# Assessment Mapping (for streamlined units from new Training Packages)

*This document is used to demonstrate content validity of the assessment tool*

Table 1 Main details

| Details | Unique description |
| --- | --- |
| **Unit Code, name and release number** | MSL924003 - Process and interpret data Release 1 |
| **Skills Team** |  |
| **Region/Campus** |  |
| **SkillsPoint (owned by)** | Innovative Manufacturing, Robotics and Science |

*NOTES:*

* *Event columns can be added or deleted as required*
* *Rows for elements and performance criteria, etc. can be added or deleted as required*
* *Each component of the unit must be mapped to at least* ***one assessment criteria*** *or* ***question*** *in one or more assessment events*
* *Do NOT delete the section labelled Foundation Skills. If the Foundation skills ARE EXPLICIT in the performance criteria, they do not need to be listed. However, if the Foundation skills ARE NOT incorporated in the performance criteria they must be listed and mapped.*
* *Dimensions of Competency must be considered when selecting assessment types to ensure that the range of tasks you have chosen cover the following:*
  + *Task Skills*
  + *Task Management Skills*
  + *Contingency Planning Skills*
  + *Job Role Environment Skills*

## Unit component mapping to assessment event/s

Table 2 Unit component mapping to assessment event/s

| Element number | Element name | Performance criteria number | Performance criteria description | Student Workbook | Topic test 1  1 of 7 | Topic test 2  2 of 7 | Topic test 3  3 of 7 | Topic test 4  4 of 7 | Topic test 5  5 of 7 | Topic test 6  6 of 7 | Data in the work-place  7 of 7 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Retrieve and check data | 1.1 | Store and retrieve data using appropriate files and/or application software | Topic 2-Storing data, Retrieving data |  |  |  |  |  |  | Part 1 |
|  |  | 1.2 | Verify the quality of data using workplace procedures | Topic 2-Checking data |  | TT2 Q1, Q2, Q3, Q4 |  |  |  |  | Part 1 (step 6)  Part 2 |
|  |  | 1.3 | Rectify errors in data using workplace procedures | Topic 3-Rectifying errors |  |  |  |  |  |  | Part 2 |
| 2 | Calculate scientific quantities | 2.1 | Calculate statistical values for given data | Topic 4-Descriptive statistics |  |  |  | TT4 Q7 (a-g) |  |  | Part 3 |
|  |  | 2.2 | Calculate scientific quantities using given formulae and data and estimate uncertainties | Topic 3-Calculating scientific quantities |  |  | TT3 Q5 (a, b, c) ,Q14, Q15, Q16, Q17 |  |  |  | Part 3, Part 5 |
|  |  | 2.3 | Ensure calculated quantities are consistent with estimations and expectations | Topic 3-Calculating scientific quantities |  |  |  |  |  |  | Part 3 |
|  |  | 2.4 | Report all calculated quantities using the appropriate units and correct number of significant figures | Topic 3-Calculating scientific quantities |  |  | TT3 Q2 (a-f) |  |  |  | Part 3, Part 4 |
| 3 | Present data | 3.1 | Present data in clearly labelled tables, charts and graphs | Topic 5-Presenting data |  |  |  | TT4 Q6, | TT5 Q4, Q5 |  | Part 6 |
|  |  | 3.2 | Graph data using appropriate scales to span the range of data or display trends | Topic 5-Presenting data |  |  |  | TT4 Q6 | TT5 Q6 |  | Part 6 |
|  |  | 3.3 | Report all data using the appropriate units and number of significant figures | Topic 3-Calculating scientific quantities |  |  | TT3 Q5 (a,b,c) |  |  |  | Part 3, Part 5 |
| 4 | Interpret data | 4.1 | Interpret significant features of tables, charts and graphs, including gradients, intercepts, maximum and minimum values, and limit lines | Topic 5 -Presenting data |  |  |  |  | TT5 Q6 | TT6 Q2, Q3, Q4 | Part 6 |
|  |  | 4.2 | Recognise and report trends in data | Topic 5 -Presenting data |  |  |  |  |  | TT6 Q1 | Part 6 Qu 4, 5, 6 |
| 5 | Keep accurate records | 5.1 | Transcribe information accurately | Topic 1-Error in analytic measurement |  | TT2 Q1 |  |  |  |  | Part 1 |
|  |  | 5.2 | Verify the accuracy of records following workplace procedures | Topic 2-Checking data |  |  |  |  |  |  | Part 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |

## Foundation skills NOT explicit in the performance criteria

Table 3 Foundation skills NOT explicit in the performance criteria

| Foundation skills | Description |  |  |  |
| --- | --- | --- | --- | --- |
| Learning skills to | *Not applicable – explicit in the Performance Criteria* |  |  |  |
| Reading skills to |  |  |  |  |
| Writing skills to |  |  |  |  |
| Oral communication skills to |  |  |  |  |
| Numeracy skills to |  |  |  |  |
| Problem solving skills to |  |  |  |  |
| Planning and organising skills to |  |  |  |  |
| Technology skills to |  |  |  |  |
| Teamwork skills to |  |  |  |  |

## Performance evidence

Table 4 Performance evidence

| Performance evidence | Description | Student Workbook | Topic test 1  1 of 7 | Topic test 2  2 of 7 | Topic test 3  3 of 7 | Topic test 4  4 of 7 | Topic test 5  5 of 7 | Topic test 6  6 of 7 | Data in the work-place  7 of 7 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and: |  |  |  |  |  |  |  |  |
| PE1 | Processed and interpreted different data sets |  |  |  |  |  | Q2 (a-d) |  | All |
| PE2 | Calculated scientific and statistical quantities with or without a calculator or computer software, including the following items: |  |  |  |  |  |  |  |  |
| PE2.1 | * converting units involving multiples and submultiples | Topic 3-Metric unit conversions |  |  | Q13 (a-f) |  |  |  |  |
| PE2.2 | * scientific notation, significant figures, round off, estimate and approximate | Topic 3-Significant figures, and  Topic 3-Scientific notation |  |  | Q1 (a-f), Q2 (a-f), Q4 (a-e), Q5 (a-c) |  |  |  |  |
| PE2.3 | * transposing and evaluating formulae | Topic 3-Transposition |  |  | Q3 (a-e), Q4 |  |  |  | Part 5 |
| PE2.4 | * fractions, decimals, proportions and percentages | Topic 3-Percentage calculations |  |  | Q9, Q10, Q11, Q12 |  |  |  |  |
| PE2.5 | * mean | Topic 4-Descriptive statistics |  |  |  | Q7 (d) |  |  | Part 3 |
| PE2.6 | * median | Topic 4-Descriptive statistics |  |  |  | Q7 (f) |  |  | Part 3 |
| PE2.7 | * mode | Topic 4-Descriptive statistics |  |  |  | Q7 (e) |  |  | Part 3 |
| PE2.8 | * standard deviation |  |  |  |  | Q7 (g) |  |  | Part 3 |
| PE3 | Performed at least 5 of the following calculations: |  |  |  |  |  |  |  |  |
| PE3.1 | * perimeters and angles |  |  |  |  |  |  |  |  |
| PE3.2 | * percentage and absolute uncertainties in measurements and test results |  |  |  |  |  |  |  | Part 5E |
| PE3.3 | * areas (m2) and volumes (mL, L, m3) of regular shapes, such as packaging | Topic 3-geometric calculations |  |  |  |  |  |  |  |
| PE3.4 | * dose (mg), average mass, mass percentage, density, specific gravity, moisture, relative and absolute humidity, viscosity and permeability |  |  |  |  |  |  |  |  |
| PE3.5 | * ratios, such as mass to mass, mass to volume and volume to volume percentages | Topic 3-Chemistry related calculations |  |  | Q6 (a-c), Q7, Q8, Q9, Q10, Q11, Q12 |  |  |  |  |
| PE3.6 | * concentration, such as molarity, g/100mL, mg/L, mg/L, ppm, ppb, dilution mL/L | Topic 3-Chemistry related calculations |  |  | Q10, 11, 12, 14 |  |  |  | Part 5A, 5B, 5C |
| PE3.7 | * average count, colonies per swab surface and cell counts, such as live and dead/total |  |  |  | Q17 |  |  |  |  |
| PE3.8 | * process variables, such as pressure, gauge pressure, velocity and flow rates |  |  |  |  |  |  |  |  |
| PE3.9 | * food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability, % content of moisture, ash, fat, protein, alcohol, sulphur dioxide and trace metals, such as calcium or zinc |  |  |  |  |  |  |  |  |
| PE3.10 | * mechanical properties, such as stress, strain, moduli and force |  |  |  |  |  |  |  |  |
| PE3.11 | * presenting accurate results in the required format (significant figures, uncertainty units) | Topic 3-Significant figures |  |  | Q2 (a-f) |  |  |  |  |
| PE4 | Prepared and presented data in the at least 5 of the following formats: | Topic 5-Presenting data |  |  |  |  |  |  |  |
| PE4.1 | * tables | Topic 5-Presenting data |  |  |  |  | Q7 |  |  |
| PE4.2 | * graphs | Topic 5-Presenting data |  |  |  |  | Q9 |  |  |
| PE4.3 | * line graphs | Topic 5-Presenting data |  |  |  |  | Q6 |  | Part 6 Qu 3 |
| PE4.4 | * histograms | Topic 5-Presenting data |  |  |  | Q6 (a, b) | Q8 |  | Part 6 Qu 1&2 |
| PE4.5 | * pie charts, bar charts and control charts | Topic 5-Presenting data |  |  |  |  |  |  |  |
| PE4.6 | * semi-quantitative observations expressed on a scale: 1 to 4 or + to ++++ | Topic 5-Presenting data |  |  |  |  | Q10 |  |  |
| PE5 | Recognised and interpreted significant points, anomalies and trends in data. | Topic 6-Interpreting data |  |  |  |  |  |  | Part 6 Qu 4, 5, 6 |

## Knowledge evidence

Table 5 Knowledge evidence

| Knowledge evidence | Description | Student Workbook | Topic test 1  1 of 7 | Topic test 2  2 of 7 | Topic test 3  3 of 7 | Topic test 4  4 of 7 | Topic test 5  5 of 7 | Topic test 6  6 of 7 | Data in the work-place  7 of 7 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| KE1 | There must be evidence the candidate has knowledge of: |  |  |  |  |  |  |  |  |
| KE2 | Concepts of metrology, including: | Topic 1-Metrology | Q1, Q2, Q3, Q10 |  |  |  |  |  |  |
| KE2.1 | * that all measurements are estimates | Topic 1-Uncertainty in measurement | Q7 |  |  |  |  |  |  |
| KE2.2 | * repeatability, precision, accuracy and significant figures | Topic 1-Accuracy and precision | Q8, Q12 |  | Q2 (a-f) |  |  |  | Part 5E |
| KE2.3 | * sources of error, and uncertainty associated with measurement steps | Topic 1-Error in analytical measurement | Q9, Q13 |  |  |  |  |  |  |
| KE2.4 | * traceability | Topic 1-Traceability | Q11 |  |  |  |  |  |  |
| KE3 | The international system of units (SI) | Topic 1-The International metric system, Base units, Derived units | Q4, Q5, Q6 |  |  |  |  |  |  |
| KE4 | Scientific and technical terminology relevant to job role | All |  |  |  | Q1, Q2, Q3, Q4, Q5 | Q1, Q2, Q3 |  |  |
| KE5 | Workplace procedures for: |  |  |  |  |  |  |  |  |
| KE5.1 | * coding, entering, storing, retrieving and communicating data | Introduction-Following workplace procedures |  |  |  |  |  |  | Part 1 |
| KE5.2 | * verifying data and rectifying mistakes | Introduction-Following workplace procedures |  |  |  |  |  |  | Part 2 |
| KE5.3 | * maintaining and filing records, and maintaining security of data | Introduction -Following workplace procedures |  |  |  |  |  |  | All |
| KE6 | Legal, ethical and work health and safety (WHS) requirements specific to the work task. | Topic 1-Regulatory metrology in Australia, Topic6-Record keeping and confidentiality |  |  |  |  |  |  | All |

## Assessment conditions

Table 6 Assessment conditions

| Assessment conditions | Description |
| --- | --- |
|  | Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:   * use of suitable facilities, equipment and resources, including: * data sets and records * a calculator * spreadsheets, computer software, databases and statistical packages * computer and relevant software or laboratory information system * relevant workplace procedures.   Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors. |