***Bill Bryson: A Short History of Nearly Everything***

**Chapter 7: Elemental Matters**

This chapter describes the discovery of certain elements, but more importantly, it summarizes how people came to discover that matter is made up of smaller units called atoms. These atoms can be organized on a table in a periodic way.

Read the text completely and highlight the answers to the following questions. Answer each question by typing or neatly writing your responses on a separate piece of paper. Do your own work! Don’t copy the reading verbatim and/or another student’s work- that’s academic dishonesty.

1. What is alchemy? How does it differ from chemistry?

2. What element did chemist Hennig Brand hope to extract from human urine, and what did he actually obtain from urine? Was this a useful discovery? Explain!

3. Examine the list of elements discovered by Karl Scheele. List each element and its symbol (Use your Periodic Table!). How did the nature of Scheele’s work lead to his untimely demise?

4. Although Antoine Lavoisier never discovered a new element, he made several important contributions to the field of chemistry. Describe at least two of these contributions.

5. What was the “drug of choice” in the early 19th century, and how did this drug lead to the death of a famous chemist?

6. Examine the list of elements discovered by Sir Humphrey Davy. List each element and its symbol.

7. What process enabled Davy to discover so many new elements?

8. What does Avogadro’s principle state? Why was it unknown for almost 50 years?

9. Give two examples of how the field of Chemistry was “unorganized” in the mid 1800s.

10. What was Mendeleev’s “breakthrough” idea for organizing the Periodic Table of Elements?

11. Explain how elements relate to each other both vertically (in columns) and horizontally (in rows) in the PT.

12. What are the two most common elements in the universe? Why?

13. What did Marie Curie discover about rocks given to her by Henri Becquerel?

14. What was Ernest Rutherford’s discovery (regarding radioactive materials)?

15. What became of Marie Curie? What about her notebooks?

16. How do we know that early 20th century scientists did not understand the dangers of radioactivity? What is a modern day example of this cavalier attitude toward something that was eventually considered dangerous?

17. How did radioactivity undermine Lord Kelvin’s age of the Earth?