



Australian Government

Department of Education, Employment and Workplace Relations

SISOCVE413A Navigate in untrodden caves

Release: 2

SISOCVE413A Navigate in untrogged caves

Modification History

Not Applicable

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to navigate in complex caves, caves with infrequently travelled routes, and or unmapped routes.

Application of the Unit

This unit applies to those working as caving adventure guides, instructors or program managers. This may include those required to navigate in untrogged and complex caves, with infrequently travelled and or unmapped routes.

This unit also applies to outdoor recreation leaders working for outdoor education or adventure providers; volunteer groups; not-for-profit organisations or government agencies.

Licensing/Regulatory Information

No licensing, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the Evidence Guide.

1. Plan a route in an untrogged cave.

1.1. Obtain information to assist in the preparation of a ***navigation data sheet*** from any available map or cave plan and from other ***suitable sources of information***

1.2. Apply ***information and symbols*** contained on the map to plan an efficient route according to navigation and caving-specific abilities.

1.3. Prepare a navigation data sheet according to ***organisational policies and procedures, relevant legislation*** and ***contextual issues***.

1.4. Identify emergency or contingency escape routes according to organisational policies and procedures.

1.5. Select routes that minimise ***environmental impact***.

2. Navigate in an untrogged cave.

2.1. Maintain orientation of self to ***surroundings***.

2.2. Use a map, where available and compass to follow a route in an untrogged cave.

2.3. Apply ***navigation techniques*** for ***estimating the distance travelled***.

2.4. Maintain the designated route while bypassing ***obstacles***.

2.5. Interpret features implied on the map and select an efficient route according to the surroundings and conditions.

2.6. Apply techniques to fix position and identify unknown features when lost.

3. Complete post activity tasks.

3.1. Produce a cave sketch map that can be used by others for navigation purposes.

3.2. Evaluate ***relevant aspects*** of the navigation activity.

3.3. Identify improvements for future navigation experiences in an untrogged cave.

Required Skills and Knowledge

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

Required skills

- problem-solving skills to:
 - orientate any available cave plan and navigate around cave obstacles
 - determine the most suitable route
- planning and organising skills to plan a suitable route that avoids sensitive areas and minimises damage to the environment
- literacy and numeracy skills to:
 - read and interpret maps
 - locate position on map
 - estimate distance
 - calculate grid and magnetic bearings
 - complete route plans
- first aid and emergency response skills appropriate to the location to enable initial response to emergencies and personal health care.

Required knowledge

- legislation and organisational policies and procedures to enable safe conduct of navigation activities conducted in untrogged caves
- advantages and disadvantages of different map types and sources of error and interpretation of map symbols and features to enable accurate navigation and route planning
- compass use and factors that affect their accuracy to enable accurate navigation
- route planning and issues that should be considered when preparing a navigation data sheet
- map and compass orientation to navigate in untrogged caves
- techniques for estimating distance travelled in different cave conditions
- different types of caves and techniques to navigate around obstacles
- emergency procedures and potential hazards relevant to the location to ensure risk minimisation to self and others.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- selects appropriate map, where available and uses it to plan a route with minimal impact on the environment
- applies information from additional sources and map to prepare a navigation data sheet that includes details required for navigation
- applies navigation techniques for estimating distance travelled and maintains route while bypassing various obstacles and cave features
- produces a cave sketch map that can be used by others for navigation.
- evaluates and reflects on own navigation performance within an untrogged cave to identify strengths, weaknesses and improvements.

Context of and specific resources for assessment

Assessment must ensure navigation in untrogged caves and are of sufficient breadth and duration to demonstrate competency and consistency of performance.

Assessment must also ensure access to:

- untrogged caves with infrequently travelled routes, and or unmapped routes suitable for navigation
- navigation, caving and safety equipment.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of applying information from map to plan safe route with minimal environmental impact
- oral or written questioning to assess knowledge of organisational policies and procedures and relevant legislation to enable safe conduct of all navigation activities
- observation of following a route using a map, compass and navigation data sheet in untrogged caves
- observation of identifying emergency or contingency escape routes and bypassing obstacles

- copy of sketch map produced for others for navigation in untrogged cave.
- third-party reports from a supervisor detailing performance.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- SISOCVE414A Guide vertical multi pitch caving trips.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Map may include:

- detailed cave maps
- cave plans with only wall details and labels.

Information and symbols may include:

- grid lines and numbers
- magnetic variation
- scale
- map legend
- topographic features
- speleothems
- survey markers
- water depth.

Navigation data sheet may include:

- grid and magnetic bearings
- distances
- estimated travelling times
- pitch details and rigging
- identifiable cave features
- escape routes.

Suitable sources of information may include:

- charts
- local cavers
- peers.

Organisational policies and procedures may include:

- occupational health and safety
- use, maintenance and storage of equipment
- risk management
- communication protocols
- minimal impact environmental and caving codes
- Australian Speleological Federation Codes and Guidelines
- code of ethics.

Relevant legislation may include:

- occupational health and safety
- permits or permission for access
- environmental regulations.

Contextual issues may include:

- fitness levels
- time of year
- availability of resources, such as rest stops,

- areas not subject to flooding
 - type of features of the location
 - access and escape routes
 - group size
 - land management and legislative requirements.
- Environmental impact*** may include:
- damaging sensitive areas by trampling, touching or breakage
 - leaving behind foreign and human waste material
 - disturbing cave biota, stream sediments, palaeokarst, drip holes, soil cones and crusts, bone material, fossils and tree roots.
- Surroundings*** may include:
- bodies of water and or water courses
 - survey or track markers
 - natural formations
 - man-made features.
- Navigation techniques*** may include:
- orientating map using a compass
 - collecting features
 - searching for cave features
 - locating cave breezes into or out of cave.
- Estimating the distance travelled*** may include:
- pacing
 - time
 - relation to features.
- Obstacles*** may include:
- shafts
 - fissures
 - rock piles
 - traverses
 - tight squeezes
 - water hazards.
- Relevant aspects*** may include:
- planning processes
 - selecting routes with minimal environmental impact
 - using map and compass to follow routes
 - estimating distance travelled
 - producing sketch maps for others to use.

Unit Sector(s)

Outdoor Recreation

Competency Field

Caving