

Astro Activity 1 : What's up in the sky tonight?

The goal of this activity is to "see" what your naked eyes can't see by using the augmented reality provided by your smart phone and an astronomy app. This should also help you get oriented to directions on Earth.

Before going outside, you might want to check out NASA's "What's up in the Sky" website:

https://solarsystem.nasa.gov/whats-up-skywatching-tips-from-nasa/#daily_guide_opt (Links to an external site.)

Materials:

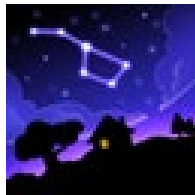
1. Your smart phone (iPhone or Android - does not matter)
2. An astronomy app

Go to the App Store and download any **free** sky watching app you can find. I like GoSkyWatch for the iPhone, but any one will do. You should download one that allows you to point your phone in any direction, and the phone will show you what is in the sky. You can even point it "down" to see what is currently visible in the Southern Hemisphere.



You can read about GoSkyWatch for the Apple platforms here: <https://gosoftworks.com/apps/> (Links to an external site.)

Other apps for the iPhone are SkyView (\$1.99) or SkyView Lite (free), and Star Gazer (free).



For Android devices, you can download SkyView for \$1.99 or SkyView Lite for free. Other Android apps are Sky Safari, Star Walk 2, Star Chart, and Sky Map. These all have cheap (\$1.99 or \$2.99) as well as free versions.

Just search for any of these in the App Store on your smart phone.

Instructions:

For a more rewarding experience, plan ahead with your friends to go to a dark location, away from city lights, on a clear dark night. The smaller the moon (or even if it's not up), the better.

After installing the App, work your way through the following questions. You do not need to find all the objects indicated to get full credit. Be sure to take notes. You won't remember everything later for the lab write-up. Spend at least an hour working your way through the questions and locate as many of the objects as possible. Some objects may not be up in the sky at this time of year due to seasonal changes. Explore and enjoy yourself.

1. Write down the date and time that you are doing your observations.
2. Is the Moon visible? What phase is it in? Note where it is in the sky.
3. Point your phone towards the EAST. There is a built in GPS system and compass, so the app should tell you where you are pointing. What objects are rising in the East at the time of your observing?
4. Is the Milky Way visible in your app? Is it visible in the sky from where you are observing? Describe what it looks like. (If you are near a lot of street lights, or if there is a lot of fog, it won't be visible in the sky, but your astronomy app will tell you where it is.)
5. Locate the ECLIPTIC in the sky. You can find it by looking for where the planets are lining up in your app, and pointing your phone in that direction. Can you find any planets visible in the sky? What planets is your app telling you are there, even if you can't find them in the sky?
6. You should have an icon that looks like a magnifying lens in your app. If you touch that icon, it should give you a list of symbols that represent deep sky objects. When you select one, you will get a picture and description. Click on "Go to" and the app will act like a telescope and slew to your chosen object.

Try to find these objects and describe what they look like (not all objects may be up):

- a. The Pleiades Open Cluster
- b. M2, M3, M13, M14 Globular Clusters
- c. the Eagle Nebula, the Lagoon Nebula
- d. the Andromeda Galaxy
- e. the constellations Scorpius and Sagittarius (in the direction of the center of the galaxy)
- f. any planets that are visible

Look for as many objects as you wish! Then come back inside and type your answers in the text entry space provided. Remember, it's ok if you didn't find some of these objects, but try.

For full credit, copy and paste the question, with your answer following below, and always put a space between answering the different questions. If you can't answer a question, explain why.

Have fun!