

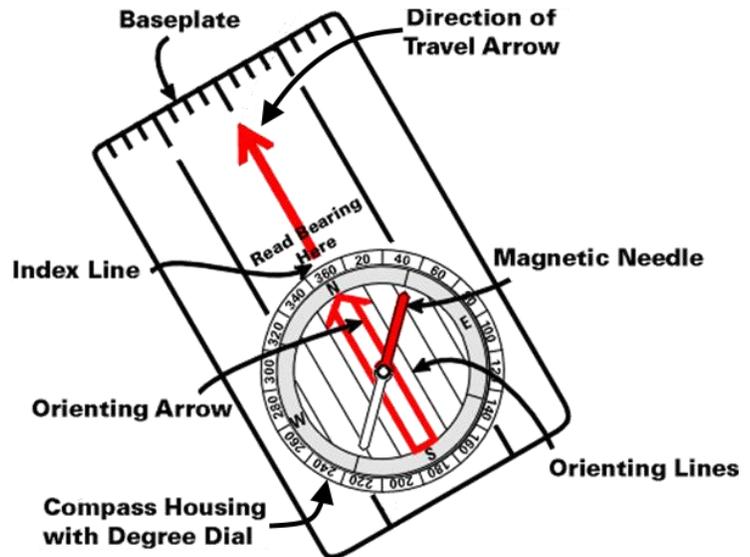
CLMRG Summer Class – Field Navigation



Roman numerals describe the problem. Subsections describe how to do specific steps. All bearings will be relative to True North. To compensate for declination, we will be either using an adjustable compass or using tape as discussed in *Freedom of the Hills*. (Page 109-110 of 9th edition)

Phase One: Locate your position on the map using triangulation. Use the simple drawn map.

- I. **Orient the Map** – Identify North (right of B Mountain). Rotate the map so that the top is generally pointing to North. This will make it easier to identify landmarks on the map.
- II. **Take a Field Bearing** – Find the direction an object is from you.
 - a. Locate one of the landmarks that is identified on the map.
 - b. Hold your compass level and so you can see the top with the Direction of Travel arrow (DOT) pointing at the object (and away from you).
 - c. Turn the dial on the compass so that the tape you put on it aligns with the needle. Make sure that the red end of the needle points in the general direction of the N on the compass ring. This is the BEARING to the object.



You will repeat these steps 2 more time.

- III. **Triangulate Your Position** – Transfer the bearing you just took to your map
Do not adjust the reading on your compass that you measured.
Ignore the spinner needle at this time!
 - a. Place the compass on the map so that the lines on the bottom of the compass align with the North/South grid lines on the map. Make sure that the N on the compass is in the same direction as North on the map.
 - b. While keeping the compass aligned, slide the compass until the top of one edge is against your landmark.
 - c. Use your compass as a straight edge and draw a line on the map from that landmark in the opposite direction of the DOT.
 - d. Repeat exercise II and III, steps (a) through (c), for two more different landmarks. Ideally the landmarks you choose should be more than 90° apart. (Between 60° and 120° is alright)
 - e. The cross point of two lines is your approximate location. If the lines do not cross extend them until they do. Three lines will often form a small triangle.

You will have better accuracy if you use more landmarks and if the landmarks are distant from you.

CONGRATULATIONS. You have completed phase one!

Continue to phase two if you have time.

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Phase Two: Locate targets in the world from the Topo map.

- IV. **Take a Map Bearing:** Use the Topo map to measure what the bearing should be to a different landmark.
- Align one edge of the compass with your location and the landmark. Make sure that the DOT points to the landmark.
 - Ignore the needle at this time. Rotate the dial so that the lines on the bottom of the vial align with the North/South grid lines on the map. Make sure that the N on your compass points in the same direction as the North on the map.
 - Read the bearing off of the dial. This is your bearing from the object.
 - Take a field bearing on that same landmark. Does your field bearing agree with your map bearing (within 3 degrees)?

Move to a different spot on the map and repeat part IV until you feel comfortable with it. If you feel that you have the hang of it do the same with the topographic map. Try using one of the points marked to find your location. (Hint: Points 2 and 3 work best.)

- V. **Get a Heading** – the direction you or someone else is traveling is a heading.
- VI. **Find a target out of sight** – you will often have to go places not visible from the trail head or from your camp. Practice the previous skills by answering these questions.
- There are two peaks in the general Southeast direction (8 & 9). You can only see one. Which one can you see?

 - What heading would you use if you were to travel to the hill that you can't see?

 - Cap Rock is marked on the topo map. What is the Bearing?

 - Find the target in the saddle marked by the arrow of point 4. (This will require a short walk.) The target is something obvious. Leave the target there unless you are the last group. Please return the target to the cars if you are the last group.

CONGRATULATIONS YOU HAVE FINISHED!!