

Fundamentals of Stargazing – Month 2 Worksheet

Project #1: On a clear day, before the Sun goes down, get a feel for the quality of seeing and transparency of the sky. Is there any high haze? Jet contrails? If so, the air is likely humid and not terribly transparent. After the Sun goes down, see if the bright stars twinkle. More twinkling means the air is less steady. Does the amount of twinkling change during the evening?

Project #2: If you have not already done so, download the free application Stellarium at www.Stellarium.org. Once it is running on your computer, turn on the “Equatorial Grid” under “Sky and Viewing Options” in the Menu. This is the grid of Right Ascension and Declination as discussed in Science (p. 3-6). Notice how the lines of Right Ascension (in ‘hours’) converge at the celestial pole. Estimate the coordinates (RA and Declination) of a few bright stars.

Another good tool to evaluate sky transparency? The Beehive Cluster (M44) in Cancer. If you can see this cluster (assuming light pollution isn’t a big problem in your location), then the sky is fairly transparent.

Project #3: Find the following bright stars

- Castor and Pollux in Gemini (remember, Castor is closer to Capella)
- Regulus, Algol, and Denebola in Leo
- The “asses” in Cancer, Assellus Borealis and Assellus Australis
- Canopus (alpha Carinae) in the constellation Carina (visible south of 30°N latitude)
- Alphard in the constellation Hydra

Project #4: As in Month 1, trace out the path of the ecliptic from (west-to-east) Taurus, Gemini, Cancer, and Leo.

Project #5: As the Moon waxes through its phases, using your unaided eye or using binoculars, identify the major “seas”, from the “Sea of Crises” to the “Ocean of Storms”. If you’re up for it, memorize them!

Project #6: See as many deep-sky sights on this month’s tour as possible. If you have a telescope, try to resolve the components of the stars Castor and iota Cancri. These will give you a good idea of small angular sizes. The brightest components of Castor are spaced by 4” (arc-seconds). The components of iota Cancri are spaced by 30”. Jupiter appears about 45” in diameter.

Project #7: Find the middle star in the handle of the Big Dipper (northern hemisphere only). Can you resolve the two stars Mizar and Alcor with your unaided eye? They are spaced by 11’ (arc-minutes).

Project #8: Find the “False Cross” (southern hemisphere only). Identify each of the stars in the False Cross: kappa Velorum, delta Velorum, Avior, and Aspidiske.