



ASSESSMENT GUIDELINE

Navigate in poor visibility on land

Unit Standard: 432

Level: 4 Credit: 5 Version: 7
Published by Sfrito Jan 2007

Purpose:

People credited with this unit standard are able to demonstrate knowledge of navigation tools and navigate in the outdoors in poor visibility.

Prerequisite:

Unit 431, *Navigate in good visibility on land*; or demonstrate equivalent knowledge and skills.

Special Notes:

1. Definitions *Aiming off* is deliberately aiming to one side of a point on a linear feature.
Attack point is an interim navigation goal.
Back bearings are compass bearings that are the reverse of the direction of travel.
Catching features indicate to the navigator they have gone too far.
Handrails are the linear features to follow.
Horizon is where the sky meets the terrain. Examples of this could include river, ridgeline, and cliff.
Poor visibility is where the horizon is not visible.
2. *NZMS 260 maps* are topographical maps published by Land Information New Zealand and available from map selling agencies throughout New Zealand.
3. All activities must comply with any relevant environmental, legislative and/or regulatory requirements set out in the *New Zealand Environmental Care Code*, Health and Safety in Employment Act 1992, Injury Prevention, Rehabilitation, and Compensation Act 2001, and their subsequent amendments. *The New Zealand Environmental Care Code* is available from the Department of Conservation, Head Office, PO Box 10420, Wellington.
4. There are minimum assessor requirements for assessment against this unit standard. The details of these requirements are available on the Sfrito website <http://www.sfrito.org.nz/>.

Overview of assessment:

This assessment has 3 tasks

Task 1: Demonstrate knowledge of navigation tools

Task 2: Prepare for a navigation leg

Task 3: Navigate from one point to another in poor visibility

Notes to Assessor:

1. Poor visibility could include in the bush, at night, in cloud.

Resources for all tasks:

NZMSC Bushcraft, Outdoor Skills for the NZ Bush

NZMSC Orienteering – A guide for Teachers, instructors and participants'

http://www.mountainsafety.org.nz/online_store/products/dept.asp?dept_id=55

http://www.thebmc.co.uk/safety/train/skill_2.htm

http://www.planetfear.com/article_detail.asp?a_id=116

Set of NZMS 260 maps for the area you are travelling in. (These can be colour printouts or copies from computer map programs)

Set of compasses.

Task 1: Demonstrate knowledge of navigation tools	
<p>Resources:</p> <p>432 Assessment Questions (attached to this document)</p> <p>432 Model Answers (available from a Sfrito Client Liaison)</p> <p>Instruction to candidate:</p> <p>During the task you are required to explain the uses and limitations of navigation tools.</p>	
Element 1: Demonstrate knowledge of navigation tools	
Performance criteria	Evidence/Judgement
<p>1.2 The use and limitations of navigation tools are explained.</p> <p>Range: navigation tools must include – altimeter, map, compass, route card, GPS; navigation tools may include but are not limited to – leap-frogging, use of rope, sun, stars, winds, vegetation.</p>	<p>Completes written or oral questions.</p> <p>Answers match the Model Answers.</p> <p>Must answer all questions in full.</p>

Task 2: Prepare for a navigation leg

Overview of task: The focus of this assessment is to prepare for a trip by researching and making navigational plans before heading out

Instruction to candidate:
During this task you are required to complete a route card.

Element 1: Demonstrate knowledge of navigation tools

Performance criteria	Evidence/Judgement
<p>1.1 A route card is completed for a given route that contains at least three legs.</p> <p>Range: information for each leg must contain but is not limited to – correct grid reference of departure and finish point, description of leg, accurate distance, vertical height gain or loss as indicated by contours, estimated time.</p>	<p>Completes a route card for a route that contains at least 3 legs. Must include:</p> <ul style="list-style-type: none"> - correct grid reference of start and finish point or each leg - description of leg (e.g. vegetation, steepness, obstacles...) - accurate distance - vertical height gain or loss as indicated by contours - estimated time for each leg

Task 3: Navigate from one point to another in poor visibility

Resources:

Equipment and clothing to provide a safe tramping experience

Notes to the Assessor:

This task must be carried out in 2 different locations

Instruction to candidate:

For this task you are required to use navigation techniques to navigate in poor visibility from one point to another.

At some stage during the task you will need to :

- Orient the map
- Take and follow compass bearings
- Use contour lines to interpret the map
- Measure distance over the ground by pacing or timing
- Identify your current position
- Estimate time and distance, and explain the variation between your estimates and the actual times or distances

Element 2: Navigate in the outdoors in poor visibility.

Range: in at least two different locations above or below the bush line.

Performance criteria	Evidence/Judgement
<p>2.1 In a given location, a map is accurately orientated to north using a range of navigation tools.</p> <p>Range: navigation tools may include but are not limited to – map, compass, surrounding natural features.</p>	<p>At some stage during the navigation leg:</p> <ul style="list-style-type: none"> • Orients the map to within 5° using a compass and natural features • Takes a compass bearing from the map and follows it for at least 200m • Bypasses around an obstacle while on a compass bearing e.g. boxing • Shows understanding of contour lines in map-to-ground decision making e.g. in route finding; to identify current position • Uses at least 2 of the following techniques: <ul style="list-style-type: none"> - Aiming off - Attack points - Handrails - Catching features - Back bearings
<p>2.2 Accurate compass bearings are taken from a map and followed correctly with a compass.</p>	
<p>2.3 Position is identified to within 100 metres using navigation tools.</p> <p>Range: must include but is not limited to – map compass.</p>	
<p>2.4 A predetermined point is reached following a route using at least four navigation techniques and navigating around hazards.</p>	

<p>Range: navigation techniques may include but are not limited to – pacing, timing, aiming off, attack points, handrails, bypassing obstacles, following a compass bearing, using map to ground techniques, catching features, back bearings.</p>	<ul style="list-style-type: none"> • Uses pacing or timing to measure distance • Identifies current position to within 100m on the map using a compass e.g. orienting the map with the compass; aspect of the slope; direction that a linear feature runs in
<p>2.7 Navigation techniques are demonstrated to bypass obstacles on the line of travel.</p>	
<p>2.5 The amount of time required to travel from one given point to another in a variety of terrains is estimated and any variation to the actual time taken is justified.</p>	<ul style="list-style-type: none"> • Estimates the time required to travel from one point to another. <ul style="list-style-type: none"> - If estimate is more than 20% out then explanation is given for the variation • Estimates the distance from one point to another from the map. <ul style="list-style-type: none"> - If estimate is more than 10% out then explanation is given for the variation
<p>2.6 The travel distance from one given point to another in a variety of terrains is estimated and the variation to the actual distance is justified.</p>	<p>Explanations could include: Unexpected variations in terrain or group travel speed; unexpected obstacles required diversions</p> <p>Both estimates must be over a variety of terrain e.g. through changes in vegetation or steepness</p>

LEVEL	PROCESS	LEARNING DEMAND	RESPONSIBILITY
<p>4</p>	<p>Carry out processes that:</p> <ul style="list-style-type: none"> - require a wide range of technical or scholastic skills - offer a considerable choice of procedures - are employed in a variety of familiar and unfamiliar contexts 	<p>Employing:</p> <ul style="list-style-type: none"> - a broad knowledge base incorporating some theoretical concepts - analytical interpretation of information - informed judgement - a range of sometimes innovative responses to concrete but often unfamiliar problems 	<p>Applied:</p> <ul style="list-style-type: none"> - in self-directed activity - under broad guidance and evaluation - with complete responsibility for quantity and quality of output - with possible responsibility for the quantity and quality of the output of others

Candidate Name _____ NSN _____

**Unit 432 (v7) Checklist
Navigate in the outdoors in poor visibility**

Assessor name: _____

Organisation name: _____

		C/NYC	Comments
Task 1: Demonstrate knowledge of navigation tools			
Completes written or oral questions in full Answers match '432 Model Answers'			
Task 2: Prepare for a navigation leg			
Completes a route card for a route that contains at least 3 legs. Must include: <ul style="list-style-type: none"> - correct grid reference of start and finish point - description of leg - accurate distance - vertical height gain or loss - estimated time for each leg 			
Task 3: Navigate from one point to another in poor visibility			
		Route 1	2
<ul style="list-style-type: none"> • Orients the map to within 5° • Takes a compass bearing from the map and follows it for at least 200m • Bypasses around an obstacle while on a compass bearing • Shows understanding of contour lines in decision making • Uses at least 2 of the following techniques: <ul style="list-style-type: none"> - Aiming off; attack points; handrails; catching features; back bearings • Uses pacing or timing to measure distance • Identifies current position to within 100m on the map using a compass 			
<ul style="list-style-type: none"> • Estimates the time required to travel from one point to another and explains variation with actual time • Estimates the distance from one point to another and explains variation with actual distance 			
DATE	CANDIDATE'S SIGNATURE	ASSESSOR'S SIGNATURE	
Comments:			



Written / Oral Questions

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Candidate Name

The purpose of these questions is to check that you understand the uses and limitations of different navigation tools

Answer all questions in full

Questions meet the requirements for PC 1.2

1. Fill in the following table with the uses and limitations of navigation tools. Use the bottom two lines of the table to enter 2 more tools of your choice (e.g. leap-frogging, use of rope, sun, stars, winds, vegetation boundaries)

Uses	Limitations
Altimeter	
Map	
Compass	

Route card	
GPS	