	ne(s):
Date	e: Course/Section:
Gra	de:
	Introduction to Telescopes
<u>Obj</u>	ectives:
	dents will study telescope optics and assemble a simple telescope. Students will also now to set up and properly align a tripod-mounted telescope for nighttime viewing
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Che	cklist:  Complete the pre-lab quiz with your team (if required). Compile a list of resources you expect to use in the lab. Work with your team to complete the lab exercises and activities. Record your results and mark which resources you used. Share and discuss your results with the rest of the class.
Che	cklist:  Complete the pre-lab quiz with your team (if required).  Compile a list of resources you expect to use in the lab.  Work with your team to complete the lab exercises and activities.  Record your results and mark which resources you used.

## Pre-Lab Quiz

later in this lab exercise.

1.			
2.			
3.			
4.			

Record your group's answers to each question, along with your reasoning. These concepts will be relevant

## Part 1: The Galileoscope

1. What are some of the differences between refracting and reflecting telescopes? (Drawing a diagram may be helpful.)

2.	Is the Galileoscope a refracting or reflecting telescope? What kinds of celestial objects would you be
	able to see with it? What kinds of objects would not be ideal for observing with the Galileoscope?
3.	Why does the objective lens of the Galileoscope consist of two separate lenses fused together? You
	may need to research this answer.
4.	Find and explain your method for determining the focal length of the objective lens in meters. You will
	need this answer for later.
	Focal Length:

5.	Describe the view using the Galilean eyepiece. You should think about the magnification and the field
	of view. How do you think this would have affected Galileo's observations?
6.	Describe the view using the modern lens and compare the magnification and field of view to the
	Galilean eyepiece. Do you notice anything else that is different with the modern lens?
	damean eyepiece. Do you notice anything else that is affected with the modern lens.
7.	Compare the view using the Barlow lens to that of the other two lenses. Explain the differences in field
	of view size, magnification, and any other parameter you may have noticed.

8.	The telescope with the Galilean eyepiece has a magnification of 17. Based on your observations, who	at
	is the magnification of the telescope with the Modern eyepiece? What about the Barlow eyepiece?	
9.	Using the observed magnifications, calculate the focal length of the Galilean, Modern, and Barlow	
	eyepieces.	
	Eyepiece Focal length in m	
	Galilean	
	Gamean	
	Modern	
	Barlow	
10.	. Compare your observed magnifications with the real magnifications as given by the TA. How accurat	.e
	were you?	

## Part 2: Exploring the Sky at Different Wavelengths 1. Look at the plane of our galaxy at each wavelength. Describe how it changes and make educated guesses as to why it is changing or what is causing the changes. 2. In what constellation is the center of our galaxy located? 3. Locate the center of our galaxy and explore how it looks in different wavelengths. Draw a diagram of the central region of the Milky Way and label any interesting features you find as you change wavelengths.

4. Research and briefly describe what Fermi Bubbles are. Using the Star Walk app, at what wavelengths do you observe the Fermi Bubbles?
5. Research what telescope(s), either ground based or in space, you would use to make observations at each
wavelength. Be sure to list telescopes that are currently or soon to be in operation. You may also find multiple telescopes that observe similar regimes. List as many as you can find.