

Missed class from October 17, 2018

Dr. Rodriguez reviewed some housekeeping items as it relates to completing the required assignments. We are to submit them via the drop box. Submitting the required items should be earlier rather than later. In preparation for the last live session, we are to submit two powerpoint slides to the drop box. The slides will accompany our very short presentation regarding what activity we completed with our students making sure to include pictures and a reflection on the activity. Tracy inquired about her unit plan which is occurring over a long-time span. She was advised to submit a portion of it as Dr. Rodriguez emphasized that it is the reflection of the lesson that is the key.

The discussion transitioned from the housekeeping items to the topics. The next slide showed a picture of the lights at night over Europe, western Asia, and northern Africa. The key point is what information can we extract from the visible patterns. This can be transposed to what patterns are discernable in the stars in the night sky. Slide four had a diagram showing the differences between a reflecting and refracting telescope. Slides five and six showed pictures of Jupiter taken by Juno. Juno was able to take images of the poles of Jupiter as well as views from the side. These images are from only a small portion of the electromagnetic spectrum. As these same images are viewed using infrared we are able to see hot and cold spots that exist on the planet.

In order to obtain images such as these, the mirrors that capture them must be finely calibrated and essentially flawless. He discussed the other telescopes such as Chandra which provided information regarding black holes. One of the flaws to the Hubble telescope is the limited field of view it offers. Although the images from this view are spectacular it still is a small portion of our universe. A photograph of the James Webb telescope was on slide 16 which shows the scale of it. This telescope is considerably larger than the others. It had to undergo extraneous testing to ensure that it could withstand the launch and the trip to its final location.

Slide 17 demonstrated a good visual on how telescopes “see” back in time. This is able to be accomplished by measuring how much the light wavelength changes as it travels through space. Joel inquired about the possibility of having a satellite travel faster than the speed of light, go past the time of the big bang, then take a picture of the moment prior. This led to the discussion of lightning and thunder on how the lightning flashes but it takes time for the thunder to catch up to it. On slide 18 the image of the pillars from the Hubble telescope was shown and it was discussed how the dust blocks the stars that are behind it. The James Webb telescope will be able to see through the dust. He shared an animation of how TESS scans the sky for exoplanets. This permits scientists to gather a large amount of information. Slide 23 demonstrated how a composite image is generated from images taken from several telescopes looking at light of different wavelengths. Slide 25 indicated the future of being able to map the universe by looking at items such as dark matter and dark energy. For the last few slides, activities and information from other websites was shared as to develop classroom activities and lessons.

The class is currently on week 9 and beginning week 10. We were reminded to submit our slides for presentation by 11/3 and presentations will be on 11/7.

**Infrared light was discovered by William Herschel, as he did the experiment that referred to in the discussion.

