How do I use a map, compass, and altimeter?

Some instructions never seems to make sense until you actually try to do them. This FAQ is one of those things. Simply reading without trying the exercise may be confusing.

A map, compass, and altimeter can be used for two general uses. One, to **find where you are** and two, **to determine where to go**. Take the time to practice before you need to use these skills. Practice often.

To find where you are:

Triangulation Method: First, find two landmarks. It helps if they are close to 90° from each other relative to your position. Next, take a bearing for these landmarks. Add or subtract the magnetic declination. Plot these bearings on your map. The point where the two bearings intersect is your position. The same can be done with several landmarks for more accuracy.

Altimeter Method: This method works best if you are on a trail, ridgeline, or valley that contains a large section that is all uphill or all downhill. It can also be used in conjunction with the triangulation method to determine your position more accurately. First, be sure that you altimeter has been calibrated. Next, find the point on your map where the trail, ridgeline, or valley intersects the contour line that most closely corresponds to your altimeter reading.

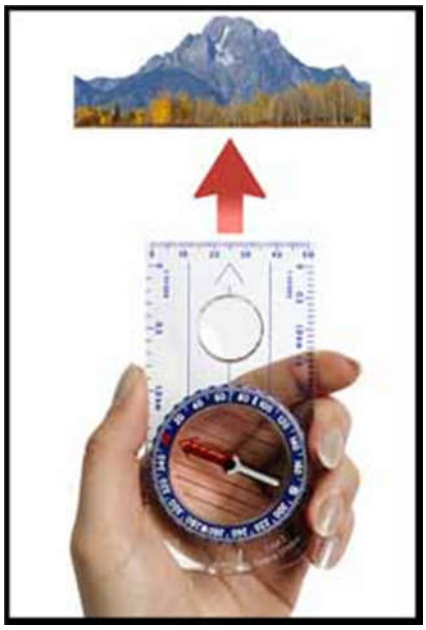
To determine where to go:

If you are on a trail but you can not determine if you are going in the right direction, a quick glance at the map and compass should sort things out.

If you are not on a trail, you will need a more precise method of determining the correct direction of travel. First, plot your desired course on your map to determine your true compass heading. Then add or subtract the magnetic declination. Now hold the compass at eye level and take a bearing to determine which object on the horizon you want to head for. Start walking toward that object until you reach it or loose site of it. Repeat the process until you reach your final destination.

Terms and methods:

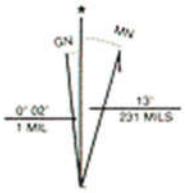
Taking a bearing:



Hold the compass in your hand and turn yourself until the red end of the compass needle (North) coincides with the red arrow in the bottom of the compass housing. The front of the compass with the direction of travel arrow is now pointing towards your destination. The reverse can be done to determine the bearing based on a particular object.

Using a compass with a folding mirror is far more accurate. Follow the same directions as above but align the hairline in the mirror over the center of the compass and align the notch on top of the mirror with an object.

Magnetic declination:



Magnetic North is almost always different from true North. For example, in Riverside County, a person would need to subtract about 14° from the magnetic heading to find the true heading. The magnetic declination information can be found on the bottom of all U.S. Geological Survey maps.

Plotting a heading on a map:

Place the compass on the map with the edge of the compass along the desired line of travel.

Ignore the needle! Rotate the compass housing until N on the dial points North on the map. Check that the compass housing red/black north/south lines are parallel with the maps meridians.

Calibrating the altimeter:

It is generally done by one of two methods. The most common and accurate method is to set the altimeter at a location where the elevation is know, such as a trailhead. The second method is to adjust the altimeter to the current barometric pressure. This usually requires access to weather information on a radio designed to receive such broadcasts.

Contour line:

Sometimes called an elevation line, it is a line on a map that represents where the terrain passes a specific elevation. Contour lines are usually at intervals of 80 feet on U.S. Geological Survey maps.