



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **SISONAV302A Apply navigation skills in an intermediate environment**

**Release: 2**

## **SISONAV302A Apply navigation skills in an intermediate environment**

### **Modification History**

Not Applicable

### **Unit Descriptor**

This unit describes the performance outcomes, skills and knowledge required to navigate in uncontrolled environments within an activity-specific context. This includes areas with few obvious visible landmarks, minimal clearance and limited modifications made to the natural surface and where the changes in weather and visibility may occur.

### **Application of the Unit**

This unit applies to outdoor recreation guides or instructors working for private outdoor adventure companies and or school based outdoor education programs, such as holiday programs and camps. Activities requiring navigation may include bushwalking, skiing, snowboarding, off - highway motorcycling or mountain biking in uncontrolled environments with few obvious visible landmarks, minimal clearance and signage, limited modifications made to the natural surface and may include terrain and man-made hazards, such as cliff lines or dense forests.

This unit may also apply to navigation on difficult or trackless waterways where there are few obvious visible waterway landmarks and the craft may be affected by wind and or currents and tides.

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.

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|---|--|
| 1. Plan for navigation.                   | <p>1.1. Obtain and become familiar with appropriate <b><i>map or maps</i></b> for the activity.</p> <p>1.2. Identify <b><i>symbols and information</i></b> contained on the map that may be used in navigation.</p> <p>1.3. Apply information contained on the map to plan an efficient route or course according to specific activity requirements, <b><i>contextual issues, relevant legislation and organisational policies and procedures</i></b>.</p> <p>1.4. Obtain and identify essential features of a compass and how it is used to maintain a designated course.</p> <p>1.5. Calculate grid and magnetic bearings using a map and compass.</p> <p>1.6. Prepare a <b><i>navigation data sheet</i></b>, and identify emergency or contingency escape routes.</p> |
| 2. Navigate in uncontrolled environments. | <p>2.1. Apply <b><i>navigation techniques</i></b> to orientate map to <b><i>surroundings</i></b> with a compass and identify factors that affect accuracy.</p> <p>2.2. Follow a route in remote, <b><i>uncontrolled environments</i></b>, demonstrating use of <b><i>navigation aids</i></b> according to relevant legislation and organisational policies and procedures.</p> <p>2.3. Apply <b><i>techniques for estimating distance</i></b> travelled.</p> <p>2.4. Maintain, where necessary, a compass course while bypassing an <b><i>obstacle</i></b>.</p> <p>2.5. Identify unknown features in the field using map and compass.</p> <p>2.6. Demonstrate technique to fix position and identify unknown features when lost.</p>                                     |
| 3. Evaluate navigations                   | <p>3.1. Evaluate <b><i>relevant aspects</i></b> of navigation.</p> <p>3.2. Identify improvements or modifications for future navigations in uncontrolled environments.</p>   |

## Required Skills and Knowledge

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

### Required skills

- literacy skills to:
  - read and interpret maps
  - follow instructions and procedures
  - develop a navigation data sheet
- planning and organising skills to:
  - obtain navigation equipment
  - plan and follow routes and courses
- numeracy skills to navigate and calculate grid and magnetic bearings and distances using a map and compass
- problem-solving skills to:
  - maintain a compass course while bypassing an obstacle
  - fix position and determine current location when lost in uncontrolled environments.

### Required knowledge

- legislation and organisational policies and procedures to enable safe conduct of all activities
- different types of maps, sources of error and accuracy, and their advantages and disadvantages to enable selection of appropriate maps
- map features, including symbols, contour lines, scales, grid lines and legends to enable effective map reading
- features of a compass, their use and factors that affect compass accuracy
- route planning and factors that should be considered, such as weather and type of terrain
- navigation techniques in uncontrolled environments to determine distance, location, direction and potential obstacles
- techniques for estimating distance travelled, determining position when lost and navigating around obstacles.

## 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:

- applies relevant process to plan a route in uncontrolled environments and demonstrates navigation techniques to orientate and follow directions
- navigates around obstacles in uncontrolled environments while maintaining a compass course
- evaluates and reflects on own navigation performance to identify strengths, weaknesses and areas that need improvement.

#### Context of and specific resources for assessment

Assessment must ensure participation in navigation activities in uncontrolled environments that are of sufficient breadth and duration to demonstrate competency and consistency of performance.

Assessment must also ensure access to:

- a suitable outdoor location with uncontrolled environments within an activity-specific context that align with Class 5 Tracks within the Australian Standards for Walking Tracks
- navigation equipment such as map or maps, compass, GPS and activity-specific 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:

- oral or written questioning to assess knowledge of navigation techniques used to maintain a course in uncontrolled environments
- observation of safe participation and demonstration of navigation skills, such as maintaining a compass course while bypassing an obstacle and identifying unknown features when lost
- 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:

- SISOBWG302A Apply intermediate bushwalking skills.

or

- SISOMBK302A Apply advanced off-road cycling skills.

## 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 or maps*** may include:

- cadastral and topographic maps
- charts
- hydrographic
- aerial photographs
- guide books and diagrams
- satellite imagery
- digital map
- sketch maps.

***Symbols and information*** may include:

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

***Contextual issues*** may include:

- weather conditions, including times
- season
- transport
- location
- trip distance and duration
- group objectives
- group size.

***Relevant legislation*** may include:

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

***Organisational policies and procedures*** may include:

- occupational health and safety
- communication protocols
- use and maintenance of equipment
- code of ethics.

***Navigation data sheet*** may include:

- grid reference points
- grid and magnetic bearings
- distances
- estimated travelling times

- Navigation techniques* may include:
- height gain or loss
  - gradient
  - identifiable features
  - escape routes.
  - use of compass
  - linear features
  - point features
  - attack points
  - aiming off
  - collecting features
  - spiral search
  - sweep search
  - backbearings and resections
  - use of Global Positioning Systems (GPS).
- Surroundings* may include:
- ground or terrain
  - snow conditions
  - bodies of water
  - beacons and markers
  - natural formations
  - landmarks
  - man-made features.
- Uncontrolled environments* may include:
- limited modifications to the natural surface
  - minimal clearance along the track and signage
  - terrain and man-made hazards
  - tracks align with Class 5 Tracks within the Australian Standards for Walking Tracks
  - areas of water where there are few obvious visible landmarks.
- Navigation aids* may include:
- track and creek junctions and crossings
  - survey markers
  - beacons
  - track markers
  - cairns
  - paths
  - lines
  - signs
  - arrows
  - watch
  - weather charts
  - man-made objects or features
  - transits.
- Techniques for estimating*
- time



- distance* may include:
- observation of surroundings
  - relation to features
  - pacing.
- Obstacles* may include:
- logs
  - rocks
  - gullies
  - trees
  - varying snow conditions
  - exposed areas
  - thick vegetation
  - drops and climbs
  - marshes and bogs
  - fog
  - rivers, lakes and dams.
- Relevant aspects* may include:
- objectives
  - planning process
  - activity site
  - weather
  - equipment selection
  - clothing selection
  - food selection
  - instructional content
  - instructional technique
  - assessment technique
  - group feedback
  - directing techniques
  - rescue techniques employed.

## **Unit Sector(s)**

Outdoor Recreation

## **Competency Field**

Navigation