Summer Reading Analysis Questions

Biology

“The Median is not the Message”

1. Statistically, define the difference between mean and median.
2. The author cites a general distrust by the population for statistics. Why does distrust exist?
3. What does it mean for a graph to be “right skewed” and why is it germane to this essay?

“Abraham Lincoln’s DNA”

1. Why would scientists suspect Lincoln had Marfan’s syndrome?
2. What does is the function of the protein fibrillin?
3. Ironically, what was Lincoln’s main health concern throughout his life?
4. What symptoms did Lincoln exhibit that were related to Marfan’s Syndrome?
5. Explain the genetic basis for Marfan’s Syndrome.
6. Discuss the implications for the general public if Lincoln were definitively diagnosed with Marfan’s Syndrome.

“Kings and Queens: Genetic Diseases in Royal Families”

1. Discuss Mendel’s early work in genetics.
2. What is a “dominant” gene/disorder?
3. Define acute intermittent porphyria. How did this disease impact history?
4. Define a sex-linked trait. What are the medical implications of hemophilia?
5. How did hemophilia impact the Russian Revolution?
6. Most sex linked traits are found on what type of chromosome?

“Cysic Fibrosis”

1. Describe the symptoms of cystic fibrosis.
2. What is the biological cause of cystic fibrosis?
3. Discuss gene therapy as it relates to cystic fibrosis.
4. Genetically speaking, what type of disorder is cystic fibrosis?
5. How common is CF?
6. What would an evolutionary advantage be of carrying only 1 gene and not exhibiting the disorder?