Shedding Light on the Subject

NAME _____

Have you ever noticed how the amount of light differs the further you are underwater? Consider the environment of the dolphins pictured below and how the light intensity changes from near the surface to the bottom of the ocean.

Based on the picture above, answer the following questions.

1. How does the light change as the depth increases? Sketch a possible graph of the (*depth*, *light intensity*) relationship that you described.

2. What accounts for the change in the light intensity?

3. Suppose you are 10 feet underwater, what environmental factors determine the light intensity at 10 feet? If you descend to 15 feet, what determines the light intensity at 15 feet? At 20 feet? Which of these factors remained constant and which changed?

4. If $I(d)$ is the light intensity at depth d, what does the quantity $I(11) - I(10)$ represent?

5. How would the quantity $I(12) - I(11)$ compare to $I(11) - I(10)$? What accounts for the difference?