**Observing the Night Sky**

**Purpose:** To observe and learn properties of different celestial objects, such as galaxies, stars, planets appearing in the tonight’s sky using online simulation.

**Items:** [Stellarium](https://stellarium-web.org/)

1. Open Stellarium and get familiar with the basic functions of the online simulation, such as how to move to different part of sky, how to zoom in and zoom out, and how to change time. Record the date of today.
2. Select one planet in our solar system that is visible tonight and record its properties. You can click on the object to get the information.

Name:

Magnitude:

Radius:

Ra:

Dec:

1. Select one star that is visible tonight and record its properties. Please also include the description of the star below the name

Name:

Description:

Magnitude:

Spectral type:

Ra:

Dec:

1. Select one galaxy that is visible tonight and record its properties. Please also include the description of the galaxy below the name. You may need to zoom in and look for the objects with blue circle.

Name:

Description:

Magnitude:

Ra:

Dec:

1. Magnitude represents the apparent brightness of the celestial objects. It is a ranking system, so the smaller the value, the brighter the object appear to us. Rank the planet in 3), the star in 4) and galaxy in 5) from highest to lowest apparent brightness.
2. Can you explain why the galaxy which contains millions of stars is typically appear dimmer than the planet in our solar system.
3. Other than planets, stars and galaxies, what else in the sky can you see tonight? Record the name of the object. You may need to zoom in to see more.
4. Make the simulation to show constellations and constellations art. Record three constellations that are visible tonight.
5. Click the time window to fast forward time tonight from dusk to dawn. Describe the motion of stars and constellations.
6. What do you think is the reason that makes stars and constellations appear to move across the night sky?
7. There is a very special star, Polaris. Because it always appears in the direction of north, sometime it is called the North Star. Early sailors use it to navigate for centuries. Locate star Polaris. You can move the direct to north (N) and look for constellation Ursa Minor (the Little Dipper). Polaris is the brightest star at the tip of the little bear’s tail. Click the time window to fast forward time tonight from dusk to dawn. What is the differences between the motion of Polaris and rest of the stars in the view?
8. Fun time! Please feel free to use Stellarium to explore anything that interest you and share your findings.