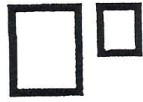
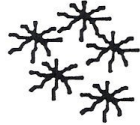


Map Orienteering - map symbols



Buildings



Pine Woods



Church



Broad Leaf Woods



School



Good Road



River Stream



Poor Road



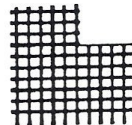
Lake



Trail



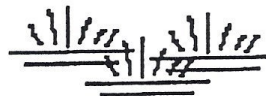
Bridge



Town



Railroad



Grass Lands

How to Measure a Straight Line Distance Using a Map

Instructions

Things You'll Need:

- Pencil
- Paper
- Ruler

Step1

Line up the straight edge of a piece of paper along the start and end points of the distance you're measuring on the map, and make a pencil mark at the two points.

Step2

Find the bar scales in the map's margin. They're the long, thin bars labeled miles, feet and kilometers.

Step3

Choose which of the three measurements interests you.

Step4

Line up the left edge of the marked distance on the paper with the left edge of the appropriate bar scale.

Step5

Note that the left edge of the bar scale doesn't start at zero, but is subdivided to measure to the nearest tenth of a mile, thousand feet or hundred meters. Zero is found at the right edge of the subdivisions.

Step6

Look at the right-hand mark on the paper, and slide the paper to the right, along the bar scale, until the right pencil mark is aligned with the next higher whole number on the bar scale.

Step7

Note that the left edge of the distance to be measured should now be in the subdivided part of the bar scale at the left.

Step8

Note the distance on the bar scale that corresponds to the right-hand mark on the paper.

Step9

Add the number of tenths of a mile, thousands of feet or hundreds of meters (depending on which bar scale you chose) that falls to the left of the zero mark on the bar scale.

Step10

Understand that this total is the actual ground distance between the two map points.

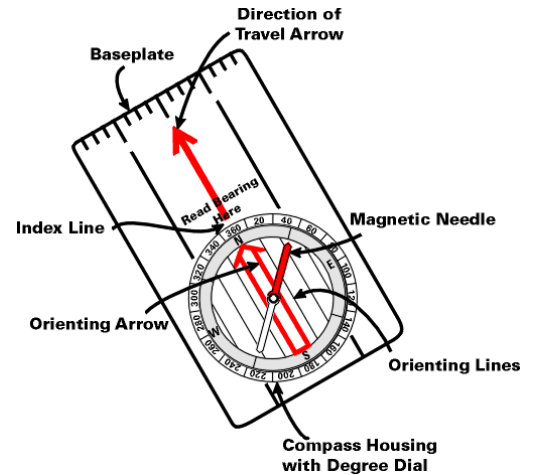
Tips & Warnings

- Double-check your calculations to avoid making a mistake.
- If the distance you're measuring is longer than the bar scale, just count off the total distance of the bar scale however many times necessary until you complete the full distance.
- A ruler, string or many other things can be used as straightedges.

Using a compass on a map

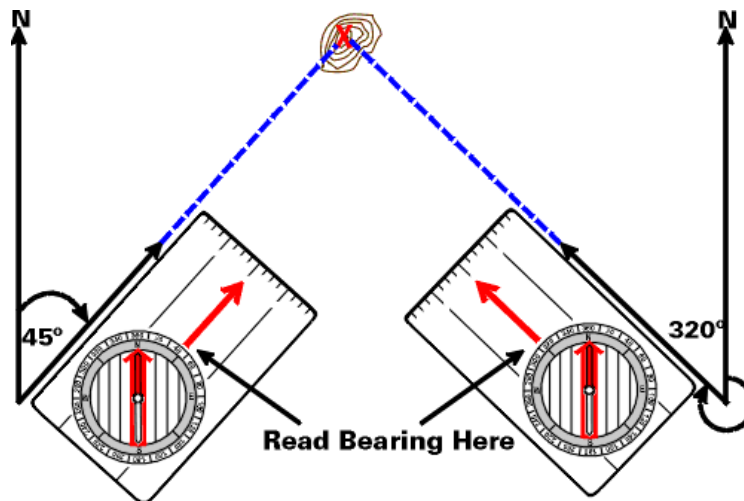
The compass consists of a magnetized metal needle that floats on a pivot point. The needle orients to the magnetic field lines of the earth. The basic orienteering compass is composed of the following parts: (See Figure 6.6)

- Base plate
- Straight edge and ruler
- Direction of travel arrow
- Compass housing with 360 degree markings
- North label
- Index line
- Orienting arrow
- Magnetic needle (north end is red)



Bearings:

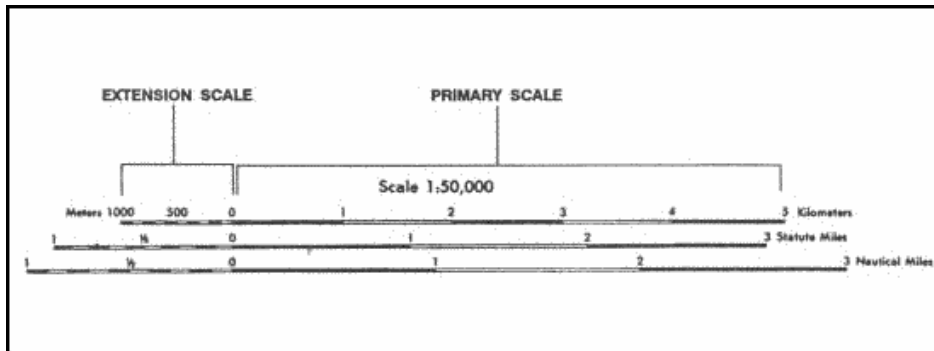
- The compass is used primarily to take bearings. A bearing is a horizontal angle measured clockwise from north (either magnetic north or true north) to some point (either a point on a map or a point in the real world). Bearings are used to accurately travel to a destination or to locate your position. If you are working from your map, it is called a map bearing and the angle you are measuring is the angle measured clockwise from true north on your map to this other point on the map. Remember that the bearing is measured clockwise. If you think of true north as 12 o'clock then a bearing to the right of that (1 o'clock) is greater than true north and a bearing to the left of True north (11 o'clock) is less than true north.



From
OA Guide to Map & Compass - Part 3
part of
The Backpacker's Field Manual
by Rick Curtis

Measure Distance on a Map

A graphic scale is a ruler printed on the map and is used to convert distances on the map to actual ground distances. The graphic scale is divided into two parts. To the right of the zero, the scale is marked in full units of measure and is called the primary scale. To the left of the zero, the scale is divided into tenths and is called the extension scale. Most maps have three or more graphic scales, each using a different unit of measure. When using the graphic scale, be sure to use the correct scale for the unit of measure desired.

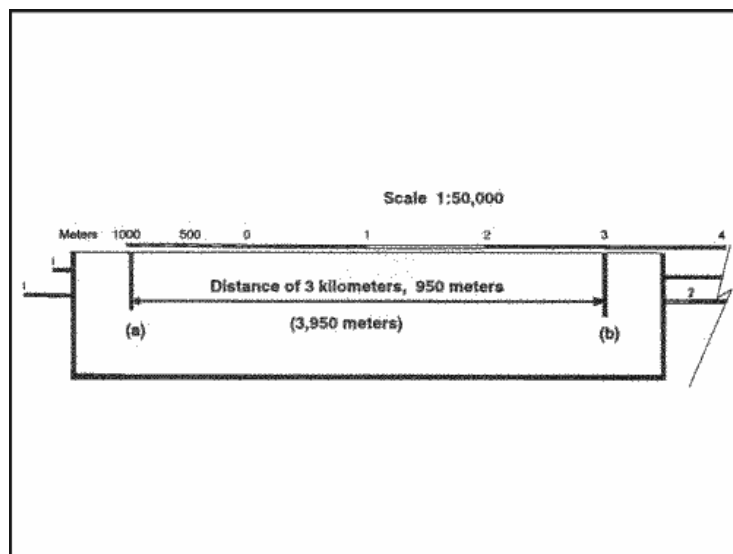


Using a graphic (bar) scale.

a. To determine straight-line distance between two points on a map, lay a straight-edged piece of paper on the map so that the edge of the paper touches both points and extends past them. Make a tick mark on the edge of the paper at each point.

Transferring map distance to paper strip.

b. To convert the map distance to ground distance, move the paper down to the graphic bar scale, and align the right tick mark (b) with a printed number in the primary scale so that the left tick mark (a) is in the extension scale.



Measuring straight-line map distance.

c. The right tick mark (b) is aligned with the 3,000-meter mark in the primary scale, thus the distance is at least 3,000 meters. To determine the distance between the two points to the nearest 10 meters, look at the extension scale. The extension scale is numbered with zero at the right and

increases to the left. When using the extension scale, always read right to left. From the zero left to the beginning of the first shaded area is 100 meters. From the beginning of the shaded square to the end of the shaded square is 100 to 200 meters. From the end of the first shaded square to the beginning of the second shaded square is 200 to 300 meters. Remember, the distance in the extension scale increases from right to left.

d. To determine the distance from the zero to tick mark (a), divide the distance inside the squares into tenths. As you break down the distance between the squares in the extension scale into tenths, you will see that tick mark (a) is aligned with the 950-meter mark. Adding the distance of 3,000 meters determined in the primary scale to the 950 meters you determined by using the extension scale, we find that the total distance between points (a) and (b) is 3,950 meters.

e. To measure distance along a road, stream, or other curved line, the straight edge of a piece of paper is used. In order to avoid confusion concerning the point to begin measuring from and the ending point, an eight-digit coordinate should be given for both the starting and ending points. Place a tick mark on the paper and map at the beginning point from which the curved line is to be measured. Align the edge of the paper along a straight portion and make a tick mark on both map and paper when the edge of the paper leaves the straight portion of the line being measured.

