



Australian Government

DEFSUR006 Navigate using celestial aids

Release: 1

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Modification History

| Release | Comments |
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| 1 | <p>This unit was released in DEF Defence Training Package release 1.0 and meets the Standards for Training Packages.</p> <p>This unit supersedes and is equivalent to DEFSU012 Navigate using celestial aids.</p> <ul style="list-style-type: none"> • Unit code updated • Content and formatting updated to comply with new standards • All PC transitioned from passive to active voice • PC 1.3, 5.2 and 6.2 revised • PC 3.3 and 3.4 merged |

Application

This unit describes the skills required to navigate using celestial aids, by both day and night, to a destination, within standard tolerances of accuracy, without the use of the normal range of navigation aids.

This unit was developed for military personnel required to operate in a remote, deployed operational environment, but is applicable to any individual who is required to navigate using celestial aids. Alternatively, if an approximate position is known relative to a highway, waterway or coast, where either survival or rescue is better effected, the individual will have sufficient skills and knowledge to remain on a constant bearing and estimate distance travelled.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would act autonomously, while performing concrete tasks, in a broad range of contexts which may be highly unpredictable.

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

Competency Field

Survival

Elements and Performance Criteria

| ELEMENTS | PERFORMANCE CRITERIA |
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| Elements describe the essential outcomes | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section. |
| 1. Establish cardinal points by day using the sun | <p>1.1 Construct a sun compass in an open and level area to record complete movement of the sun over a solar day.</p> <p>1.2 Mark true north, associated cardinal points and the arc of the sun on the sun compass.</p> <p>1.3 Mark true north and associated cardinal points using a quick shadow stick method (maximum of twenty minutes of solar transit) and making allowance for the deviation arising from early morning or late afternoon siting.</p> |
| 2. Establish cardinal points by night using celestial aids | <p>2.1 Extrapolate the location of cardinal points by identifying and using celestial bodies.</p> <p>2.2 Extrapolate the location of the celestial pole by identifying and using celestial bodies.</p> <p>2.3 Extrapolate true south (or north) by using the celestial pole on the earth/sky horizon and by establishing a compass showing all cardinal points on the ground.</p> |
| 3. Employ improvised direction measuring techniques | <p>3.1 Select appropriate direction of travel to optimise survival or rescue, after analysing the survival situation.</p> <p>3.2 Construct an improvised protractor using a multi-folded sheet of paper and mark the desired angle of direction.</p> <p>3.3 Use established cardinal points and directional markings on an improvised protractor to navigate towards a recognisable feature in the distance.</p> |
| 4. Employ improvised time measuring techniques | <p>4.1 Estimate elapsed time by measuring the angle of a segment of the sun's transit and applying an angle by rate calculation.</p> <p>4.2 Estimate elapsed time by measuring the rotation of a celestial body around the celestial pole, and applying an angle by rate calculation.</p> |
| 5. Employ improvised distance measuring techniques | <p>5.1 Estimate distance by counting number of paces taken and applying a pace by length of pace calculation.</p> <p>5.2 Estimate distance by travelling at constant estimated velocity walking pace of four km/h and applying a velocity by time calculation.</p> |
| 6. Determine overall position relative to start point and | <p>6.1 Draw grid system using a standard scale on a sheet of paper, and mark cardinal points and start point.</p> <p>6.2 Draw physical navigation movements as scaled vectors from the start point.</p> |

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| navigate back | <p>6.3 Aggregate individual navigation vectors to determine final position relative to the start point.</p> <p>6.4 Determine return vector, including bearing and distance, to return to the start point.</p> |
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Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|-------------|---|---|---|---|-------------|---|---|---|---|------------------------|---|---|---|---|----------|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Learning N/A | | | | | Reading N/A | | | | | Writing N/A | | | | | Oral communication N/A | | | | | Numeracy | | | | |

Performance variables

| | | | | | | | | | | | | | | | | | | | |
|---------|---|---|---|---|---------|---|---|---|---|-----------------|---|---|---|---|-----------------|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Support | | | | | Context | | | | | Text complexity | | | | | Task complexity | | | | |

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to DEFSU012 Navigate using celestial aids.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6bdbab1e-11ed-4bc9-9cba-9e1a55d4e4a9>

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