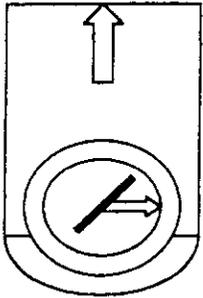


## LAB: ORIENTEERING

**PURPOSE:** Learn the proper way to use a magnetic compass. Use a compass to determine the directions of several objects from a given location.

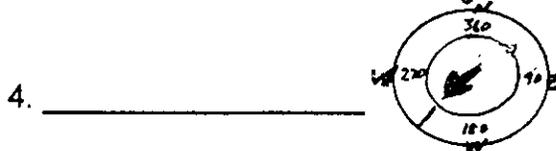
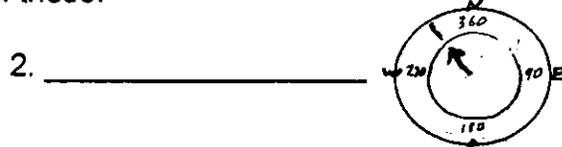
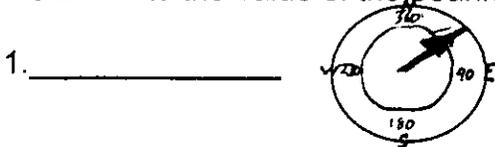
**BACKGROUND:** The magnetic compass uses a magnet and magnetic fields to orient a needle with Earth's natural magnetic field. Earth has a natural magnetic field established similar to the effect of a large bar magnet with South actually in the north and North actually in the south. Based upon the statement "opposites attract," the North side of the magnet lines up pointing toward the magnetic "north pole" (which is the same as the south end of a magnet).

**OPERATION:** To use the compass:



1. Line up the red arrow on the plastic bottom of the floating needle with the red end of the needle (floating in the center). You are now facing NORTH!
2. With two fingers tightly holding the compass "dial" in place still pointing NORTH, use your other hand to rotate the base of the compass so the long red needle pointing to the flat edge of the compass is pointing at the object you wish to find the *bearing* for.
3. Read the numbers where the white line on the dial is pointing. Be sure to read the closest direction heading. (N S E or W)
4. Repeat these steps for any objects you are taking a bearing on.

**PRACTICE:** Write the value of the bearing for each of these:



**USE:** Use the compass to write down the bearings for the following objects. Be sure to stand **ON THE LOCATION** as instructed by your instructor for each of these and remember to "orient" your compass (steps 1 & 2 from above) each time.

- |                |               |
|----------------|---------------|
| Object 1 _____ | Bearing _____ |
| Object 2 _____ | Bearing _____ |
| Object 3 _____ | Bearing _____ |
| Object 4 _____ | Bearing _____ |
| Object 5 _____ | Bearing _____ |
| Object 6 _____ | Bearing _____ |
| Object 7 _____ | Bearing _____ |
| Object 8 _____ | Bearing _____ |

**QUESTIONS:** Write out and answer the following:

1. Why do you think that it the North facing needle is no the same magnetic "north" as the North pole?
2. What is the difference between "true North" and "magnetic North?"