Understanding the Phases of the Moon
Due Friday, June 29th

**Importance Notice:** This is about as easy as observational astronomy gets. And yes, there are websites galore that help you determine the phase of the Moon and its elevation angle above the horizon and its azimuth. But the point of this project is to **GO OUTSIDE AND LOOK AT THE ACTUAL MOON**. Why is this written in bold capital letters? Because 13 percent of people who turned in this project in the Spring of 2015 made up some or all of their Moon “sightings”. Guess what? There are ways of discovering if you made up a lot of your data. So do a good job, and make it honest!

If you’re not an observational astronomer, you probably take the Moon for granted most of the time. Sometimes there is a pretty crescent Moon to seen right after sunset, or while coming home from some evening event you seen a nearly full Moon high in the sky.

Given that there are so many sunny days in College Station, there are also many nights when we can see the Moon and stars. Over the course of the month keep track of when you see the Moon, what phase it has, and where it can be found in the sky. On any given occasion this might take 3 minutes of your time.

1. First, you must know the cardinal directions (north, south, east, west).

2. Second, get a feeling for how high above the horizon is 15 degrees, 30 degrees (one third of the way from the horizon to the zenith), 45 degrees (halfway to the zenith), 60 degrees, etc.

3. June 9th is the day of full Moon. This month we have a good chance to see the Moon in all of its phases. But if you’re going to see it on June 20th, you’ll have to get up at 5 AM to see the waning crescent Moon.
To do and turn in:

A. Let’s see if we can find the Moon on twelve (12) dates during the five weeks we have class. At least 1 of these sightings should be during the daytime. If you get to 9 or 10, but not 12, just hand in what you’ve got. Do not make up observations.

B. Note the Moon’s phase (new crescent, first quarter, waxing gibbous, full, waning gibbous, third quarter, waning crescent). *Make a drawing of the shape of the Moon, or take a cell phone photo, properly exposed.*

C. Write down the month, day, year, and approximate time of day for each sighting of the Moon.

D. Note how high the Moon is above the horizon, and which direction (W, SW, S, SE, E, NE, N, or NW) it is in. (If you see the Moon in the north part of the sky, somehow or other you happen to be in the southern hemisphere.)

E. Make a note of anything else interesting in the sky, such as bright stars or planets you can identify. For example, Saturn is visible in the evening sky after sunset, to the left of the star Spica. Also, note any meteors, satellites, flying saucers, and other interesting objects.

F. Turn in a summary of your observations, containing date, time, Moon phase, Moon direction in the sky, and other noteworthy observations. (“Moon not in sky,” or “Too cloudy to observe” is not an observation.) Your summary should also contain some prose at the end. What should the prose say? What did you glean from seeing the Moon time after time after time? Is it just randomly up there day or night, east, south, or west, or did you see the pattern we talked about in class?

G. If the weather is typical, it should be possible to see the Moon on 10 occasions. Do not make up data! Honest scientists and Aggies do not do this.

H. This will be graded on a 30 point scale. Your prose at the end is worth 5 points. What should this prose discuss? The purpose of these observations. Is there any pattern to the phases? If so, what is it? Is it just as easy to understand the phases by considering drawings on the board? Or is it easier just to go out and look at the Moon?