Constructing Telescopes Web Simulation

Name: _____

Class: _____

- Go to the website www.learnalberta.ca and open up the web simulations called Refracting Telescopes and Reflecting Telescopes. Search for this under:

Science ⟶ Grade 9 ⟶ Telescopes

1. REFRACTING TELESCOPES

- Go to slide #8 by clicking on the 8th little box in the top right hand corner of the screen.

Slide #8

a Look at the picture of the telescope. How do you know that this is a refracting telescope?

Slide #9

b. In your own words, describe what is meant by the magnification or power of a telescope.

Slide #10

Slide #11

c. What is the manipulated variable in this part of the simulation? What is the responding variable?

Slide #12

d. Based on the results of the simulation, what happens to the magnification of the telescope as the focal length of the eyepiece lens is increased?

Slide 13

e. What is the manipulated variable in this part of the experiment? What is the responding variable?

f Based on the results of the simulation, what happens to the magnification of the telescope as the focal length of the objective lens is increased?

Slide 14

g In your own words, describe what is meant by the resolving power of the telescope?

Slide 15

h As you increase the size of the objective lens, is more or less light allowed to enter the telescope? (**Hint**: think about the brightness of the image)

Slide 16

i What is the manipulated variable in this part of the simulation? What is the responding variable?

j As you increase the diameter of the objective lens, does the value for the resolving power increase or decrease?

k As you increase the diameter of the objective lens, does amount of detail that can be seen by the telescope increase or decrease?

2. REFLECTING TELESCOPES

- Go to slide #6 by clicking on the 6th little box in the top right hand corner of the screen.

Slide #6

a Look at the picture of the telescope. How do you know that this is a re-fracting telescope?

Slide #7

Slide #8

b Based on the reading, what determines the focal length for this type of telescope?

Slide #9

Slide #10

c What is the manipulated variable in this part of the simulation? What is the responding variable?

Slide #11

d As the focal length of the eyepiece decreases, does the magnification increase or decrease?

Slide #12

e What is the manipulated variable in this part of the simulation? What is the responding variable?

f As the focal length of the eyepiece decreases, does the magnification increase or decrease?

Slide #13

g What is the manipulated variable in this part of the simulation? What is the responding variable?

h Use the slider to change the diameter of the primary mirror. As you increase the diameter of the primary mirror, does the amount of detail that can be seen by the telescope increase or decrease?

i As you increase the diameter of the primary mirror lens, does the value for the resolving power increase or decrease?