

Name: \_\_\_\_\_ Laboratory Section: \_\_\_\_\_  
Date: \_\_\_\_\_ Score/Grade: \_\_\_\_\_

Video  
Exercise 3  
Pre-Lab Video



<http://goo.gl/L5b275>

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Pre-Lab video



## LAB EXERCISE

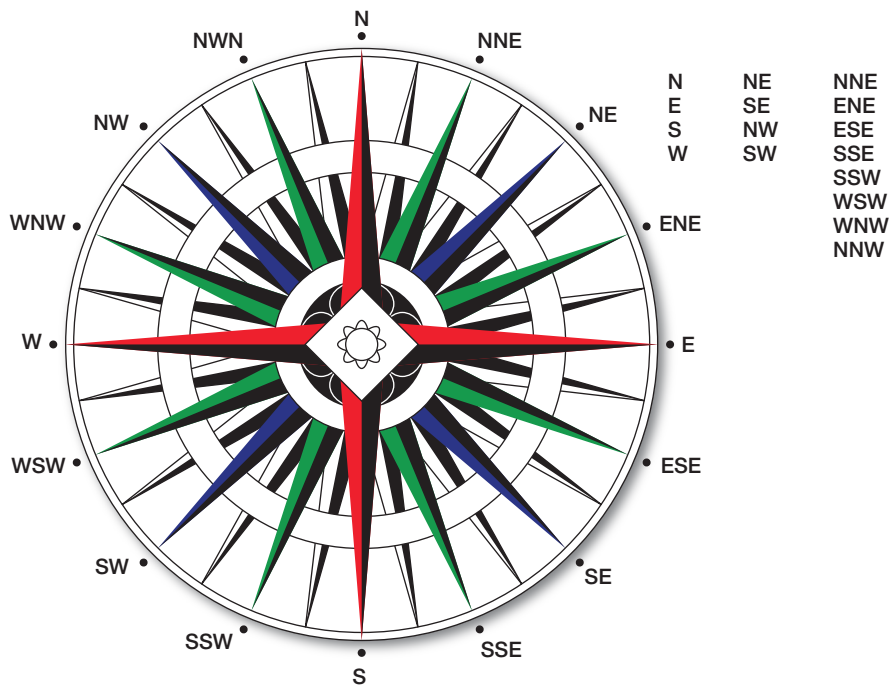
# Directions and Compass Readings

## Lab Exercise and Activities

### SECTION 1

#### Compass Points

1. Label 16 compass points on **Figure 3.1**, using color pencils on the compass rose to distinguish the categories of division. (Include a legend for your color scheme.) In each division, the points are listed clockwise.

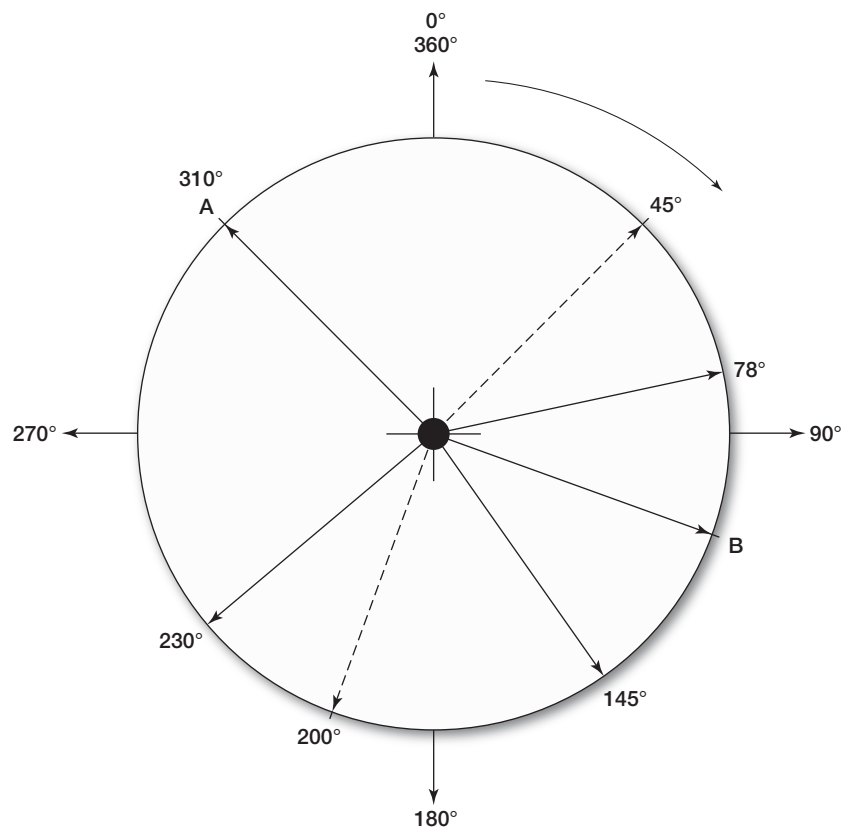


▲ **Figure 3.1** Compass points

## SECTION 2

### Azimuths

1. **Figure 3.2** has a few azimuths drawn and labeled as examples. Using your protractor, determine the azimuth readings for *A* and *B*, and label the value for each on the diagram.
2. Measure, draw, and label the following azimuths on the diagram: 230°, 78°, 145°.



▲ **Figure 3.2** Azimuths

3. Using Figure 3.1, Figure 3.2, and your protractor, answer the following questions.  
Which azimuth is found at the following compass points: NE 45° SW 225  
W 270 ESE 112.5 NNW 337.5  
Which compass point is found at the following azimuths: 135° SE 247.5° WSW  
180° S 315° NW 225° SW

## SECTION 3

### Compass Declination

- Using the isogonal map in Figure 3.3 and your atlas, in what city would you have to stand during 2020 to get a compass reading with zero magnetic declination (where magnetic north aligns with true north, or an agonic line). Mark the city with a dot and a label on the map.
- Using your atlas, turn to the pages featuring the polar regions and find the latitude/longitude coordinates for the:
  - Magnetic North Pole 86.3°N 160.1°W
  - Magnetic South Pole 64.3°S 136.6°E
- Use 111 km (69 mi) per degree of latitude to find the linear distance in kilometers and miles between the latitude of the:
  - Magnetic North Pole and true north 410.7 km, 256.7 mi
  - Magnetic South Pole and true south 2852.7 km, 1782.9 mi
- According to Figure 3.4, what is the magnetic declination between:
  - True north and magnetic north (MN)? 9.5°
  - True north and grid north (GN)? 1° 24'
- Look for the declination arrow in the margin of the topographic map provided by your instructor. What is the magnetic declination between true north and magnetic north on the topographic map provided by your instructor? What is the magnetic declination between true north and magnetic north shown for this location in Figure 3.3? Any discrepancies you find relate to the migrating magnetic pole and the dates of the topo map and the isogonal map (2020). (Keep this topo map handy for the next section.)

*Personal answer*

## SECTION 4

### Compass Bearing

*Using the local topographic map from the last section, complete the following. For questions 1-5 students' answers will vary depending upon the topographic map provided by the instructor.*