyday objects and in different orientations</p> <p>4.2 The use and application of shapes elaborately explained</p> <p>4.3 Formal and informal mathematical language and symbols used to describe and compare the features of two-dimensional shapes and routine three-dimensional shapes</p> <p>4.4 Common angles identified</p> <p>4.5 Common angles in everyday objects are appropriately estimated</p> <p>4.6 Formal and informal mathematical language are used to describe and compare common angles</p> <p>4.7 Common geometric instruments used to draw two dimensional shapes</p> <p>4.8 Routine three dimensional objects constructed from given nets</p>
5. Interpret routine tables, graphs and charts for work	<p>5.1 Routine tables, graphs and charts identified in predominately familiar texts and contexts</p> <p>5.2 common types of graphs and their different uses identified</p> <p>5.3 features of tables, graphs and charts identified</p> <p>5.4 Information in routine tables, graphs and charts located and interpreted</p>

	<p>5.5 Calculations are performed to interpret information</p> <p>5.6 How statistics can inform and persuade interpretations is explained</p> <p>5.7 misleading statistical information is identified</p> <p>5.8 Information relevant to the workplace is discussed</p>
6. Collect data and construct routine tables and graphs for work	<p>6.1 Features of common tables and graphs identified</p> <p>6.2 uses of different tables and graphs identified</p> <p>6.3 Data and variables to be collected are determined</p> <p>6.4 The audience is determined</p> <p>6.5 Method of data collection is select</p> <p>6.6 Data is collected</p> <p>6.7 Information is collated in a table</p> <p>6.8 Suitable scale and axes determined</p> <p>6.9 Graph to present information is drafted and drawn</p> <p>6.10 Data checked to ensure that it meets the expected results and context</p> <p>6.11 Information is reported or discussed using formal and informal mathematical language</p>
7. Use basic functions of calculator	<p>7.1 Keys are identified and used for basic functions on a calculator</p> <p>7.2 Calculation done using whole numbers, money and routine decimals and percentages</p> <p>7.3 Calculation done with routine fractions and percentages</p> <p>7.4 Order of operations is applied to solve multi-step calculations</p> <p>7.5 Results are interpreted, displayed and recorded</p> <p>7.6 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task</p> <p>7.7 Formal and informal mathematical language and appropriate symbolism and conventions used to communicate the result of the task</p>

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Simple fractions, decimals and percentages	May include but not limited to: 1.1 Fraction 1.2 Decimals 1.3 Percentages
2. Common 2D shapes and common 3D shapes	May include but not limited to: 2.1 Round 2.2 Square 2.3 Rectangular 2.4 Triangle 2.5 Sphere 2.6 Cylinder 2.7 Cube 2.8 Polygons 2.9 Cuboids
3. Symbols and keys in routine maps and plans	May include but not limited to: 3.1 Charts 3.2 Maps 3.3 Graphs
4. Use basic functions of calculator	May include but not limited to: 4.1 Addition 4.2 Multiplication 4.3 Calculate ratios 4.4 Conversion of ratios into percentages
5. Routine tables, graphs and charts for work	May include but not limited to: 5.1 Bar Graphs 5.2 Flow Charts 5.3 Pie Charts 5.4 Pictograph 5.5 Line Graphs 5.6 Time Series Graphs

	5.7 Stem and Leaf Plot 5.8 Histogram 5.9 Dot Plot 5.10 Scatter plot
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REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Applying Fundamental operations (addition, subtraction, division, multiplication)
- Using calculator
- Using different measuring tools

Required knowledge

The individual needs to demonstrate knowledge of:

- Types of common shapes
- Differentiation between two dimensional shapes / objects
- Formulae for calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Fundamental operations (addition, subtraction, division, multiplication)
- Rounding techniques
- Types of fractions
- Different types of tables and graphs
- Meaning of graphs, such as increasing, decreasing, and constant value
- Preparation of basic data, tables & graphs

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Calculated correctly with whole numbers and routine or familiar fractions, decimals and percentages 1.2 Estimated, measured and calculated with routine metric measurements 1.3 Applied simple scale to estimate length of objects or distance to location or object 1.4 Used formal and informal mathematical language to describe and compare common angles 1.5 Used common geometric instruments to draw two dimensional shapes 1.6 Collected data and constructed routine tables and graphs 1.7 Used basic functions of calculator correctly
2. Resource Implications	2.1 Calculator 2.2 Basic measuring instruments
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Interview/Oral Questioning 3.3 Demonstration
4. Context of Assessment	Competency may be assessed in an off the job setting
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.