

Fundamentals of Stargazing – Month 3 Worksheet

Project #1: To understand the ‘magnitude’ system for measuring the brightness of astronomical objects, find and compare the brightness of these pairs of objects: Arcturus and Alphecca (magnitudes +0.15 and +2.2); Castor and Pollux in Gemini (magnitudes +1.6 and +1.2); Regulus and Algieba in Leo (magnitudes 1.4 and 2.2).

Project #2: Find the Little Dipper (if you are in the northern hemisphere). See how many of the major stars of this asterism that you can find, and compare their magnitudes to the chart on page 5 of the northern sky tour. Their brightness ranges from magnitude 2.0 (Polaris) to 5.0 (eta Ursa Minoris).

For southern observers, locate the small constellation Circinus near the bright stars Rigil Kent and Hadar. The brightest stars of this constellation are magnitude 3.2, 4.1, and 5.0 and also make useful stars for comparing magnitudes and evaluating sky conditions.

Project #3: Find the following bright stars

- Find all the stars of the Big Dipper and if you’re up for it, memorize their names. You will hear their names often.
- Locate the faint constellations Coma Berenices and Canes Venatici near the Big Dipper
- Find the Southern Cross (Crux) and compare the colors of the stars, especially Acrux (blue-white) and Gacrux (orange-red). Find the star epsilon Crucis, the 5th-brightest star in the constellation. Compare the size and shape of Crux with the larger ‘False Cross’ further west, which you observed in last month’s sky tours
- Find the bright star Arcturus and trace out the kite-shape of the large constellation Bootes.

Project #4: As May progresses, find out which planets are visible in the night sky to the unaided eye. Usually one or more of Mercury, Venus, Mars, Jupiter, or Saturn can be seen at some time of night, depending on the year. You may need to use Stellarium to find out where they are and when they can be seen. Choose one or two of these planets and start tracking their motion each night and each week. Watch especially for the beginning of retrograde motion, when the planet moves westward each day relative to the nearby bright stars. Weeks later, the same planet will start to move eastward again from night to night (prograde motion).

Project #6: See as many deep-sky sights on this month’s tour as possible. The easiest (and best known) objects on this month’s tour are:

- Galaxies M81 and M82 near the bowl of the Big Dipper (visible in binoculars in dark sky)
- The Leo Triplet of Galaxies under the haunches of Leo, the Lion
- Cor Caroli (excellent double star) in Canes Venatici
- NGC 5139 (Omega Centauri), the brightest globular cluster in the night sky (south 25 degrees N latitude)
- NGC 5128 (a bright peculiar galaxy) in Centaurus (southern hemisphere)