

Domain	PLUMBING	Unit ID: 449
Title:	Perform calculations related to plumbing operations	
Level: 2		Credits: 2

Purpose

This unit standard specifies the competencies required to perform calculations related to plumbing operations. This includes calculating the mass and weight of different objects and liquids and the interpretation and conversion of different scales of measurement used in plumbing operations.

This unit standard is intended for those who work as plumbers.

Special Notes

1. Entry information:
 - Prerequisite
 - 434 - *Apply safety rules and regulations in plumbing operations* or demonstrated equivalent knowledge and skills
2. To demonstrate competence, at a minimum, evidence is required of solving mathematical and scientific problems related to the:
 - calculation of the mass and weight of three (3) solid objects of different shapes and dimensions
 - calculation of the mass and weight of liquids in three (3) containers of different shapes and dimensions
 - reading and interpretation of the measurement scales of the listed measuring instruments listed in Special Notes 3
3. Tools may include but are not limited to a rule, tape measure, carpenter's square, builder's square, and adjustable square.
4. Materials may include but are not limited to different solids and liquids used in plumbing operations.
5. The metric system used in Namibia is based on the International Standards Organisation, referred to by its abbreviation 'ISO'.
6. Assessment evidence may be from a real workplace, or simulated real workplace or an appropriate simulated realistic working environment in which plumbing operations are carried out.
7. Performance of all elements in this unit standard must comply with all relevant workplace requirements and/or manufacturers' specifications.

8. Regulations and legislation relevant to this unit standard include the following:
- Labour Act, No. 6, 1992
 - Occupational Health and Safety Regulations No. 18, 1997
- and all subsequent amendments.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on www.nta.com.na.

Elements and Performance Criteria

Element 1: Calculate the mass and weight of solid objects and liquids

Performance criteria

- 1.1 Correct mathematical formulae are applied to perform calculations of the mass and weight of solid objects and liquids.
- 1.2 ISO units of measurement of mass and weight are converted.
- 1.3 The results of the calculations are recorded and validated.

Element 2: Use and convert the different scales of measurement used in plumbing measuring instruments

Performance criteria

- 2.1 Measurement scales used on different measuring tools are identified and explained.
- 2.2 The different scales on measuring instruments are converted, transferred and used to calculate the true dimensions, mass and volume of plumbing objects and materials.
- 2.3 Measurements are taken using the different measurement scales used in plumbing measuring tools and equipment.
- 2.4 The results of the calculations are confirmed and recorded.

Registration Data

Subfield:	General Construction
Date first registered:	15 November 2007
Date this version registered:	15 November 2007
Anticipated review:	2010
Body responsible for review:	Namibia Training Authority