Name: _____ Date: _____ Class: _____

Presenting the Optical Biosensor—Poster Requirements

Part of your assessment for this unit is to, as a group, create a poster presenting your solution for quickly and accurately detecting cancer-causing genes. Your poster must be no smaller than half of a standard poster board, and must include the following items:

- ❑ **A definition of refraction, and a drawing that illustrates the concept of refraction.**
- ❑ **Three changes one could make to a porous thin film, and how each of these changes affects the refraction that happens in the film (that is, how the colors we see will change based on differences in these factors). Illustrate each of the three factors.**
- ❑ **An explanation of how the data we collect from a thin film biosensor will change based on the presence of cancer-causing genes, including an illustration.**
- ❑ **A specific, mathematical example using Snell's law, which proves how refraction changes based on the presence of cancer-causing genes.**

This project is worth 80 points total. The rubric on the back of this sheet provides the criteria for how each aspect of the poster will be graded.

Name: _____ Date: _____ Class: _____

Presenting the Optical Biosensor—Poster Rubric

Category	20 points	15 points	10 points	5 points	PTS
Explanation of Refraction	Refraction is clearly defined and illustrated, and includes three factors that affect refraction in a thin film. The implications of each factor are clearly explained.	Refraction is clearly defined and illustrated, and includes three factors that affect refraction in a thin film, and some explanation of each factor is provided.	Refraction is defined and illustrated, and three factors that affect refraction in a thin film are listed, but no explanation of these factors is provided.	Refraction is not clearly defined, or definition is incorrect. Implications of refraction in a thin film may be listed, but are incomplete or incorrect.	
Data Changes in a Biosensor	Shift in reflectance wave pattern or color change is clearly explained. The causes of this change are outlined in detail, including what the changes indicate.	Shift in reflectance wave pattern or color change is clearly explained, and the causes of this change are listed, including what the changes indicate.	Shift in reflectance pattern or color change is explained, and the causes of this change are listed, without explaining what the changes indicate.	Shift in reflectance pattern or color change is not explained or is unclear, and the causes of this change are incomplete or incorrect.	
Specific Example of Refraction in a Biosensor	Example includes specific numbers, and indicates the physical causes that change each number. A correct mathematical solution/proof of how this affects the biosensor is provided using appropriate equation(s).	Example includes specific numbers and indicates the physical causes that change each number. A mathematical solution/proof using appropriate equations is provided, with minimal errors.	Example includes numbers, and indicates the physical causes that change each number. A mathematical solution is provided, but is not correct, or equation(s) are inappropriate.	Example is provided, but does not include specific numbers. Physical causes that change the numbers are not included, or are incorrect. A mathematical solution is not present, or does not apply.	
Illustrations	A neat, colored, labeled illustration is provided for each of the following: general refraction, the three changes in a thin film that affect refraction, and an example of a wave reflectance pattern.	A neat, labeled illustration is provided for each of the following: general refraction, the three changes in a thin film that affect refraction, and an example of a wave reflectance pattern.	An accurate and correctly labeled illustration is provided for each of the topics, but drawings are messy, and/or not in color.	Some illustrations are included, but are not correctly labeled, and are messy and/or inaccurate. Illustrations may not pertain to the listed topics.	
				Total points (80 points maximum)	
Notes & Comments					