

Fundamentals of Stargazing – Month 4 Worksheet

Project #1: Find one star of each major spectral type O, B, A, F, G, K, and M and try to see the difference in colors between these stars. To make it a little easier, here are some hints for stars of each type visible from the northern and southern hemispheres: O/B (Spica), A (Vega, the bright blue-white star rising in the northeast), F (Zavijava in Virgo), G (Capella), K (Arcturus), and M (Antares, the bright red-orange star rising in the east or southeast).

There are no O-type stars easily visible in the sky this time of year (northern spring) but many stars in Orion and of this type, including Mintaka in Orion's Belt. The star Spica is nearly massive enough to be an O-type star. So is Hadar, beta Centauri, which is visible in the southern hemisphere.

Project #2: Find stars of each of the main stages of evolution

- Main sequence (Hints: Spica, Vega)
- Giant (Hints: Arcturus, Pollux)
- Supergiant (Hints: Antares in Scorpius and Deneb in the constellation Cygnus)

Project #3: Trace the outlines of this month's constellations and find the main stars:

- Virgo (main stars Spica, Porrima, Vindemiatrix, and Zavijava)
- Corvus and Crater
- Hercules (identify the "Keystone" and find the two brightest stars Rasalgethi and Kornephoros)
- Libra (main stars Zubenelgenubi and Zubenelschmali)

Project #4: Find out when Saturn is visible during the year. The best time to see the planet is in the two or three months before and after opposition. While anyone can see the rings through a telescope and be impressed, you now have the knowledge to see more. In a telescope, when Saturn is near opposition, look for the following details in and around the disk of Saturn:

- The A, B, and C rings
- The Cassini division
- The orange disk of Titan, the largest moon
- The shadow cast by the disk of the planet on the rings
- The fainter moons of Saturn
- Bands on the disk of the planet
- If you have a really good telescope and superb seeing conditions, look for the elusive Encke division in the outer A ring

Project #5: As an amateur astronomer with increasing expertise, you will eventually run into friends, family, and acquaintances who will ask you about advice on buying a telescope. Review the pros and cons of each main

telescope design, and prepare yourself to offer an opinion to beginner stargazers when they ask you, “What telescope should I buy?”

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:

- M13
- M104, the Sombrero galaxy
- The double star Rasalgethi (Alpha Herculi)
- M87, an elliptical galaxy with more than a trillion stars