

Chapter 12

Introduction to the Night Sky (Evening Observation)

This lab will introduce to you the layout of the night sky, including the more prominent constellations, bright stars, their names, and the patterns they make. Most people have heard of the constellations of the Zodiac and asterisms such as the Big Dipper. During the semester, you will be exposed to a more comprehensive view of the sky and will be expected to learn at least fifteen (15) objects visible in the night sky. *i.e.*, this lab is a good practice for your Observational Exam, which you should be preparing for.

You will be using your planisphere this evening to locate visible objects in the sky. You should review the section of the afternoon lab on the Meade LX-10 for information on using the Planisphere.

12.1 General Advice for Viewing the Night Sky

1. Find a spot shielded from direct lighting with a clear view of the sky. The less moonlight, the better.
2. Give your eyes a few minutes to adjust to the darkness. Use a red flashlight to preserve your night vision.
3. Learn to find North. Look for the Big Dipper. The two stars at the tip of the dipper's 'spoon' point to Polaris. (Quick question: what is the Polaris's declination and altitude?)
4. Orient your map to the sky, and get an idea of the relative size of the constellations in the sky. The best way to use a planisphere is to find a known object, and then look for constellations adjacent to that one.
5. Let objects you know guide you to new ones. Orion is particularly good for this. For example, the stars in Orion's belt point up to the star Aldebaran and down to Sirius.

Other examples of this are shown by dashed lines on the planisphere.

12.2 Tonight's Procedure

Take your planisphere and a notebook to the roof. Grab a red flashlight on your way out. Start off by locating North. Once you've oriented yourself, try to make some observations. Use the planisphere to identify some constellations and stars. Your TA will tell you if any planets are visible. Make a list of what you see (be sure to label the objects appropriately). Treat this as a practice for your observational exam, so try to identify about 15 objects. Relax and enjoy! Hand in your list when you leave. There's no write-up for this lab, but you are expected to begin practicing on your own for the Observational Exam!!!

12.3 A List of Objects that are Generally Visible

Below is a list of objects that are generally visible throughout the semester. Don't forget that due to the motion of the Earth, some of these objects will not be visible the whole semester or necessarily during the times that you will be tested. Please study your planisphere to determine which objects you would like to learn. You may be tested at the end of lab, beginning next week. Beware of the weather in Williamsburg. Take time to study the sky when the weather is good.

Rules for Using the Observing Deck

No horseplay
No sitting on the rail
No climbing over the rail

Failure to observe these rules can result in automatic
failure and removal from the course!

Fall

Name	Major stars	Type
Orion, <i>The Hunter</i>	Betelgeuse, Rigel	Constellation
Taurus, <i>The Bull</i>	Aldeberan	Sign of the Zodiac
Auriga, <i>The Charioteer</i>	Capella, The Kids	Constellation
Perseus, <i>Warrior</i>		Constellation
Cassiopeia, <i>The Queen</i>		Constellation
Gemini, <i>The Twins</i>	Castor, Pollux	Sign of the Zodiac
Aries, <i>The Ram</i>		Constellation
The Pleiades, <i>Seven Sisters</i>		Star Cluster
Andromeda, <i>The Princess</i>		Constellation
Pegasus, <i>The Winged Horse</i>		Constellation
Pisces, <i>The Fish</i>		Sign of the Zodiac
Lacerta, <i>The Lizard</i>		Constellation
Cepheus, <i>The King</i>		Constellation
Draco, <i>The Dragon</i>		Constellation
Ursa Major, <i>Great Bear</i>		Constellation
Big Dipper	Part of Ursa Major	Asterism
Ursa Minor, <i>Little Bear</i>	<i>i.e.</i> , Little Dipper	Constellation
North Star	Polaris	Star
Cygnus, <i>The Swan</i>	Deneb	Constellation
Lyra	Vega	Constellation

Spring

Name	Major stars	Type
Orion, <i>The Hunter</i>	Betelgeuse, Rigel	Constellation
Taurus, <i>The Bull</i>	Aldebaran	Sign of the Zodiac
Canis Minor, <i>Little Dog</i>	Procyon	Constellation
Canis Major, <i>Big Dog</i>	Sirius	Constellation
Gemini, <i>The Twins</i>	Castor, Pollux	Sign of the Zodiac
Auriga, <i>The Charioteer</i>	Capella, The Kids	Constellation
Perseus, <i>Warrior</i>		Constellation
Leo, <i>The Lion</i>	Regulus, Sickle	Sign of the Zodiac
Cassiopeia, <i>The Queen</i>		Constellation
Cepheus, <i>The King</i>		Constellation
Ursa Major, <i>Great Bear</i>		Constellation
Big Dipper	Part of Ursa Major	Asterism
Ursa Minor, <i>Little Bear</i>	<i>i.e.</i> , Little Dipper	Constellation
The Pleiades, <i>Seven Sisters</i>	Star Cluster	
North Star	Polaris	Star
Bootes	Arcturus	Constellation
Corona Borealis, <i>Crown</i>		Constellation
Cancer	Beehive	Sign of the Zodiac
Hydra, <i>The Sea Serpent</i>		Constellation
Corvus, <i>The Crow</i>		Constellation
Virgo, <i>The Virgin</i>	Spica	Sign of the Zodiac
Hercules	Keystone of Hercules	Constellation
The Winter Hexagon	Capella, Castor, Pollux Procyon, Sirius, Rigel, Aldebaran	Asterism

Post-Observation Summary

This lab is supposed to be relaxing and fun. You won't be expected to memorize constellations for the *final* exam. However, this lab gives you the opportunity to begin practicing for the *observational* exam. It also lets us see how the sky moves overhead at night. There's usually a planet or two to be seen, too. If you walk away from this with nothing else, at least you'll be able to show your Mom that you can use a planisphere.

After completing this lab, you should be able to:

- Find North.
- Use a planisphere to identify celestial objects.
- Recognize how the coordinates help us to find stuff).
- Start to identify major constellations and objects without the use of a planisphere (to prepare for the observational exam).

