



Australian Government

MSS024020 Recognise common geological landforms and samples

Release: 1

MSS024020 Recognise common geological landforms and samples

Modification History

Release 1. Updated unit code. Changes to performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Application

This unit describes the skills and knowledge to recognise common geological landforms and relate these to basic geological processes and other ecosystem components. Personnel are also expected to obtain near surface samples of common rocks, minerals and soils and identify them using classification tables and charts.

This unit applies to environmental technicians working in a range of industry sectors, such as environmental services; environmental compliance, auditing and inspection; groundwater and clean water; solid and hazardous waste management; management of contaminated sites; site remediation or rehabilitation; geotechnical services and civil engineering; natural resource management.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Sampling and testing

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|----------|-------------------------------|------------|---|
| 1 | Prepare for field work | 1.1 | Review job request to identify the equipment involved, samples to be collected and test methods |
| | | 1.2 | Identify hazards and read workplace safe work procedures associated with the site, samples, test methods and equipment used |

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.3	Confirm site location, access, timing and any client requirements
		1.4	Assemble all required equipment and materials and check that they are fit for purpose
		1.5	Stow equipment and materials to ensure their safe transport
		1.6	Arrange transport to site
		1.7	Liaise with appropriate personnel on arrival at site to ensure safety and minimise disruption to others
2	Recognise geological structures and processes	2.1	Recognise common landforms and relate these to geological processes
		2.2	Read and interpret simple geological maps, diagrams and aerial photos
		2.3	Apply principles of geological processes and the geological timescale to explain the formation and occurrence of common rocks, minerals, soils and aquifers
3	Identify common rocks and minerals	3.1	Sort handheld specimens of common sedimentary, igneous and metamorphic rocks by observing their textural, structural and mineralogical properties
		3.2	Identify handheld specimens of common rocks and minerals by comparing their physical properties with classification charts and tables
4	Identify common soil types and their properties	4.1	Obtain soil samples using specified sampling equipment and methods
		4.2	Examine soil colour, texture and properties of soil components to classify common soils
		4.3	Identify and describe simple soil profiles at field sites

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		4.4	Recognise influences of rock type, drainage, age and climate on development of soil profiles
		4.5	Recognise common forms of soil degradation
5	Relate local geology to flora and fauna and land use	5.1	Apply the basic relationships between parent material, climate, topography, soils and living ecosystem components to interpret sites
		5.2	Recognise how local geology can influence the revegetation or rehabilitation of sites
6	Maintain a safe work environment	6.1	Use safe work procedures and protective equipment to ensure personal safety and that of others
		6.2	Minimise environmental impacts of sampling and/or testing and generation of waste
		6.3	Collect and/or dispose of all waste in accordance with environmental and quarantine requirements and workplace procedures
7	Report data and finalise documentation	7.1	Report field data in the required formats and expected timeframe
		7.2	Complete all required documentation
		7.3	Maintain the security and confidentiality of data and documentation in accordance with workplace requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS024008 Recognise common geological landforms and samples.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS024020 Recognise common geological landforms and samples

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- recognised and accurately described the geological landforms and associated geological processes for at least 2 different sites
- identified and accurately described the common rocks, minerals and soil types associated with at least 2 different sites.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- an overview of major fields of geology
- structure of the earth's core, crust and major components
- geomorphology and landforms, including agents of erosion and transportation, stability of rocks and minerals in different environments and depositional processes
- regolith, including physical and chemical weathering, climatic effects, stability of minerals, weathering processes, soil formation, common soil types and composition
- rock cycle
- fundamentals of:
 - igneous rocks, including origin of magma, movement of magma, volcanic, plutonic, types of volcanoes and simple tectonic setting
 - sedimentary rocks, including clastic, chemical, organic types, grain size and composition, sorting, roundness, lithification, sedimentary structures and environments of deposition
 - metamorphic rocks, including regional, contact, dynamic metamorphic zones, rock textures and fabrics
- structural geology concepts including: folds, faults, tilts and uplifts
- overview of geological time, including eras, periods, relative time, stratigraphic methods for establishing relative ages of strata, and radiometric dating
- fundamentals of palaeontology, including preservation of fossils and their role in dating strata
- links between local geology, climate, topography and living components of ecosystems
- equipment
- geological sampling and in-field test methods routinely used in job role, including:

- pre-use checks and safe operating procedures for sampling and test equipment
- sampling procedures
- purpose, principles and measurement steps of test
- calculation steps to give results
- expected values for sample type
- hazards; health, safety and environment requirements for work role.

Assessment Conditions

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 facilities, equipment and resources, including:
 - access to sites and vehicle transport
 - suitable survey, sampling and testing equipment
 - documentation including: maps and aerial photos; classification charts and tables for rocks, minerals and soils; user manuals, workplace safety procedures, test or survey methods, workplace procedures governing geological sampling and in-field testing

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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