Physics 253. Stars and Galaxies

Exercise Celestial Sphere

1. **Draw a celestial sphere with all of the following labelled:**
   (a) **a horizon (orient it horizontally)**
   (b) **the North Celestial Pole (NCP) for a person at about 40^o latitude**
   (c) **the celestial equator (CE) (again for lat=40^o)**
   (d) **the SCP**
   (e) **a stick figure representing the person**
   (f) **a star with an arrow showing its motion in an hour.**
   (g) **the zenith (Z) and nadir (N)**
   (h) **the celestial meridian (CM)**
   (i) **the cardinal points (N,S,E,W)**
2. **Describe how the celestial coordinate systems work.**
   (a) **How many coordinates are needed to describe a star's position?**
   (b) **What are the names of these coordinates for the equatorial coordinate system? For the altazimuth coordinate system?**
   (c) **What are the units of these coordinates?**
   (d) **Draw another Cel. Sphere and label where each coordinate is zero. Show the CE, NCP, and the ecliptic.**