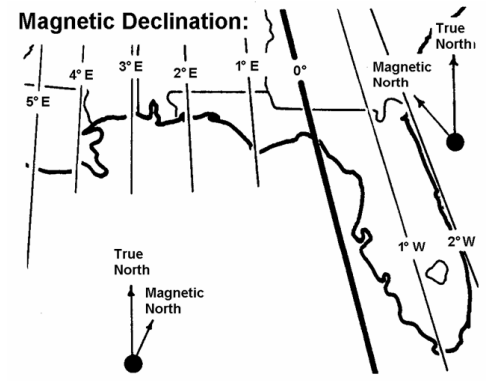


Forest Measurements

Using an Azimuth Compass

Compasses that are graduated into 360 degree marks (0° - 360°) are called azimuth compasses. A reading from this compass is called an **azimuth**. North will have an azimuth of 360° (or 0°), while south will have an azimuth of 180° . An azimuth compass with a rotating dial on its face is commonly used by foresters and in forestry competitions.

All compasses point to the earth's magnetic North Pole, which is more than 800 miles from the earth's geographic North Pole, so keep in mind that your compass reading may be from 0° to 3° to the east or west of true north, depending on where you are in Florida. In fact, in some western States this error can exceed 20° . You will need to account for this error when taking an azimuth from a map and trying to traverse it on the ground. Using a handheld GPS (Global Positioning System) may help with this problem, but it can create other problems. A GPS uses satellites in Earth's orbit to find your exact position on the earth by using trigonometry.



When using a compass to measure the azimuth to an object from your present location, simply hold the compass flat on your open palm with the direction arrow (located on the base) pointed in the direction of the object. Rotate the compass dial until the slot on the dial is aligned with the compass needle that points toward magnetic north. Since many compass needles are colored red, and the arrow on most compass dials fit snugly around the needle, the act of fitting these two together is easily remembered as, "Put Red Fred in the Shed." The azimuth degree reading is the number in line with your direction arrow! Please remember to stay away from any metal or electrical objects while using a magnetic compass or your needle will go a little wild!



If you are given the azimuth degree reading, and you want to travel in that direction, simply dial that number to your direction arrow, and turn your body until "Red Fred" is in the shed! Find an object that the direction arrow is pointing toward and walk in that direction. If you pick an object in the distance to walk towards you are more likely to follow the correct azimuth than if you walk looking at your compass.

Remember the magnetic declination mentioned earlier? This comes into play when you take an azimuth from a map and try to walk that direction on the ground. If the map has a west declination, you must add this to the azimuth; however, an east declination would be subtracted. For example, let's say that you look at a map and determine that in order to get to a bridge from your current location you must follow an azimuth of 45° , and the map has a magnetic declination of 2° east. Subtract (east declination) 2° from the 45° azimuth to get the 43° magnetic azimuth you must follow on the ground. Some compasses, however, have an adjustment for declination so that you can skip all the math.

Forest Measurements

Using an Azimuth Compass – Review Questions

1. What is an azimuth compass?
2. What do all compasses have in common?
3. Describe in your own words steps by step directions on how to use a compass.
4. Why are you to stay away from metal or electrical objects while using a compass?
5. If your azimuth compass reads 180 degrees, what direction are you traveling?
6. If your azimuth compass reads 135 degrees, what direction are you traveling?
7. If your azimuth compass reads 90 degrees, what direction are you traveling?
8. If your azimuth compass reads 315 degrees, what direction are you traveling?
9. If you are given an azimuth degree reading and you want to travel in that direction, what would you do?
10. What is a magnetic declination?

Forest Measurements

Compass and Pacing – Lab Activity

Directions: The student will use a hand compass and pacing to simulate the determination of the property lines on a tract of timber for cruising timber. The compass course will have ten marked points. The student will start at any point and record the compass azimuth reading and distance to the next point.

	<u>Azimuth Reading</u>	<u>Distance (feet)</u>
Point 1	_____	_____
Point 2	_____	_____
Point 3	_____	_____
Point 4	_____	_____
Point 5	_____	_____
Point 6	_____	_____
Point 7	_____	_____
Point 8	_____	_____
Point 9	_____	_____
Point 10	_____	_____