Name: _____ Group: _____ Date: _____

LAB 65
EXPERIMENT

ADJUSTING THE EYE TO LIGHT

STUDENT BOOK | Chapter 7, page 213

Goal

Determine if the time of accommodation to light varies according to the distance between the source of the light and the eye. The time of accommodation to light is defined as the time the iris takes to regulate the amount of light penetrating the eye.

1. What is the independent variable in this lab?

_____

_____

2. What is the dependent variable in this lab?

_____

_____

Hypothesis

I think that _____

because _____.

Materials

- flashlight
- 1-m ruler *or* tape measure
- stopwatch (accurate to 0.10 sec)

Procedure

1. Assign a task to each team member:
- Test subject: person who stands upright.
- Experimenter 1: person who holds the flashlight.
- Experimenter 2: person who records the time.

2. Experimenter 1 holds the flashlight 30 cm away at the eye level of the test subject. Keep the flashlight as steady as possible.

3. Experimenter 2 observes the pupils of the test subject and holds the stopwatch.

4. At an agreed-to signal, turn on the flashlight and start the stopwatch. These actions need to be performed simultaneously.

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5. Stop the stopwatch when the diameter of the pupils of the test subject has stabilized. This can occur very quickly.
6. Record the result.
7. Repeat steps 2 to 6 with the flashlight held at a distance of 1 m, then 3 m.
8. Repeat steps 2 to 6 with each team member assigned a different task.
9. Put away materials.

Results

Record your results in the table below. Give the table a title.

Title:

Distance between flashlight and eye (m)	**Accommodation time of pupil**		
	Test subject 1	Test subject 2	Test subject 3
0.3			
1.0			
3.0			

Analysis of the results

1. How does the accommodation time of the pupil vary as the distance between the flashlight and the eye increases?

_____

_____

2. Explain this variation.

_____

_____

_____

_____

3. Is the accommodation time for everyone equal at the same distance? Explain your answer.

_____

_____

_____

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4. What are the possible sources of error in this lab?

5. How could you improve the protocol for this lab?

Conclusion

1. Complete the following sentence:

Accommodation time _____ when the distance between the source of light and the eye decreases.

2. Was your hypothesis confirmed or not? Explain your answer.

Application

Why is the glare of headlights blinding at night but not during the day?

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