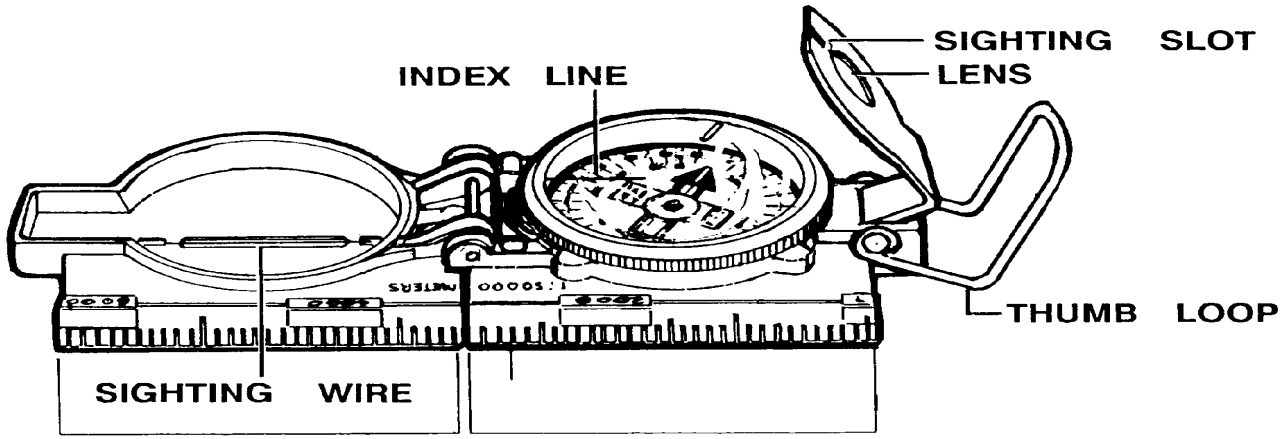
The Three Norths and How to Use a Compass

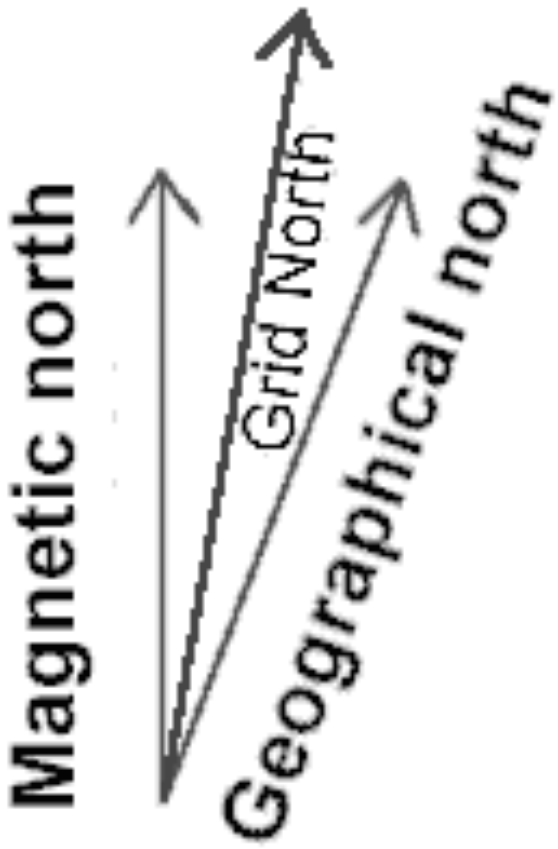
…without the benefit
of a topographic map



There are three types of North

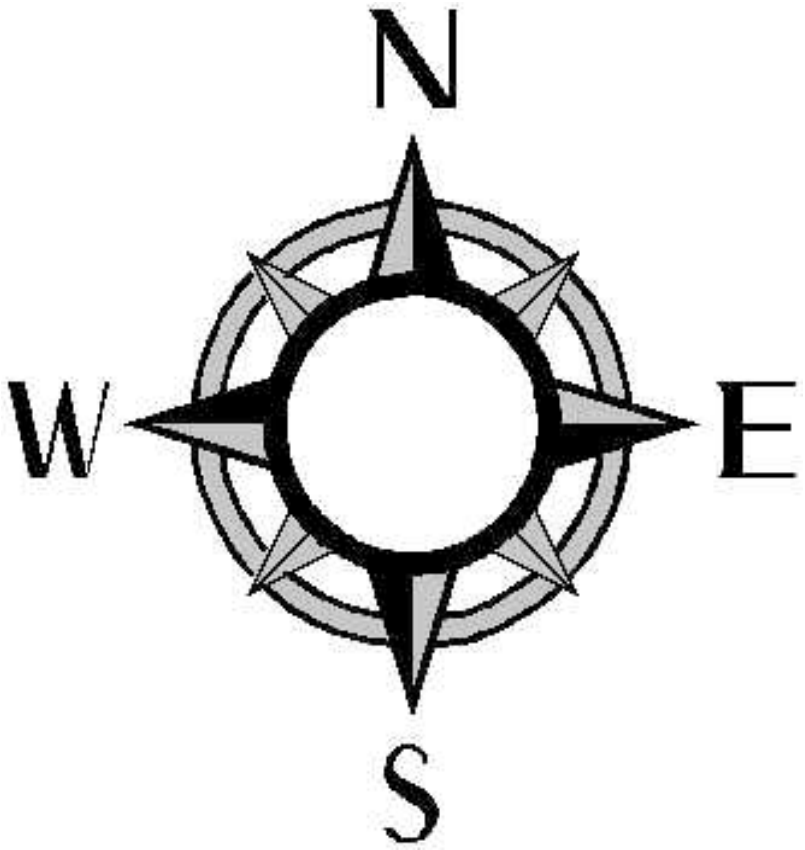
- **True** (sometimes called geographic) **north -** If you drew a line between where you are and the center of the North Pole, that would be true north
- **Magnetic north -** The earth acts like a big magnet and magnetic north is the north to which a compass needle points
- **Grid north -** the direction at the top (usually) of written maps

How do we use these norths?



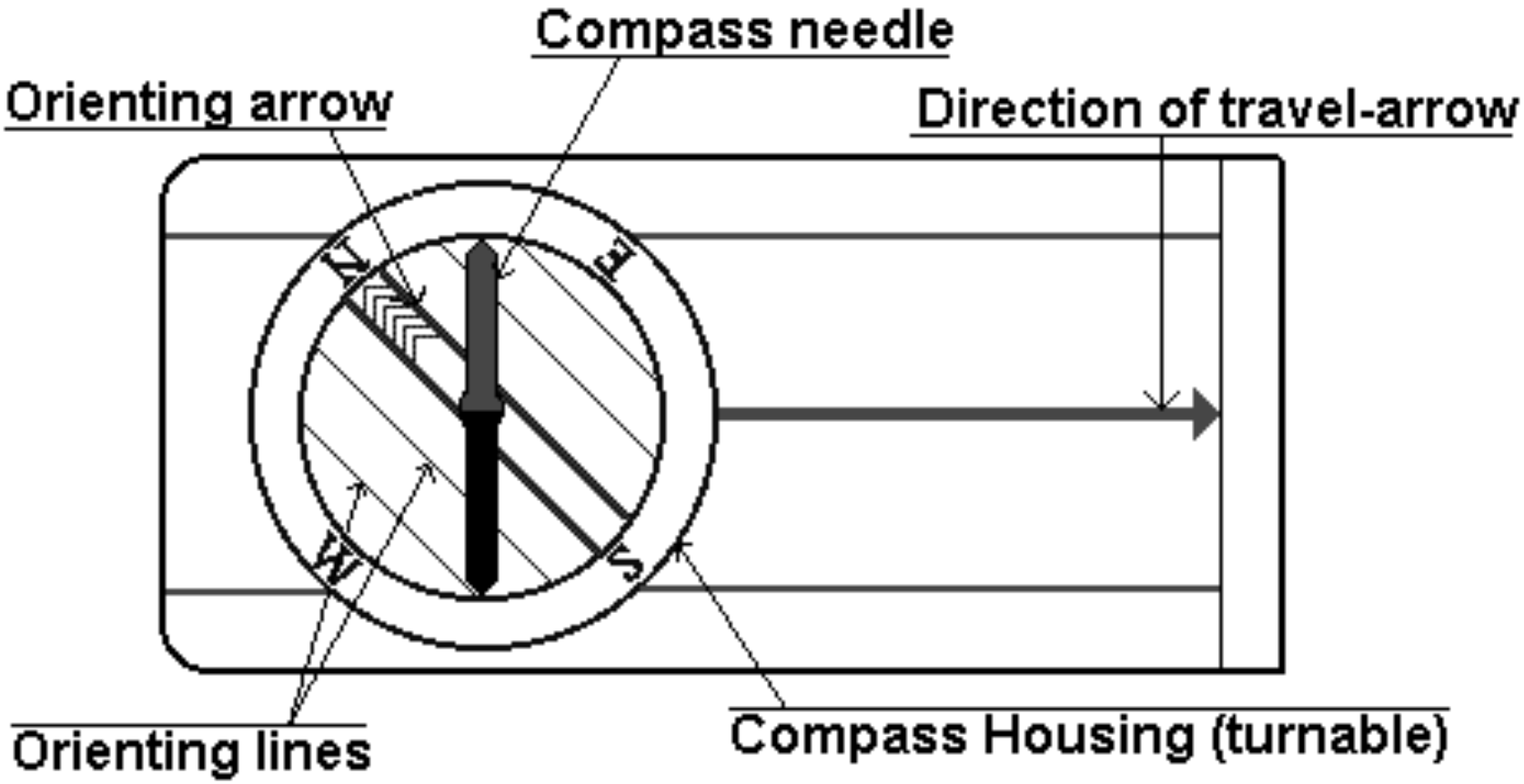
- We get magnetic north from compasses
- We get grid north on maps
- We use something called a declination diagram on a map to help us know where true or geographical north is
- We will learn more about declination in a later lesson

Directions on the Compass



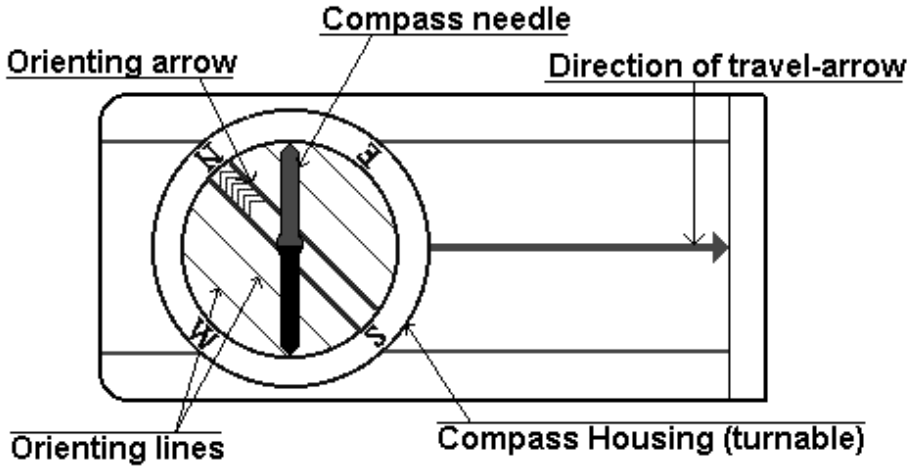
- There are **FOUR** cardinal directions: **North**, **South**, **East** and **West**.
- **North** is the most important**.**

THE COMPASS


Compass needle
Orienting arrow
Direction of travel-arrow
N
E
W
S
Orienting lines
Compass Housing (turnable)

Finding North

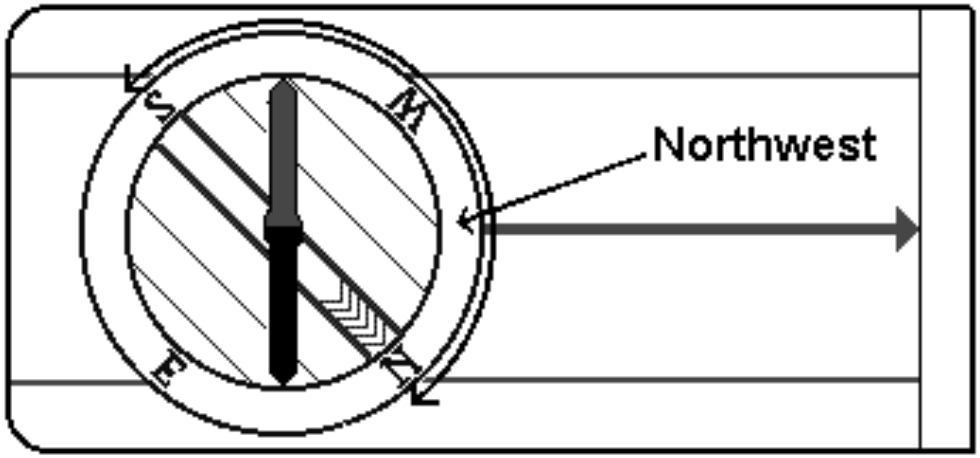
- You see the red and black arrow?
- We call it the *compass needle*.
- On some compasses it might be red and white
- But, **the red part of it is always pointing towards the earth's magnetic north pole.**

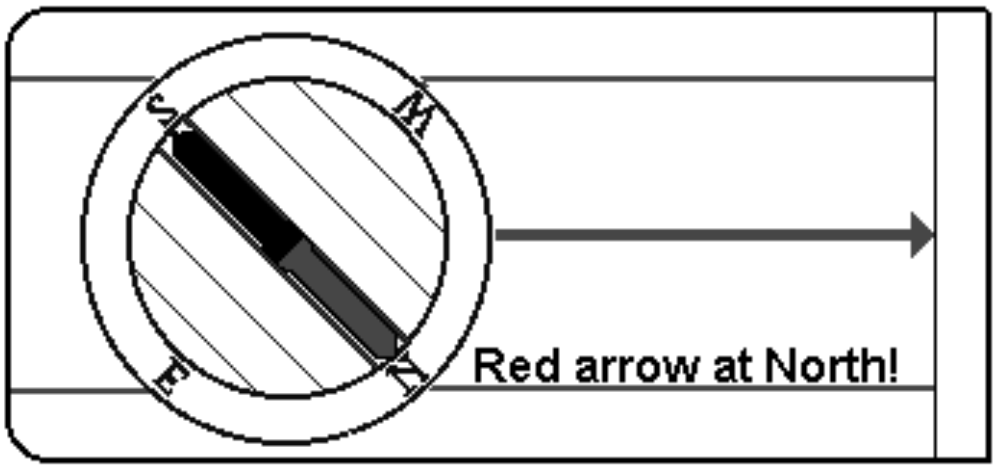


Finding other directions

- You've got a dial that turns on your compass. We call it the *Compass housing*.
- On the edge of the compass housing, you will probably have a scale from 0 to 360.
- Those are the degrees or the *azimuth* (or you may also call it the bearing in some contexts).
- And you should have the letters N, S, W and E for North, South, West and East.
- If you want to go in a direction between two of these, you would combine them. If you would like to go in a direction just between North and West, you simply say: *"I would like to go Northwest "*.

Let's use Northwest as an example:
Find out where on the compass housing northwest is.

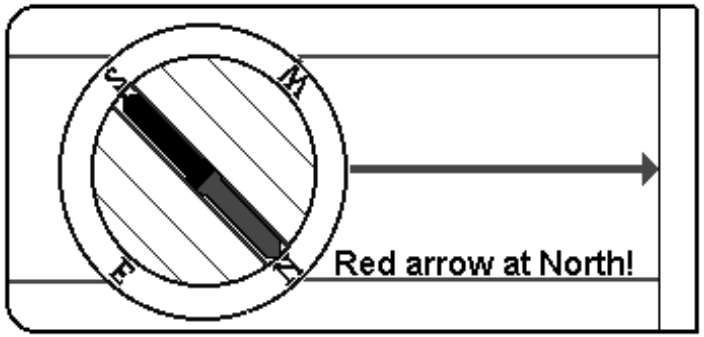




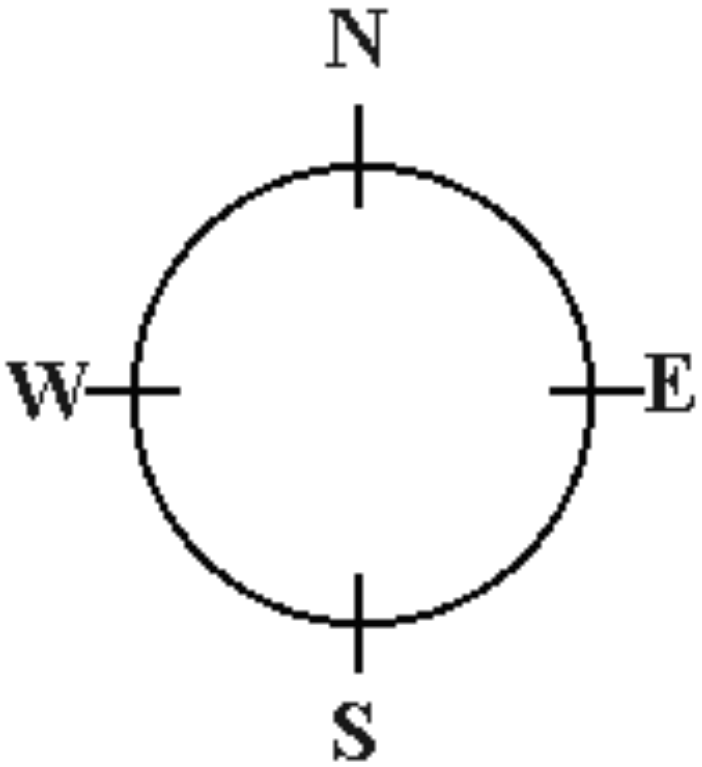
- Turn the compass housing so that northwest on the housing comes exactly there where the large *direction of travel-arrow* meets the housing.
- Hold the compass in your hand. And you'll have to hold it quite flat, so that the compass needle can turn.
- Then turn yourself, your hand, the entire compass, just make sure the compass housing doesn't turn, and turn it until the compass needle is aligned with the lines inside the compass housing.

Still working on finding northwest…

- Now, time to **be careful!**. It is *extremely* important that the red, north part of the compass needle points at north in the compass housing. If south points at north, you would walk off in the exact opposite direction of what you want! And it's a very common mistake among beginners. So always take a second look to make sure you did it right!
- A second problem might be local magnetic attractions. If you are carrying something of iron or something like that, it might disturb the arrow. Even a staple in your map might be a problem. Make sure there is nothing of the sort around.



Almost there!

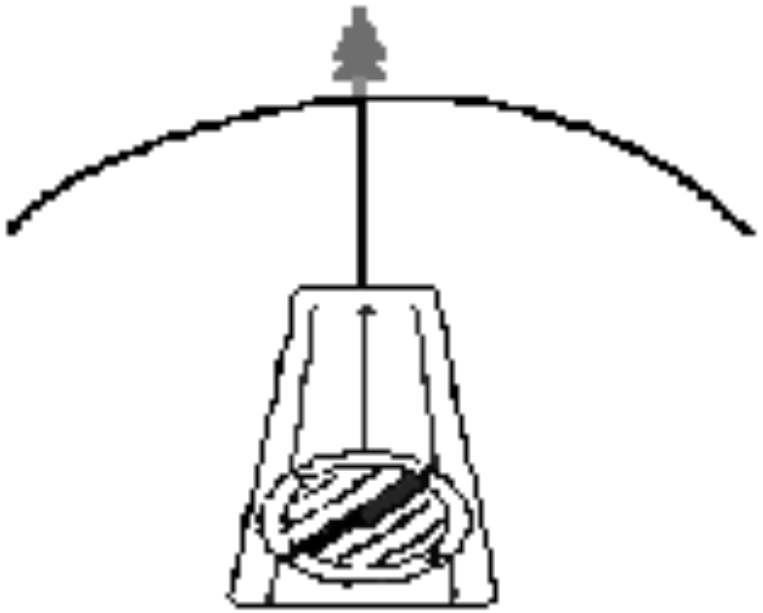


- When you are sure you've got it right, walk off in the direction the direction of travel-arrow is pointing. To avoid getting off the course, make sure to look at the compass every hundred steps or so.
- Once you have the direction, aim on some point in the distance, and go there without staring down at the compass.

When do you need this technique?

- If you are out there without a map, and you don't know exactly where you are, but you know from your experience in the area that there is a road, trail, stream, river or something long and big you can't miss if you go in the right direction…
- Then all you need to do is to turn the compass housing so that the direction you want to go in is where the direction of travel-arrow meets the housing. And follow the steps you were just shown.
- But why isn't this sufficient? First, it is not very accurate. You are going in the right direction, and you won't go around in circles, but you're very lucky if you hit a small spot this way.
- And, this requires you to have a mental image of the area you are in and what direction those landmarks might be in.
- That’s why using the compass with a map is much, much better.

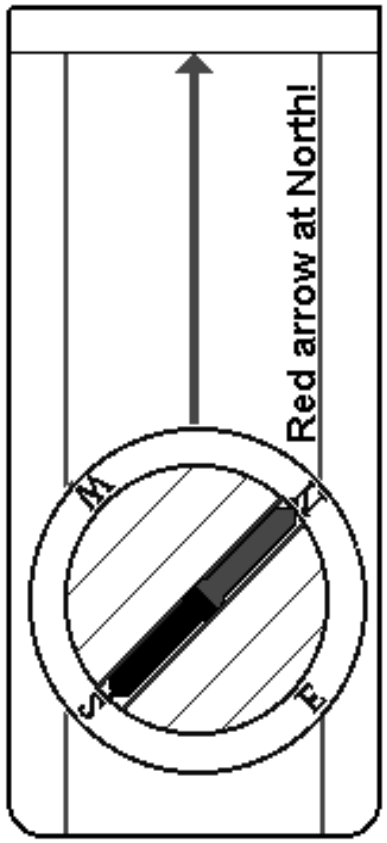
How to “shoot an azimuth” in 3 easy steps



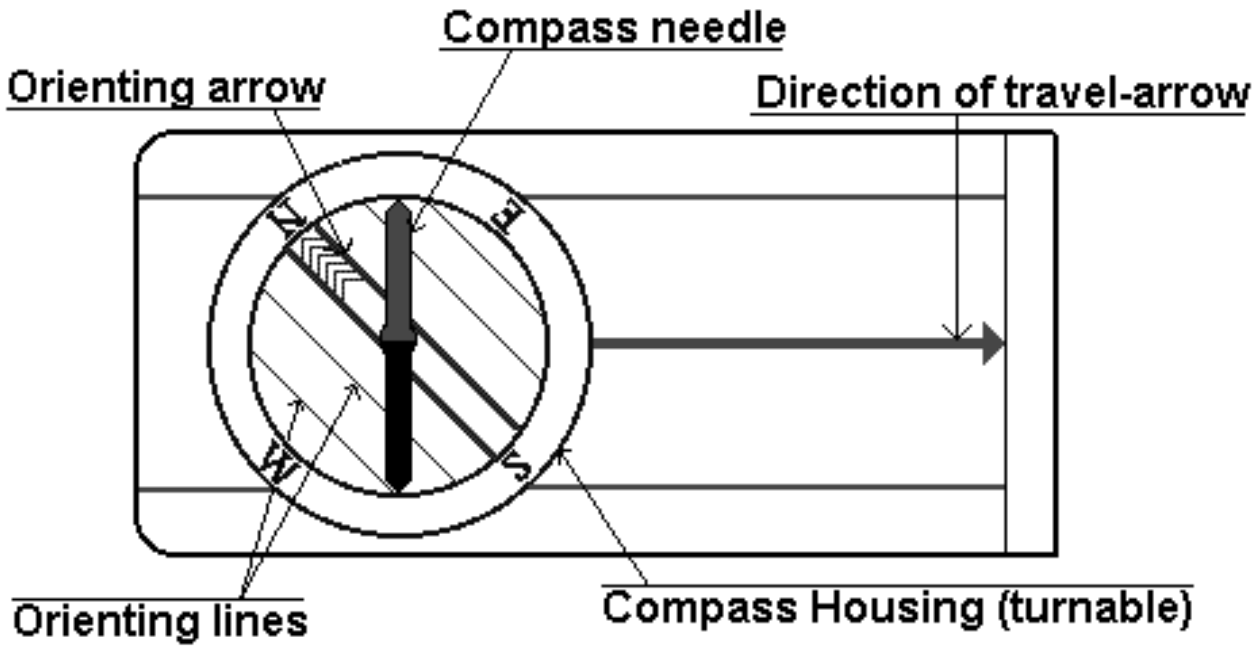
1. Turn the dial of the compass to the given azimuth
2. Keep the compass flat in front of you with the “Direction of Travel Arrow” pointing straight ahead.
3. Turn your body so the red (north pointing) needle of the compass lines up inside the red housing on the base of the compass.

Let's try some examples: Shoot an azimuth of 150º

1. First, turn the dial to 150.
2. Then be sure the compass is laying flat and the Direction of Travel Arrow is pointing straight ahead of you.
3. Then turn your body so the red magnetic arrow is lined up within the red arrow on the compass casing.



Try these with your instructor



- 10º
- 35º
- 125º
- 65º
- 320º
- 178º
- 143º
- 219º