

Since stars exhibit an annual motion and a diurnal motion, the locations of stars are continuously changing. Planispheres (also called starwheels) can be adjusted for both the time of day and the time of year to make the task of locating objects easier. The inner disk marks the local standard time of a twenty-four hour day. By rotating the disk, local times can be aligned with the current date. The visible star patterns are then displayed within the oval window. When used for actual observation, the planisphere is held above the head and positioned with the north, south, east, and west directions as designated. The edge of the open oval window represents the observer's horizon and the geometrical center of the window denotes the observer's zenith or overhead position. The meridian is the line that runs from horizon to horizon, true north to true south, while passing through the zenith.

Set your starwheel for December 20 at 2:00 a.m. and answer the following questions.

1. What constellation is closest to the zenith?
2. What constellations are on the western horizon?
3. Are the stars from Question 2 rising or setting?

Now set your starwheel for August 2 at 8:00 p.m. and answer the same questions.

- 4.
- 5.
- 6.

Rotate the starwheel as necessary to answer these questions.

7. When (month and day) should I plan to observe Orion if I wish it to be nearest the zenith at 11 p.m.?
8. The center pin of the planisphere covers a well-known star. What is it?
9. Can I observe Sirius (in Canis Major) in March? In July?
10. Set up the planisphere for today at 11:00 p.m. standard time. Name several stars and constellations that will be on the meridian (north-south overhead line).
11. On what date will Arcturus be on the meridian at midnight? At 2:00 a.m.?
12. On what date will each of the following be found on the meridian at the times indicated?
  - a) Andromeda at 10:00 p.m.
  - b) Sirius (in Canis Major) at 10:00 p.m.