

# Unit 35

# Land Navigation by Map and Compass

<b>Unit code:</b>	<b>L/600/5361</b>
<b>QCF Level 2:</b>	<b>BTEC National</b>
<b>Credit value:</b>	<b>10</b>
<b>Guided learning hours:</b>	<b>60</b>

## ● Aim and purpose

The aim of this unit is to allow learners to acquire knowledge in relation to land navigation with map, compass and route card, and to demonstrate these skills practically in a safe manner.

## ● Unit introduction

The uniformed public services often operate outdoors, so the ability to read maps and use them in relation to a compass is vital. Learners will be required to plan and undertake a route that has minimum impact on the countryside. They will also investigate considerations such as access laws, the Countryside Code and safety issues.

Learners should be given the opportunity to practise their navigation skills and gain an insight into the training undertaken by the uniformed public services. These skills, and others such as communication, leadership, discipline and trust, are important to anyone wishing to pursue a career in search and rescue or other similar areas.

On completion of the unit learners should be able to plan a route on a route card, identify conventional map symbols, use a compass, comment on environmental issues and carry out the route safely. After completing the unit, *Unit 15: Expedition Skills in Public Services* can be studied, so that learners can use the skills in another outdoor environment.

## ● Learning outcomes

**On completion of this unit a learner should:**

- 1 Know how to read a map accurately
- 2 Know how to use a compass
- 3 Be able to develop route planning skills
- 4 Be able to undertake a route.

# Unit content

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## 1 Know how to read a map accurately

*Map reading skills:* Ordnance Survey maps; conventional signs; contours; grid references; orienting map to ground; relating ground to map; understanding scale; calculation of time and distance; using a map to plan a route

## 2 Know how to use a compass

*Using a compass:* compass points; features; use and care; taking bearings from a map; magnetic bearings and variation; difference between mils and degrees; direction without a compass; use at night and in limited visibility; finding direction without a compass

## 3 Be able to develop route planning skills

*Route card:* details; group; day; date; times; legs; grid references; height; distance; rest stops; timings; comments; consideration of group capabilities; weather information; escape routes; effects of gradient; types of terrain

## 4 Be able to undertake a route

*Route travelling:* safety issues; consent forms; risk assessments; equipment; clothing and footwear; carrying kit; keeping up with the group; teamwork; communication; leading a leg of the route; decision making; problem solving; accurate navigation

*Environmental issues:* access laws; Countryside and Right of Way (CRoW) Act 2000; Countryside Code; minimum impact of the route on the environment

*Review:* strengths of self and group; areas for improvement; recommendations for future route planning

## Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<b>P1</b> describe the conventional signs on a map	<b>M1</b> explain grid references on maps	
<b>P2</b> describe the main features of a compass [IE]	<b>M2</b> demonstrate how to take bearings from a compass	<b>D1</b> evaluate the use of a map and compass
<b>P3</b> produce a route card for a planned route [TW]		
<b>P4</b> identify environmental issues		
<b>P5</b> undertake a planned route using map and compass with route card. [EP, RL]	<b>M3</b> evaluate the route planning with the route card.	<b>D2</b> provide recommendations.

**PLTS:** This summary references where relevant, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

<b>Key</b>	IE – independent enquirers CT – creative thinkers	RL – reflective learners TW – team workers	SM – self-managers EP – effective participators
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# Essential guidance for tutors

## Delivery

This unit is mostly practical with a mixture of classroom and outdoor teaching and assessment. The unit will require learners to take part in a variety of practical exercises so that skills can be learned at a sufficient level to be applied in any context. A variety of maps could be used for learners to practise map reading skills, but the planning of a route would normally use the Ordnance Survey 1:25,000 Explorer or Landranger maps. Flashcard packs are useful to confirm knowledge.

When teaching how to use a compass, handouts can be prepared that show the main features and use. However, all other aspects of the unit should be taught with practice sessions immediately following theory to ensure consolidation of learning.

As with all areas of outdoor work, safety is essential and a knowledge of environmental issues is important when leading a group of learners in unfamiliar territory.

## Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction to the unit – previous experience of outdoor pursuits
Tutor input: maps – different types and scales; signs, contours, grid references
Compass – main features, care and use, taking bearings, demonstration of use
<b>Assignment 1 – The Use of Map and Compass for Land Navigation</b> (P1, P2, M1, M2, D1)
Route planning – route cards; group work; weather forecast; destination; timings
Safety and environmental factors – access laws, legislation; Countryside Code
<b>Assignment 2 – Complete a Route Card for a Planned Journey</b> (P3, P4, P5)
Undertaking the route – clothing and footwear; navigational skills; group capability
Review of the route and the planning
<b>Assignment 3 – Review and Recommendations of the Planning and the Route</b> (M3, D2)
Review of unit and assignment

## Assessment

Assessment should be both written and practical. A number of assessment activities can be used to measure the achievement of learning outcomes for this unit. Evidence can be submitted in the form of assignments, presentations, observation records or witness statements. The completed route card is a necessary form of evidence for this unit.

The assessment for the unit should be as practical as possible, though there needs to be some theory work for P1 and P2. To achieve P1, learners should describe the conventional signs on an Ordnance Survey map. To achieve P1, learners should describe the conventional signs on an Ordnance Survey map. A range of signs should be described which could be evidenced in written format, presentation, completion of a worksheet or a poster.

To achieve D1, learners must evaluate the use of a map and compass. It is not sufficient simply to demonstrate the operation of the map and compass, but learners must then judge from their findings the effectiveness of these tools in navigation.

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For P3, learners will be required to produce a route card of the planned route using the necessary planning skills, which will need to take account of the environmental factors for P4. For P4, it is important that the environmental issues should be identified prior to commencing the walk. When assessing this it is important that the learners identify the potential environmental impact of their walk. Will the route affect the landscape? For example are they crossing any open ground or are they following set footpaths? It is the impact of their actual walk that must be considered, not any future walks, and this has caused confusion in the past. Learners must ensure that they have made reference to the items in the unit content, including the countryside code and CRoW Act (2000) and any subsequent legislation that may be introduced during the life of this specification. The environmental issues should also be fully identified before venturing out into unfamiliar territory.

Learners will need to complete the planned route for P5, showing their practical skills of using the map, compass and route card confidently. After completing the route, learners will evaluate the route undertaken including the planning and use of the route card and reviewing the planning and the route undertaken. To achieve M1, learners need to explain how grid references operate on a map, setting out clearly the purpose and reasons for using grid references when navigating. To achieve M2, learners need to demonstrate how to take bearings from a compass. This should be undertaken in a practical activity and ideally evidenced through the use of a tutor-completed observation record. M3 can be completed and achieved following the practical activity of undertaking the planned journey. Once the planned journey is completed, using the route card produced for P3, learners can evaluate the effectiveness of the planning and route card, identifying the strengths and weaknesses of the route and card, drawing clear judgements from their findings. For D2, recommendations are made for any future routes to be taken.

To achieve D2, there must be reasoned and justified recommendations made as a result of the evaluation achieved in M3. Learners must make recommendations that could be used, for example by others wishing to follow their route. They should have evaluated the route card, the route itself and the planning processes undertaken prior to the walk. The recommendations should be achievable and appropriate to the task, and develop the evaluation undertaken for M3.

## Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1, M2, D1	The Use of Map and Compass for Land Navigation	Learners produce a poster showing how maps are read and also how to use a compass.	Poster Observation record Report
P3, P4, P5	Complete a Route Card for a Planned Journey	Learners complete a route card, which includes all of the details as listed in the unit content for learning outcome 3. Learners should then undertake the planned journey using the route card, map and compass.	Completed route card
M3, D2	Review and Recommendations of the Planning and the Route	Learners must also review their route and make recommendations.	Presentation in small groups Observation record

## Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Public Services sector suite. This unit has particular links with the following titles in the Public Services suite:

Level 1	Level 2	Level 3
Map Reading Using Ordnance Survey Maps	Expedition Skills in Public Services	Outdoor and Adventurous Expeditions
Introduction to Expedition Skills	Adventurous Activities and Teamwork for the Public Services	Skills for Land-based Outdoor and Adventurous Activities

### Essential resources

There should be at least a map and compass for every two learners to share and a route card for everyone. Flashcards are also a useful learning aid. Access to OCT facilities is also recommended and for the practical aspects of the unit there should be suitable access to outdoor facilities where map reading exercises can be undertaken and an outdoor environment for a route which is unfamiliar to the learners.

### Indicative reading for learners

#### Textbooks

Hawkins P – *Map and Compass: The Art of Navigation* (Cicerone Techniques, 2003) ISBN 9781852843946

Langmuir E – *Mountaineering and Leadership* (Sport Scotland and MLTB, 2002) ISBN 978185062958

#### Websites

Army Cadet Force [www.armycadetforce.net/navigation-map-and-compass/navigation.html](http://www.armycadetforce.net/navigation-map-and-compass/navigation.html)

BBC Weather online [www.bbc.co.uk/weather](http://www.bbc.co.uk/weather)

Countryside Access [www.countrysideaccess.gov.uk](http://www.countrysideaccess.gov.uk)

Duke of Edinburgh Award [www.theaward.org](http://www.theaward.org)

Ordnance Survey [www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)

## Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	learning to read a map accurately
Creative thinkers	using a map and compass
Reflective learners	reviewing the planning of the route
Team workers	completing a route card and undertaking the route
Self-managers	completing a route card
Effective participators	undertaking the planned route

## ● Functional Skills – Level 2

Skill	When learners are ...
<b>ICT – Develop, present and communicate information</b>	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> <li>• text and tables</li> <li>• images</li> <li>• numbers</li> <li>• records</li> </ul>	presenting a review of the planning of the route
<b>Mathematics</b>	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	working out scale on a map identifying grid references
Use appropriate checking procedures and evaluate their effectiveness at each stage	completing a route card
<b>English</b>	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting the review
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading maps
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing a route card