



Australian Government

SISOFLD007 Navigate in difficult tracked environments

Release: 1

SISOFLD007 Navigate in difficult tracked environments

Modification History

Not applicable.

Application

This unit describes the performance outcomes, skills and knowledge required to navigate in difficult tracked environments during any type of outdoor recreation activity.

The unit provides skills to navigate in environments where tracks, natural and constructed features marked on maps may be unreliable. Tracks are generally distinct, but may be indistinct in some places. They have signage at the track head, and have route markers but provide limited signage en route. There may be many natural obstacles and, along with changes in weather and visibility, adjustments to the planned route may be necessary. Tracks could be graded according to the Australian Walking Track Grading System and might include features of grade 4.

This unit applies to any type of organisation that delivers outdoor recreation activities including commercial, not-for-profit and government organisations.

It applies to leaders, guides or instructors who use these skills when leading participants during activities where navigation skills are required.

No occupational licensing, certification or specific legislative requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Field Operations

Unit Sector

Outdoor Recreation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes

1. Plan for navigation.

PERFORMANCE CRITERIA

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

1.1. Obtain and become familiar with maps, appropriate for the activity, and features that will assist with navigation

- at the location.
- 1.2. Interpret map symbols and information to plan an efficient route according to specific activity requirements.
 - 1.3. Select a compass suitable for navigation requirements.
 - 1.4. Calculate grid, magnetic and true north bearings using map, compass and protractor.
 - 1.5. Prepare a navigation data sheet, and identify emergency or contingency escape routes.
2. Navigate a route in difficult tracked environments.
- 2.1. Orientate map to surroundings using landmarks and compass and identify factors that affect accuracy.
 - 2.2. Follow the planned route using map, route markers, natural and constructed features and compass to assist.
 - 2.3. Use a global positioning system (GPS) as a navigational aid to maintain route.
 - 2.4. Use techniques to estimate distance travelled.
 - 2.5. Maintain, where necessary, a compass course to bypass obstacles.
 - 2.6. Identify unfamiliar features in the field using map and compass to maintain route.
 - 2.7. Utilise navigation techniques to identify unfamiliar features and fix position when lost.
 - 2.8. Make required adjustments to route according to prevailing conditions, and navigate using map, route markers, natural and constructed features, compass and GPS as required.

Foundation Skills

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

SKILLS	DESCRIPTION
Reading skills to:	• interpret detailed and potentially unfamiliar information on maps and track signage • interpret factual activity plan information in familiar formats.
Writing skills to:	• develop detailed navigation data sheets using correct terminology and symbols.
Numeracy skills to:	• interpret and calculate detailed numerical data involving, distances, times, altitudes, heights, depths and gradients.

- Technology skills to:
- interpret and calculate degrees, mils and angles.
 - use a range of technologies to access information about routes.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume Implementation Guides -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>

Assessment Requirements for SISOFLD007 Navigate in difficult tracked environments

Modification History

Not applicable.

Performance Evidence

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- plan and document three efficient routes, each different, within difficult tracked environments
- navigate each of the above three planned routes
- across the three navigation activities, collectively use these techniques to determine location:
 - using map, identifying natural features, constructed objects and determining distance travelled
 - using map and compass techniques including resections/tri-bearings
 - using GPS devices
 - using grid references, estimation and Romer devices
- across the three navigation activities, collectively use these navigation techniques:
 - using linear and point references
 - using terrain features: handrailing, collecting features, catch points
 - using compass techniques: aiming off, backbearing
 - using GPS: waypoints, routes
- on two occasions, determine when there is a deviation from a planned route, adjust and resume the planned route after fixing position using:
 - manual techniques on one occasion
 - a GPS device on one occasion
- determine two adjustments to routes in the field and navigate the changed routes using:
 - manual techniques on one occasion
 - a GPS device on one occasion.

Knowledge Evidence

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- trusted sources of maps for the region or locality
- different technologies used to access maps
- characteristics of different map types, their different uses, advantages and disadvantages, accuracy and sources of error:

- paper based and digital
- sketch maps and diagrams
- guide book maps
- charts
- topographic
- cadastral
- information found on maps including symbols and what they represent:
 - survey or edition date
 - map legend
 - scale and distance
 - grid lines and numbers
 - cardinal points and bearings
 - contour lines, altitude and water depth
 - topographic features
 - markers and beacons
 - gradient
 - roads, tracks and waterways
 - magnetic variation and annual change
- principal colours used on maps and what they represent
- other information and key features that can assist navigation in difficult tracked environments:
 - satellite imagery
 - aerial photographs
- features, functions and operation of global positioning systems (GPS):
 - when these might be used, advantages and disadvantages
 - reliability of signal, device and battery
 - system structure at fundamental level of understanding
 - how to identify and use datum grids
 - how to create, enter and transfer waypoints
 - how to create tracks, routes and grid references
 - accuracy and sources of errors
- these different types of compasses, their features and factors which affect accuracy:
 - baseplate/orienteering
 - sighting/mirror
 - lensatic/prismatic
- for difficult tracked environments, map and compass techniques used to:
 - calculate grid, magnetic and true north bearings
 - orientate map to surroundings
 - maintain a designated course
 - identify unfamiliar features

- make significant adjustments to routes
- techniques to determine location:
 - using map, identifying natural features, constructed objects and determining distance travelled
 - using map and compass techniques including resections/tri-bearings
 - using GPS devices
 - using grid references, estimation and Romer devices
- the following navigation techniques used to effectively navigate in difficult tracked environments; advantages and disadvantages:
 - using linear and point references
 - using terrain features: handrailing, collecting features, catch points
 - using compass techniques: aiming off
 - using GPS: waypoints, routes
- types of navigation aids found in the field and how these can assist with navigation:
 - track markers, signs and arrows
 - track and creek junctions and crossings
 - survey markers
 - beacons
 - cairns
 - natural features and constructed objects
- contents of navigation data sheets and their purpose:
 - grid reference points
 - grid and magnetic bearings
 - distances
 - estimated travelling times
 - height gain or loss
 - gradient
 - identifiable features
 - escape routes
- factors that affect the adjustment of routes during activities.

Assessment Conditions

Navigation skills must be demonstrated in a setting where outdoor recreation activities are delivered in difficult tracked environments. The environment must feature the following:

- tracks, natural and constructed features are marked on maps but these could be unreliable
- tracks are generally distinct but some parts of the track are indistinct
- tracks have signage at the track head, with route markers but limited signage en route.

If in an alpine region and snow is present, assessment can only be completed if the track remains discernible.

The following resources must be available to replicate industry conditions of operation:

- first aid equipment
- communication equipment for emergency response.

Assessment must ensure use of:

- maps relevant to the activity type
- compasses and protractors
- global positioning system (GPS) devices
- activity plans
- template navigation data sheets.

Assessors must satisfy the Standards for Registered Training Organisations requirements for assessors, and:

- have a collective period of at least three years' experience with an organisation providing recreational programs where they have applied the skills and knowledge covered in this unit of competency; the three years' experience can incorporate full and or part time experience.

Links

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