FACT SHEET

Delaware County Community Emergency Response Team
Supplemental Training Series

INTRODUCTION TO WILDERNESS SEARCH & RESCUE

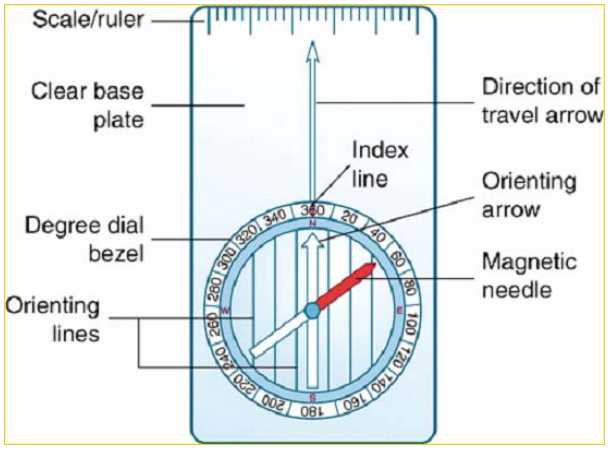
Section X— Navigation - Compass

Compass Types

- Two styles of compasses:
  - – Orienteering
  - – Lensatic
- The orienteering style is preferred for SAR.
- All compasses have similar basic features.

Orienteering Compass Characteristics

- Base plate or base
- Bezel, dial, ring, or compass housing
- Bearing/orienting lines
- Magnetic needle
- Direction of travel arrow
- Index line or lubber line
- Sighting mirror



Navigating with a Compass

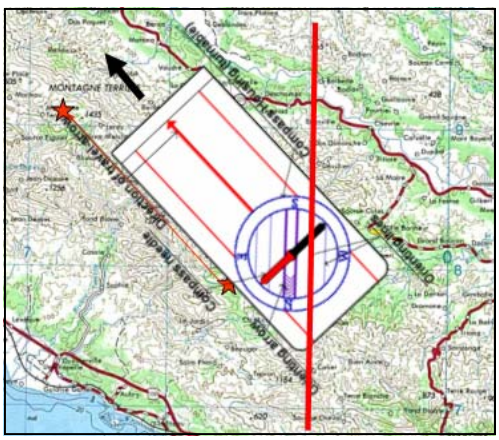
- Good compass posture:
  - – Stand still with arms comfortably at sides.
  - – Elbows bent so that both hands can hold the compass directly in front of body.
  - – Hold compass at either chest-level or belt-level. Ensure that direction of travel arrow is pointing in the same direction as your toes.
- Toes must be pointing in the same direction as the direction of travel arrow.
- When you move the compass to a specific heading, move your entire body as a solid extension.
- Hold the compass level so that the needle may move freely to settle on a direction.

Following a Heading

- Point your toes in direction you wish to travel and sight a prominent object in the distance.
- Close your eyes for several seconds, open them, and confirm you can find the object.
- Reconfirm your heading to object, lower the compass, and start walking.

Using a Map and Compass Together

- The compass is used primarily as a protractor and ruler.
- 360-degree dial, in association with the orienting lines in the base of the bezel, serve as the protractor.
- Straight sides of the base serve as a straight edge.
- The magnetic needle can be completely ignored.
- To determine the heading from one point to another on the map:
  - – Place the compass on the map so that one edge of the base plate touches both the starting point and the destination.
  - – Make sure that the direction of travel arrow is pointing in the correct direction of travel.
- Turn the dial ring until the orienting arrow, with the arrow pointing north, is parallel to the nearest north-south meridian.
- The heading from the starting point to the destination is now indicated on the dial ring.
- Scales on bottom margin can be used to measure distance on the map.



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Section X— Navigation - Compass (Page 2)

Magnetic Declination

- The angle between the direction the magnetic needle points (magnetic north) and true north
- The magnetic needle on a compass only points to true north when the compass is along the "Agonic" line.
- East of this line, a compass needle will point west of true north (west or negative declination).
- West of this line, a compass needle will point east of true north (east or positive declination).
- If you know the magnetic declination of the area in which you will be navigating, you have four options:
  - – Ignore it.
  - – Adjust for it on the compass.
  - – Adjust for it by drawing magnetic meridians on the map.
  - – Adjust for it mathematically.

Tally

- Distance can be measured by knowing the length of one's stride and multiplying it by the number of strides walked.
- A stride, is equivalent to 2 steps, or the distance between where one foot strikes the ground and where the same foot strikes the ground again.
- Strides will vary depending on leg length, terrain, weather, darkness, fitness, and many others
- Valuable skill in several situations in SAR – estimating distance when a mapped object or area is a known distance from a starting point. Also, being able to estimate how far a clue was found from the start of a search might be valuable during debriefing.

Determine your Pace Variance

1. Mark off a leg measuring 30 meters long simulating the terrain of the area to be searched.
2. Walk it three times and total the paces (x) - note: The distance is now 90 meters!
3. Calculate – 90 / x = y meters. This is your pace variance.

Example: It took me 122 paces to travel 90 meters. 90/122 = 0.73 or .7 (.7 is my pace variance)

Check it… Walk 20 paces.
Calculate your distance by taking the number of paces (20) and multiplying them by your pace variance (x) - (20 * x = 14 meters) or You can check your accuracy by taking the 30 meter leg you marked off and dividing it by your pace variance (30m / x = 43 paces) and you should come up with the number of paces it would take you to cover the 30 meter leg. You could then walk it off to verify.

Global Positioning System

- A space-based radio navigation system consisting of satellites and a network of ground stations.
  - – Use for monitoring and control.
  - – A minimum of 24 GPS satellites orbit the Earth.
- The principal behind the GPS is the measurement of distance between the receiver and the satellites.
- Many Limitations
  - – Requires line-of-sight to the satellites and will not work in all terrains.
  - – Should not be used as sole navigation device
  - – Less than perfect accuracy
  - – Human error
  - – Position display can easily be misread.
  - – Typical battery life is 4-6 hours.

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Section X— Navigation - Compass (Page 3)