



**Australian Government**

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

# **SISONAV403A Navigate in uncontrolled environments**

**Release: 2**

## **SISONAV403A Navigate in uncontrolled environments**

### **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 which are totally natural with no modifications made to the natural surface and where the onset of extreme environmental conditions may have a significant adverse impact upon the activity.

### **Application of the Unit**

This unit applies to adventure guides or outdoor leaders 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 and snowboarding in unmodified landscapes in extreme environmental conditions which are totally natural with no modifications made to the natural surface, no clearance or signage, indistinct track alignment and are not managed for public risk.

This may include those working for private outdoor adventure companies, volunteer organisations, not for profit organisations, government agencies, or group instructors in outdoor education programs.

### **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 for navigation.               | <ul style="list-style-type: none"> <li>1.1. Obtain and become familiar with appropriate <i>map or maps</i> for the activity.</li> <li>1.2. Identify <i>symbols and information</i> contained on the map that may be used in navigation.</li> <li>1.3. Apply information contained on the map to plan an efficient route or course according to specific activity requirements, <i>contextual issues, relevant legislation, and organisational policies and procedures.</i></li> <li>1.4. Obtain and identify essential features of a compass and how it is used to maintain a designated course.</li> <li>1.5. Calculate grid and magnetic bearings using a map and compass.</li> <li>1.6. Prepare a <i>navigation data sheet</i> and identify emergency or contingency escape routes.</li> </ul>   |
| 2. Navigate in unmodified landscapes. | <ul style="list-style-type: none"> <li>2.1. Apply <i>navigation techniques</i> to orientate map to <i>surroundings</i> with a compass and identify factors that affect accuracy.</li> <li>2.2. Follow a route in <i>unmodified landscapes</i>, demonstrating use of a combination of <i>navigation aids</i> according to relevant legislation and organisational policies and procedures.</li> <li>2.3. Apply <i>techniques for estimating distance</i> travelled in the absence of identifying features.</li> <li>2.4. Maintain, where necessary, a compass course while bypassing an <i>obstacle.</i></li> <li>2.5. Identify unknown features and <i>hazards in extreme environmental conditions</i> using navigation aids.</li> <li>2.6. Fix position using a combination of navigation techniques and identify unknown features when lost.</li> </ul> |
| 3. Evaluate navigations.              | <ul style="list-style-type: none"> <li>3.1. Evaluate <i>relevant aspects</i> of navigation.</li> <li>3.2. Identify improvements or modifications for future navigations in unmodified landscapes in extreme environmental conditions.</li> </ul>  |

## 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 calculate grid and magnetic bearings and distances using a map and compass in conditions of poor visibility
- problem-solving skills to:
  - make prompt decisions
  - maintain a compass course while bypassing an obstacle
  - fix position and determine current location when lost in unmodified landscapes in extreme environmental conditions.

### Required knowledge

- legislation and organisational policies and procedures to enable safe conduct of all activities
- different types of maps, sources of error and factors affecting accuracy in extreme environmental conditions to enable appropriate map selection and use
- map features, including symbols, contour lines, scales, grid lines and legends to enable efficient map reading
- features of a compass, their use and factors that affect compass accuracy
- route planning and factors that should be considered when navigating in unmodified landscapes in extreme environmental conditions
- navigation techniques in unmodified landscapes to determine distance, location, direction and potential obstacles and hazards
- techniques for estimating distance travelled, determining position when lost and navigating around obstacles in unmodified landscapes.

## 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 unmodified landscapes and demonstrates navigation techniques to orientate and follow directions in extreme environmental conditions
- navigates around obstacles and hazards in unmodified landscapes 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 unmodified landscapes 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 unmodified landscapes within an activity-specific context that align to Class 6 Tracks within the Australian Standard 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 unmodified landscapes
- observation of safe participation and demonstration of navigation skills, such as maintaining a compass course while bypassing an obstacle and fixing position 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:

- SISOBWG404A Bushwalk in unmodified landscapes.

## 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.

***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
- seasons
- 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
- height gain or loss
- gradient
- identifiable features

- Navigation techniques*** may include:
- 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)
  - use of stars and sun
  - use of natural features.
- Surroundings*** may include:
- snow conditions
  - bodies of water
  - beacons and markers
  - natural formations
  - landmarks
  - man-made features.
- Unmodified landscapes*** include:
- uncleared tracks
  - unsigned
  - terrain and man-made hazards
  - tracks not managed for public risk
  - tracks align with Class 6 Tracks within the Australian Standard for Walking Tracks.
- 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 distance*** may include:
- time
  - observation of surroundings
  - relation to features if present
  - pacing.



***Obstacles*** may include:

- logs
- rocks
- gullies
- snow conditions
- exposed areas
- thick vegetation
- drops and climbs
- marshes and bogs
- fog
- rivers, lakes and dams.

***Hazards*** may include:

- temperature extremes
- slippery or unstable terrain
- dangerous animals and insects
- stinging trees and nettles
- dense vegetation
- group management hazards.

***Extreme environmental conditions*** may include:

- very poor visibility
- severe weather
- unexpected and sudden weather changes.

***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