

## DEMONSTRATE NUMERACY SKILLS

**UNIT CODE:** FAS/OS/FD/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

| <b>ELEMENT</b><br>These describe the key outcomes which make up workplace function.       | <b>PERFORMANCE CRITERIA</b><br>These are assessable statements which specify the required level of performance for each of the elements.<br><i><b>Bold and italicized terms are elaborated in the Range.</b></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<br>1.2 Whole numbers and routine or familiar fractions, decimals and percentages including familiar rates are interpreted and comprehended<br>1.3 Calculations which may involve a number of steps are perform<br>1.4 Calculations done with whole numbers and routine or familiar fractions, decimals and percentages<br>1.5 Conversion between equivalent forms of fractions, decimals and percentages is done<br>1.6 Order of operations is applied to solve multi-step calculations<br>1.7 Problem solving strategies are appropriately applied<br>1.8 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task<br>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 metric measurements for work             | 2.1 Measurement information in workplace tasks and texts are selected and interpreted in accordance with workplace requirements<br>2.2 Appropriate routine measuring equipment are identified and selected in accordance with workplace requirements  |

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|  | <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>   |

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|  | <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 perform 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 <b>different tables and graphs</b> 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 <b>basic functions on a calculator</b></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.

| <b>Variable</b>                               | <b>Range</b>  |
|---|---|
| 1. Simple fractions, decimals and percentages | May include but not limited to:<br>1.1 Fraction<br>1.2 Decimals<br>1.3 Percentages  |
| 2. Common 2D shapes and common 3D shapes      | May include but not limited to:<br>2.1 Round<br>2.2 Square<br>2.3 Rectangular<br>2.4 Triangle<br>2.5 Sphere<br>2.6 Cylinder<br>2.7 Cube<br>2.8 Polygons<br>2.9 Cuboids  |
| 3. Symbols and keys in routine maps and plans | May include but not limited to:<br>3.1 Charts<br>3.2 Maps<br>3.3 Graphs   |
| 4. Use basic functions of calculator          | May include but not limited to:<br>4.1 Addition<br>4.2 Multiplication<br>4.3 Calculate ratios<br>4.4 Conversion of ratios into percentages  |
| 5. Routine tables, graphs and charts for work | May include but not limited to:<br>5.1 Bar Graphs<br>5.2 Flow Charts<br>5.3 Pie Charts<br>5.4 Pictograph<br>5.5 Line Graphs<br>5.6 Time Series Graphs<br>5.7 Stem and Leaf Plot<br>5.8 Histogram<br>5.9 Dot Plot<br>5.10 Scatter plot |

## **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.

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| 1. Critical aspects of Competency | Assessment requires evidence that the candidate: <ul style="list-style-type: none"> <li>1.1 Calculated correctly with whole numbers and routine or familiar fractions, decimals and percentages</li> <li>1.2 Estimated, measured and calculated with routine metric measurements</li> <li>1.3 Applied simple scale to estimate length of objects or distance to location or object</li> <li>1.4 Used formal and informal mathematical language to describe and compare common angles</li> <li>1.5 Used common geometric instruments to draw two dimensional shapes</li> <li>1.6 Collected data and constructed routine tables and graphs</li> <li>1.7 Used basic functions of calculator correctly</li> </ul> |
| 2. Resource Implications          | <ul style="list-style-type: none"> <li>2.1 Calculator</li> <li>2.2 Basic measuring instruments</li> </ul>   |

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| 3. Methods of Assessment               | Competency may be assessed through:<br>3.1 Written Test<br>3.2 Interview/Oral Questioning<br>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.   |

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