

Star Chart Lab

•Materials

Star Atlas Deluxe Edition

•Procedure

In this lab, you will explore the star charts of our night sky. You might want to skim the introduction at the front of the charts before you begin. In the front or back of the book you'll find a transparency which lays over the charts, giving you more detailed measurements. Star charts use a special type of coordinates, called the Equatorial system. If you are not familiar with this system, e.g. Right Ascension (RA) and Declination (Dec.), then take a minute to read Appendix A of this manual. Otherwise, answer the questions below.

•Questions

- 1)
 - a. What constellation is the star Alberio in?
 - b. What magnitude star is it?
 - c. What is its RA and Dec.?
 - d. How far is it (RA, Dec.) from Vega?
- 2)
 - a. How many stars in our night sky (seen in the Northern Hemisphere) have magnitude 0.0 or brighter?
 - b. What other name does Vega have, based on the naming scheme developed by Johann Bayer? The symbol α refers to the brightest star in a constellation, β the second brightest, and so on.
- 3)
 - a. What is special about the star Betelgeuse?
 - b. What constellation is it in?
 - c. What famous nebula is also in this constellation?
- 4)
 - a. What constellation is the Andromeda galaxy in?
 - b. How many arc minutes wide is it?
- 5) Name two named stars in the constellation Cassiopeia.
- 6)
 - a. About how many stars are in the Pleiades cluster?
 - b. Why do you think its nick name is "The Seven Sisters"?
 - c. Which constellation is the Pleiades cluster in?
- 7)
 - a. Which named star is ten arc minutes from the brightest star in the constellation Gemini?
 - b. Is the brightest "star" in Gemini actually just one star?
 - c. What type of object lies 38 arc minutes less in RA, 0.6° in Dec. south from the star Pollux?
 - d. What type of object lies about 20 arc minutes less in RA, 1.5° in Dec. north of Pollux?
- 8) When looking in the night sky from campus, you certainly see fewer stars than are on these maps. Many constellations are actually easier to find in conditions such as on campus.
 - a. Which stars do you think you can see in the constellation Lyra from campus?
 - b. What planetary nebula is in Lyra?
 - c. Describe how you would find the nebula in b. when looking at the night sky through a telescope.
- 9)
 - a. What do you notice in chart #13 that is interesting? Hint: look in the constellation Virgo.
 - b. What do you think is going on here? See chart B for the answer.
 - c. How many Messier objects are in this cluster?
- 10)
 - a. Name all of the main stars in the constellation Ursa Major.
 - b. With binoculars, you can see that the end star in the handle is a multiple star. How many arc minutes apart are the two brightest's centers?
- 11) Name four constellations closest to the north star.
- 12)
 - a. What magnitude is the star Kochab?
 - b. Is it the brightest star in its constellation? If not, which star is? How do you know?
- 13)
 - a. How many stars with magnitude four or brighter are visible within 30 arc minutes (RA), 10° (Dec.) south of the star Mirphak?

- b. Of these, which is brightest?
- c. What special characteristic does the star in b. have?
- d. Which constellation are all of these stars in?

14)

- a. What imaginary line runs near the star Capella?
- b. What does the blue on these charts represent?
- c. Capella is the brightest star in which constellation?
- d. Which star is the second brightest?

15)

- a. Name two of the brightest stars seen only from the southern hemisphere.
- b. Why can't we see them from Montana?
- c. Do you think people in Argentina can see the star Deneb?
- d. What about the star Sirius?
- e. Which constellation is the closest star, besides our sun, in? If you don't know the name of this star, ask your lab instructor or look it up online.