

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## AP Chemistry Chapter 1 Essentials – Part 1

*Instructions: Please use complete sentences and be sure to show work for math type problems.*

1. Describe why some people consider chemistry a central science.
2. What are the different branches of chemistry and which of those branches mainly studies carbon containing compounds?
3. What is the difference between matter and energy?
4. Can chemical substances have both kinetic and potential energy? Give an example(s).
5. Describe the difference between exothermic and endothermic processes.
6. State the law of conservation of matter and the law of conservation of energy. How can these two laws be combined into one?
7. In the study of chemistry, describe how both macroscale and nanoscale observations/properties are used.
8. State Dalton's Atomic Theory. Was the theory accepted at the time?
9. What are fundamental particles of matter? How are they difference from one another?
10. What elements exist as diatomic molecules in nature? What about the elements phosphorus and sulfur?
11. What are the three states of matter and how do they differ from one another?
12. Describe how chemical properties are different from physical properties of a substance.
13. Describe how chemical change is different from a physical change. Give an example of each.
14. What is a mixture and how are they classified? Give examples of each classification.
15. What is a substance and how are they classified? Give examples of each classification.
16. Draw the Classification of Matter diagram on pg 15 of your textbook.
17. What does the Law of Constant Composition tell us about a pure compound?
18. Look at Table 1-3 on page 18 of your textbook. Write down the names and symbols of any elements you are unfamiliar with. These will need to be memorized.
19. Which element(s) are the most abundant on the Earth?