Name _____ **Period** _____

AP Biology **Date** _____

QUESTION: DYING TO SEE

Scientific American, October 2004

1. Why is absolute transparency rare in the animal world? Why is it absolutely necessary for the lens of the eye? And, by the way, what is “refractive index”?

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2. How do the cells in the lens achieve this necessary clarity?

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3. Why are lens cells particularly vulnerable to stresses such as dehydration? Explain how this may result in the formation of cataracts. And after you have read to the end of the article, be sure you come back and explain how babies could be born with cataracts.

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4. Why do the paintings that Claude Monet produced as an old man have different color values than those he produced as a young man? Be specific.

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5. Describe apoptosis. What is the function of apoptosis in most cells? Explain what apoptosis achieve in lens cells.

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6. Stephen Bassnett of Washington University has proposed two different events that might initiate apoptosis. What are they?

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7. What is galectin-3 and why is the author investigating it?

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8. What do zebra fish have to do with lenses and cataracts?

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9. How can lens cells survive without a nucleus, mitochondria, and other internal organelles?

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