

## FOR-47 COMPASS & PACING

ISSUED: 9-90

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Pacing is a simple means of measuring linear distance by walking. It can be used outdoors or indoors, in the woods or over land. Pacing's measurement dates back to Roman times. The Roman pace, measured from the heel of the foot to the heel of the same foot in the next stretch, was about 58.1 inches. Today this is known as the geometric pace, which measures about 5 feet. To make pacing work for you, you need to know how much distance your pace covers. You can determine this by walking a pre-measured course a few times and then checking the pacing chart below. A pace equals two normal steps, beginning and ending on your dominant foot. A common use for pacing in forestry is to pace off 66 feet from a tree in order to get a measurement of tree height. This is why you determine your pace on a 66-foot course.

### Determining your pace length

1. Begin by measuring a 66-foot course with a tape measure. You will use this distance to establish your pace accurately.
2. Pace off the course measured at Step # 1. Repeat two or three times and compare results.
3. Look up the number of your paces on the chart below to determine how many linear feet each of your paces covered. For example, if it takes you 24 paces to cover 66 feet, each of your paces is 2.75 feet.
4. When you need to go from one point to another and do not know how far it is, pace the distance. Record the number of paces and multiply your individual pace by the number of paces to get the answer. For example, if it takes you 10 paces to cover an unknown distance, multiply your known pace (say, 4.26 feet) by 10 to get 42.6 feet.

### Pacing Chart

| #paces/66 feet | feet/pace | #paces/66 feet | feet/pace | #paces/66 feet | feet/pace | #paces/66 feet | feet/pace |
|----------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|
| 10             | 6.6       | 14.5           | 4.55      | 19             | 3.47      | 23.5           | 2.81      |
| 10.5           | 6.28      | 15             | 4.4       | 19.5           | 3.38      | 24             | 2.75      |
| 11             | 6         | 15.5           | 4.26      | 20             | 3.3       | 24.5           | 2.7       |
| 11.5           | 5.74      | 16             | 4.13      | 20.5           | 3.22      | 25             | 2.64      |
| 12             | 5.5       | 16.5           | 4         | 21             | 3.14      | 25.5           | 2.59      |
| 12.5           | 5.28      | 17             | 3.88      | 21.5           | 3.07      | 26             | 2.54      |
| 13             | 5.08      | 17.5           | 3.77      | 22             | 3         | 26.5           | 2.49      |
| 13.5           | 4.89      | 18             | 3.67      | 22.5           | 2.93      | 27             | 2.44      |
| 14             | 4.71      | 18.5           | 3.57      | 23             | 2.87      |                |           |

5. If you are given a specific distance to travel (say, 66 feet) between two points, divide your pace (say, 4 feet) into the distance you are given to figure out how many paces you need to get there (16.5 paces in this case.)

Competitions usually give you either the linear distance you need to travel between two points or two clearly visible points between which you have to pace the distance.

### **Compass**

A compass tells you in what direction you are headed relative to magnetic north. You can combine use of a compass with your newly found knowledge of pacing to find your way across country (where there may not be any paths or roads) with the help of a topographic map that shows mountains, streams and other landmarks. Using a compass and pacing with a topographic map across country or through a forest is called orienteering. In order to use a compass successfully, you need to know:

- a) where magnetic north is;
- b) where you are in relation to where you want to be (e.g., is this area east of your home, or south?); and
- c) how to set the bearing for where you want to go.

The following will help you use a compass correctly to identify the direction in which you are headed.

1. The circular part of the unit is the compass itself and is measured in 360 degrees.
2. The red needle (the one that moves) always points to magnetic north.
3. Each small mark on the rim of the compass is 2 degrees.
4. Each large mark on the rim of the compass is 10 degrees.
5. The inches or millimeters marked on the edge of the compass help you use the scale on a map to tell how far it is between two points.
6. The hole in the corner of the compass is for a string so you can carry it around your neck.

### **Using the Compass**

1. Turn the rim of the compass until the moving needle lies between the arrow marks drawn on the bottom of the compass.
2. Make sure the red end of the needle points to the "N" on the rim.
3. Always have the front of the compass (the inch ruler edge) pointed in the direction you are heading.
4. Hold the compass level (parallel to the ground) so the needle can float freely in the liquid inside the circle.
5. Turn your body to face squarely in the direction you are headed. Hold the compass close to your body at about chest level so that you can look down on it and read it easily.
6. Read compass bearing (direction you are heading) at the front of the compass.
7. Determine the correct number of degrees where the solid line crosses the compass rim.
8. Making sure your compass is sighted on the point you are headed toward, walk in a straight line toward that objective.

Figures from Barden, Robert. (2007) Using a Compass and Pacing in Woodland Owner Notes, WON-39: North Carolina Cooperative Extension. <https://content.ces.ncsu.edu/using-a-compass-and-pacing>

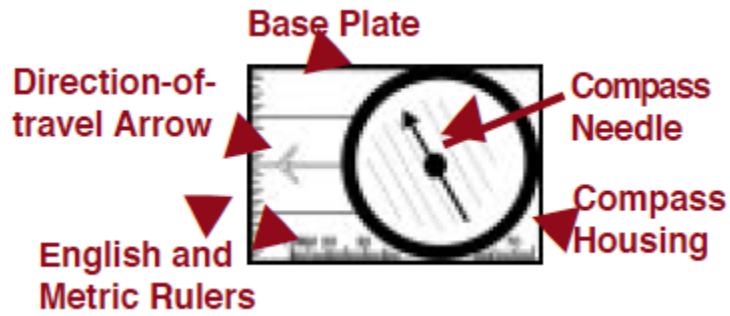


Figure 1. Basic parts of a compass.

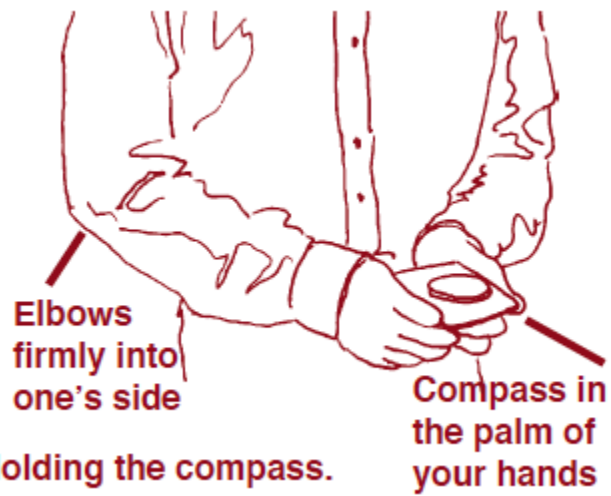


Fig. 2. Holding the compass.



Figure 3. Illustration of a step and a pace. The longer is a pace (two steps).