**Telescope Webquest**

SAVE your worksheet and email it to me as an attachment. Put all group members names in the Subject area (email: arhuckab@episd.org )

**Go to the web page:** [**http://sites.google.com/site/telescopeswebquest/home**](http://sites.google.com/site/telescopeswebquest/home)

**\*\*Click and read the Introduction and purpose. Then start with the background to answer your questions.**

**Click on the “Task” button:**

1. Click on the first link. This will take you to the Institute and Museum of the History of Science. In the interactive part of the page, you will see a circle. Drag the circle around the screen. Information will pop up on the bottom of the image

A. List observations? (*Give 3 out of the 6 things*)

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2. Next click on the history button, and then “From the workshop to the stars”. This will take you to a video window that you will find the answers to the following questions; you will only watch the video for two minutes.

A. Who made this telescope? What year? During his life, he continued to improve his telescopes. What magnifications did he make? (*List 3*)

B. What did his telescope allow him to calculate about the moon?

3. Go back to the WebQuest page: <http://amazingspace.org/resources/explorations/groundup/lesson/basics/g6/> ) to answer the following questions.

a. What is better, a bigger or a smaller convex mirror? Why?

b. Paste the image of a convex mirror vs. concave mirror (*to do this, click on the “Convex” link*).

c. What type of lens does the human eye have?

d. Why can telescopes allow us to see so much?

**Process:**

1. Go back to the WebQuest page : <https://sites.google.com/site/telescopeswebquest/process> Here you will find all of the information to answer the questions in this section.

**Refracting Telescopes:**

1. What causes light to refract? What are two conditions that will cause refraction **not** to occur?

2. There are two main types of lenses. What are they, and what does the light do when it goes through them?

Draw them (*found in the focal length link*).

3. What is meant by a focal point? Focal length?

4. Go to the optics bench on the interactive lens link. Add a beam and a lens. What happens when you move the lens closer or farther away?

5. Now grab the dot on either side of the lens and change the focal point. Now what happens to the light?

What can you say about the thickness of the lens and the focal point (*the link to the left of the lens makes the lens larger*)?

6. Now add another lens. Refracting telescopes have 2 lenses (objective and eyepiece). Which combination of

lenses do you think would be used: 2 Concave, 2 Convex, or 1 Concave 1 Convex? Why?

7. Try out the combinations above in your optics bench.

**Reflecting Telescopes:**

1. Which type of mirror can produce a real image? Why?

2. In what shape is the objective mirror? Why does it need to be that shape?

3. Is there more than one mirror in a reflecting telescope? Why?

4. Watch the first half of the video on the WebQuest. What can you say about the path of light in this type of telescope? (If you cannot access this video, skip this step)

5. Use the optics lab bench.

* Add a mirror and an object. (you won’t be able to simulate a reflecting mirror, but you can see how the light is affected by the curvature of the mirror)
* Change the position of the object and see what happens to the image of the object. Change the mirror to convex and repeat.

State some observations: