Extra Credit Assignment

Please type your responses into a word document, and submit that on UNM Learn. Show your work for all questions. You can take scans/pictures of your work if you put them in the word document, but don't submit them as images. Be sure to number your responses 1, 2(a), etc. so I know which question you're answering. If you get stuck, post a question on the forums. Chances are you're not the only one!

You have a few choices for this extra credit assignment, but you may only complete the assignment ***once***; you can't get more credit by doing multiple prompts, so choose your favorite one! This extra credit assignment is an individual activity. Choose one of the below recent advancements in Astronomy and write about a page detailing your understanding! Some prompts include introductory sources—these are just a starting point to get you in the right direction.
Prompts:

1. You may recall the recent image of light around a black hole attributed in part to Katie Bouman! First, watch this video of Katie explaining the significance of the work before it was a success: https://www.youtube.com/watch?v=BIvezCVcsYs. Then, watch this video, https://www.youtube.com/watch?v=nUGgPFhc-dk where she explains what was accomplished. In your own words, describe why this blurry picture is so important to Astronomy as you would to a child who has the attention span of a one-page essay.

2. On May 20, 2019, the world community made a historic change to the way we measure everything, in the redefinition of SI units. Begin by viewing this video: https://www.youtube.com/watch?v=MUJX1Yyx6TI for an introduction. Then, visit https://www.nist.gov/si-redefinition. In your essay, describe the significance of the May 2019 redefinition of SI units. Then, choose one of the units given in the previous link and elaborate specifically on how the unit used to be measured, and how it was redefined. You can also check out https://en.wikipedia.org/wiki/2019_redefinition_of_the_SI_base_units or the following videos; https://www.youtube.com/watch?v=Apo5L0vRjDA (kilogram), https://www.youtube.com/watch?v=CeJiH0tcyHk (kelvin), https://www.youtube.com/watch?v=keaDpllV49M (mole), or https://www.youtube.com/watch?v=thfSSEvBDVY (ampere)—I don't recommend working on the ampere unless you know what you're doing, since we haven't covered that in this class.

3. The 2019 Nobel prize in Physics was awarded to three people; James Peeble, for his work which refined the understanding of the very early universe, and Michel Mayor and Didier Queloz, who discovered an exoplanet using the doppler effect on the emitted light of a star, which wobbles very very slightly if there is a massive exoplanet orbiting it. Have a look at this article which outlines their work: https://www.quantamagazine.org/nobel-prize-in-physics-to-james-peebles-michel-mayor-and-didier-queloz-20191008/. Describe both works briefly, then choose your favorite and describe it in detail—what exactly was done? Use the terms you learned in this class!

4. You may recall that the constellations have many different interpretations—different civilizations interpreted the star patterns differently. Choose a civilization's interpretation of the constellations, and elaborate on the major constellations. What constellation does it correpond to in our system? What is their folklore regarding this constellation? Include pictures of the constellations.