5BL Lab 7 Assignment

[Names], [Date], [Lab Section], [Bench #]

When finished adding your responses on each slide, save this as a PDF file and upload it to your Gradescope assignment.

1. *(Activity 1)* Sketch & describe your experimental setup and what you measured and why. State how your focal lengths (f_1 and f_2) are related to the image (i) and object (o) distances. Label f, i and o in your sketch.

     Measured value for f_1:_____   Measured value for f_2:_____

     Compare your measured vs. labeled diopters d_1 and d_2. Show your calculations for converting f to d.

2. *(Activities 1 & 2)* Describe your results for the focal lengths, and the parameters that went into obtaining those results. Compare your experimental values with the quoted diopters of the lenses, and give the percentage error.

Diopter (1/m)	Object Distance (m)	Image Distance (m)	Calculated Focal Length (m)	Theoretical Focal Length (1/diopter)	Percent Error
+20					
+7/+8					

Discuss possible sources of error.

3. *(Activities 3 & 4)* Describe the experimental setup for exploring corrections to vision, and to include water in the eye. What did you measure, and why?

Will a fluid filled eye need to have a stronger or weaker lens to have the same focusing power as an air-filled eye?

4. *(Activities 3 & 4)* Show your results for both the vision problem and water-in eye questions. What kinds of lenses do farsighted and nearsighted people have?

Compare your water-in-eye results to your prediction. Discuss why light won't focus on the retina underwater without goggles. Explain whether someone normally farsighted or nearsighted could see better underwater without goggles?