

COMPASS USE

Streamkeeper volunteers use the compass for two separate operations: either working “from terrain to map” (taking a compass bearing from a given line in the field) or working “from map to terrain” (following a bearing given on a stream reach map). The first operation is used when surveying the stream reach map, and the latter would be used to reestablish your reach lines during future monitoring visits, or to find stream reach monuments after a reach has been established if thick growth or flooding alters the terrain.

THE COMPASS

The compass supplied with the field kits has been set to account for the 20-degree east declination for the Peninsula, the difference between the magnetic pole and true north, so all of our readings will reference to true north. Remember to keep the compass level and away from iron and steel objects like belt buckles, rings, rebar, or clipboards when taking a bearing. The compass can be used in a number of different ways, as explained below.

DEFINITIONS:

A few definitions are useful for an understanding of compass use:

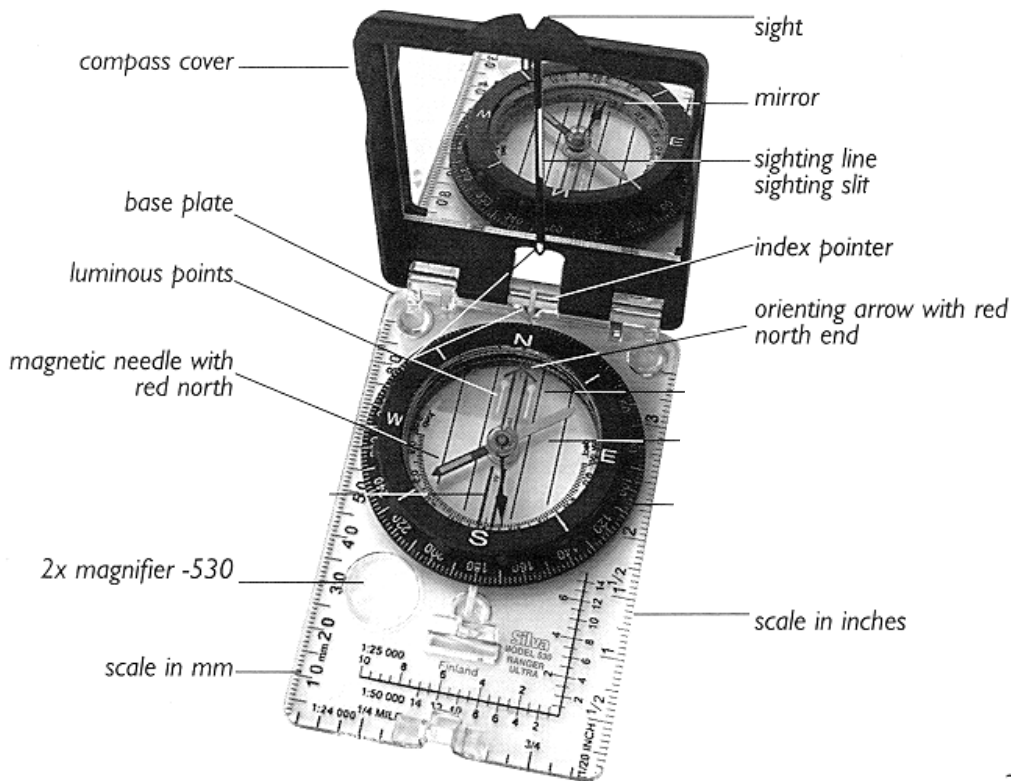
Bearing: The *direction* from one place to another, measured in degrees of angle with respect to an accepted reference line. This reference is the line to true north.

Taking a bearing: To *measure* the direction from one point to another, either on a map or in the field.

Following a bearing: To set a certain bearing *on the compass* and then to follow that bearing along a line in the field.

Boxing the needle: To *align* the red end of the magnetic compass needle inside the orienting arrow of the compass housing.

Triangulation: Taking a bearing to a monument from two different locations.

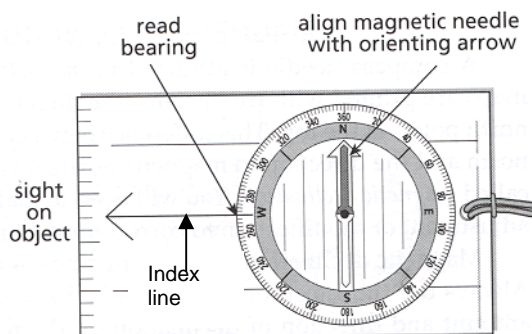


USING THE COMPASS:

FROM TERRAIN TO MAP—To take a compass bearing from the terrain for your stream map by measuring the direction from one point to another on the terrain:

Let's say you need to determine the compass bearing of your baseline (see Reach Map protocol).

1. Stand at your "zero point" with your tape stretched along your baseline, and orient the body of your compass in exactly the same direction. There are several ways to do this:
 - a. **"Lay-along" method (preferred):** If you have a tape or string lined up exactly along the line you want to measure, you can lay the compass directly on top of it or next to it, thus assuring that it is pointing in the same direction.
 - b. **"Sight-through" method (slow, accurate):** open the compass cover to about a 50-degree angle so that you can see the compass dial in the mirror when held to the eye, as well as the tape measure through the slit.
 - c. **"Sight-down" method (quick, not accurate):** Hold the compass about waist level with the lid away from you. Aim the sighting slit/sighting line on the compass cover down the baseline.
2. To read the compass, "box the needle" by rotating the compass housing so the orienting arrow aligns with the red magnetic needle (see diagram). Read and record the bearing at the index line.



"Boxing the needle" to take a bearing from a line

FROM MAP TO TERRAIN—To follow a bearing written on your stream reach map to establish a point or line in the field, by setting the bearing on your compass:

This method is used to reestablish the baseline or transects in the field, or to find the "zero point" or other landmark based on triangulation from other points. You'll use the reverse of the procedures described in "From Terrain to Map."

Quick Accuracy Reading: Suppose, for example, that you can't find a rebar monument you put in the year before. Your map notes that the monument is "20 feet at 270 degrees from the corner fence post." Simply stand at the fence post and turn the compass dial to set 270 degrees at the index pointer. Holding the compass flat open at waist level, box the needle by ROTATING YOUR ENTIRE BODY until the red needle aligns with the orienting arrow. The sighting line will be pointing toward the monument, and you should be able to zero in on it now in the brush.

Extreme accuracy reading: Let's suppose you still can't find your monument and will have to install a new one. You'll need to be very accurate in order to get the monument in the same exact place. To do this:

- Use the "sight-through" method to find your bearings (see previous section).
- Use triangulation to get as accurate a location as you possibly can. This involves locating your spot from two different reference points. Your reach map should have two different reference points for each important monument (see Reach Map protocol), and if you mark the spots indicated by both of these reference points, they should agree with each other. If they don't, you'll have to use your best judgment as to where to locate the replacement monument. **IF YOU HAVE TO RE-INSTALL A MONUMENT, BE SURE TO NOTE WHICH MONUMENT AND EXACTLY HOW YOU DECIDED WHERE TO PLACE IT.**