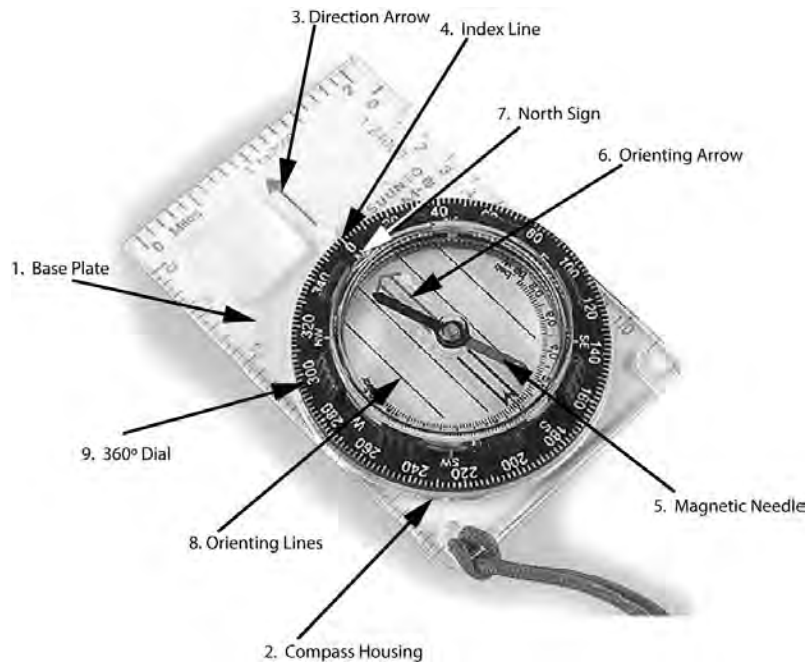




Compass Basics



Parts of a compass:

1. *Base plate* is the rectangular bottom of the compass. It is held flat at chest level and parallel to your body.
2. *Compass housing* is the turning dial on the compass. The numbers around the outside of the dial are degrees. There are 360 degrees or azimuths. They represent 360 directions that you can travel from any point. The four cardinal directions are north, south, east, and west and are stated as N, E, S, and W respectively.
3. *Direction arrow* is on the base plate and is used two ways. It points you in a direction to walk and locates an object.
4. *Index line* or indicator line is located on the housing below the turning dial and lines up with the direction arrow. The index line is used to set the compass for an azimuth or bearing.
5. *Magnetic needle* floats inside the compass housing. The arrow is magnetized so that the red end always orients itself toward the magnetic north pole.
6. The red *orienting arrow* lies under the needle inside the housing.
7. The *north sign* helps determine which way is magnetic north, as well as the other cardinal directions in relation to it.
8. *Orienting lines* help give a visual representation of north-south direction.
9. The *dial* helps determine how many degrees from north you are facing.

Overview

Become familiar with the use of a compass. Learn how to determine direction and locate objects.

Skills

Map Reading, Reasoning

Objective

- Identify parts of a compass
- Set and measure direction
- Determine direction of a given object along and established compass bearing
- Practice using a compass to develop the skills necessary for mapping.

Materials

Compasses

Coins/pennies or Golf tees

Background

A compass is a tool for determining directions by means of a magnetic needle pointing north. Determining direction is possible by measuring the angle between the object sighted or the desired direction and the magnetized needle. A compass needle always points to magnetic north, which is different than true north. Magnetic variation is the angle between true north and magnetic north. Maps typically use true north. Magnetic north is located in the upper Hudson Bay area and moves slightly from year to year.

Note: When using a compass, keep clear of metallic objects such as belt buckles. They could affect the accuracy of the compass.



How to use the compass

A. Dial direction:

1. Hold your compass chest high with the base plate parallel to your body and the direction arrow pointing away from your body.
2. To find north, rotate the compass housing until the letter N or 0° is aligned with the direction arrow on the base plate.
3. Turn your entire body until the red magnetic arrow matches the N on the dial. Some people will say, "Put Fred (the red magnetic arrow) into the (red) shed." You are now facing north.
4. To find east, rotate the compass housing until the letter E is aligned with the direction arrow.
5. Turn your entire body until the red magnetic arrow matches the N. on the dial. You are now facing east.
6. Follow the same procedures for finding south and west.
7. Next, try setting your compass for degree bearings such as 130° . Set the compass to 130° then match the red magnetic arrow to 0° or N. That bearing is now facing directly in front of you. Practice finding 40° , 220° , and 300° bearings.

B. Determining a compass bearing of an object:

1. Hold your compass chest high with the base plate parallel to your body.
2. Locate a distant object. Turn your entire body so that the direction arrow is pointing to the object being sighted.
3. Now turn the compass housing dial until the magnetic arrow matches the N on the dial ("put Fred into the shed"). Read your compass bearing (stated in degrees) where the travel arrow is intersecting with the compass housing.
4. Continue locating two or three more objects.

Getting to know your compass

A. Dialing directions:

1. Hold your compass chest high with the base plate parallel to your body.
2. Place a coin at your feet.
3. Set your compass to north. Walk 10 paces to the north.
4. Set your compass to east. Walk 10 paces to the east.
5. Set your compass to south. Walk 10 paces to the south.
6. Set your compass to west. Walk 10 paces to the west.
7. Now, pick up your coin. What shape did you make?

B. Using compass bearings:

1. Hold your compass chest high with the base plate parallel to your body.
2. Place a coin at your feet.
3. Set your compass to a bearing of 40° . Walk 10 paces at a bearing of 40° .
4. Set your compass to a bearing of 160° ($40^\circ + 120^\circ$). Walk 10 paces at a bearing of 160° .
5. Set your compass to a bearing of 280° ($160^\circ + 120^\circ$). Walk 10 paces at a bearing of 280° .
6. Now, pick up your coin. What shape did you make?