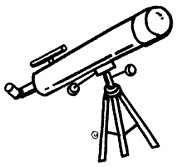
Name _____ Date _____
Mrs. Krieger

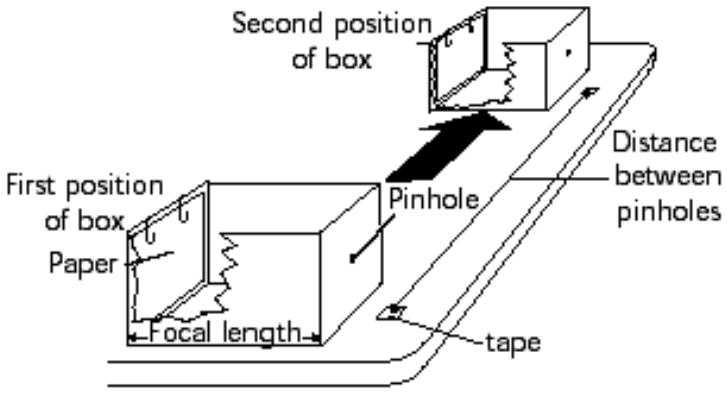
Parallax

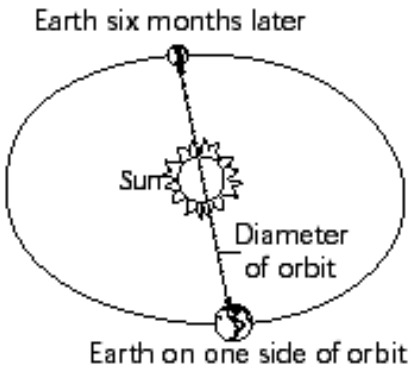


Introduction:
Astronomers use parallax to measure distances to nearby stars. Parallax is the apparent change in position of an object when you look at it from different places. To measure parallax, astronomers look at a star when Earth is on one side of the sun. Then they look at the same star again six months later, when Earth is on the other side of the sun. They then measure how much the star appears to move against the background of stars that are much further away. In the following lab, you will observe as your teacher sets up a model of a telescope and uses it to estimate distances.

Procedure:

1. Observe as Mrs. Krieger moves the model telescope to represent the positions of a person from Earth.





2. Record measurements in the data table for each of the stars.

Data Table:

Star	Parallax Shift (mm)	Focal Length (mm)	Diameter of Orbit (mm)	Calculated Distance to Star (mm)	Calculated Distance to Star (m)	Actual Distance to Star (m)
1						
2						
3						

Questions:

1. What happened to the dot of light for each star when the model telescope was moved from one side of Earth's orbit to the other? _____
   _____

2. What caused the apparent change in position of the dots of light for each star? Explain. _____
   _____
   _____

3. Use the following formula to calculate the distance from the telescope to each of the three stars.

   Distance = (Diameter X Focal Length) ÷ Parallax Shift

4. Divide each result by 1000 to get the distance to the light bulb in meters.

5. Is the parallax shift greater or smaller the farther away the star is? Relate each star's parallax shift to its distance from Earth. _____
   _____
   _____

6. Use a meter stick to measure the actual distance from the box to the light bulb. How did your calculation for Star 3 compare with the actual distance? What could you do to improve your results? _____
   _____
   _____