

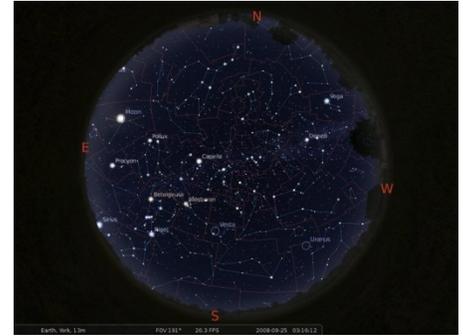
Student Worksheet for Ep. 5: Astronomy Star Gazing

Overview: We're going to learn how to go star gazing using planetarium software, and how to customize to your location in the world so you know what you're looking at when you look up into the sky tonight!

What to Learn: Telescopes and binoculars are pretty useless unless you know where to point them. I am going to show you some standard constellations and how to find them in the night sky, so you'll never be lost again in the ocean of stars overhead.

Materials:

- Planetarium software (Stellarium is free at this link: <http://www.stellarium.org/>)
- OR use a star wheel (http://www.skyandtelescope.com/letsgo/familyfun/Make_a_Star_Wheel.html)



Lab Time:

You're about to locate several different celestial objects by first finding them in your planetarium software (or after assembling your star wheel).

1. If you haven't already, customize your planetarium software to your location by entering in your location and elevation.
2. Now adjust the time so that it's set to the time you'd like to star gaze tonight. What time will you star gaze tonight? Write it here... Time: _____
3. For folks in the Northern Hemisphere, find the Big Dipper (or the Plough). For Southern Hemisphere folks, find the Southern Cross (or the Crux, but it really looks like a big kite). These are one of the most recognizable patterns, and easy for beginners to find.
4. For Northerners, use the Big Dipper to locate Polaris, the North Star. The two stars at the edge of the dipper point straight to the North Star.
5. For Southerners, use the Southern Cross to find the south pole of the sky (sometimes called the "south pole pit" since there's no star there at the exact pole point of the southern sky). The longer bar in the cross points almost exactly toward the South Pole.
6. Using the Search option, find the planets that will be visible tonight by typing in their name into the search window. Which ones will be visible for you tonight?

Planet Name:

Where is it in the sky? (Where should you look?)

7. In Stellarium, click the “Search” icon, then the “Lists” tab, and select “Constellations”. Select two different constellations you’d like to find tonight that are visible to you, and record information about them here:

Constellation Name:

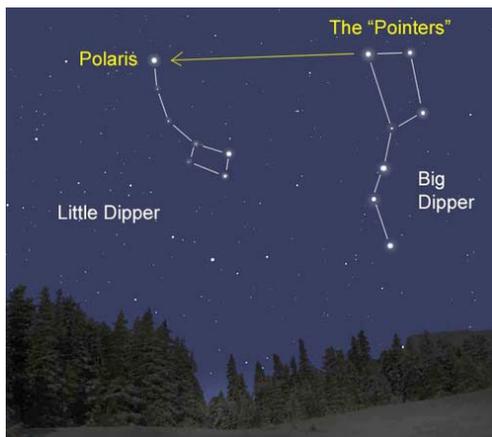
Pointer Stars/Location Indicators (How will you find it?):

8. When you’re ready, flip over to the observing data table, grab a flashlight, pencil, and then go outside to log your observations, just like a real scientist!

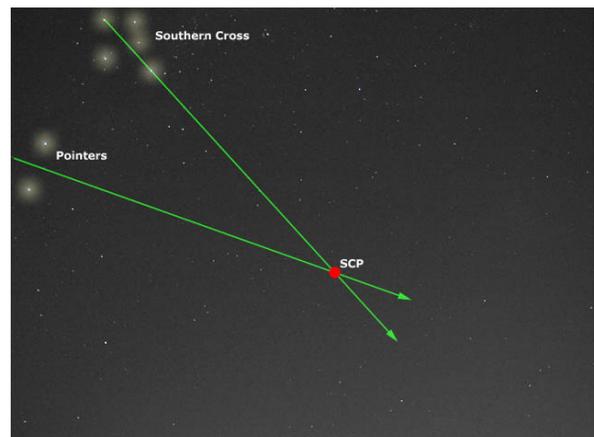
Observing Tip: Try to observe when the moon is less than first quarter phase or more than three quarters (meaning that the moon is less than 50% illuminated). You don’t need any fancy viewing equipment, only your log sheet, and if you can do it, bring your planetarium software program with you outside to help you locate the objects. Start small, and find a couple of things on the first night. If you don’t figure it out the first time, try again the next night. I learned the northern sky by learning one new constellation every time I went star gazing, and pretty soon I had a lot of them that I could identify easily.

Note: This isn’t something that’s going to work by osmosis. You will have to go outside, figure out where to look, and find the object. Figure out what you’re looking for, and about where you can expect to find it, and practice and test yourself over and over until you can successfully find it every time. If you’re getting frustrated, it’s time to stop and have a sip of hot cocoa before you try again. This is supposed to be a fun treasure hunt, so make it enjoyable!

How to Find the North Star (Polaris)



How to Find the South Pole



Astronomy Star Gazing Observational Log

Observing Date: _____ Lat/Long: _____ Site Elev: _____

Observing Location/Site: _____ Moon Phase: _____

Weather conditions: _____ Dimmest Star Visible Overhead: _____

Notes: _____

Time: (UTC or Local Time)	Sketch of Object Observed:	Object Name or Classification:	Notes: