

Name \_\_\_\_\_

## Topic 2 - Lesson 2: "Chemical Change"

### Guiding Questions: Use pgs. 78-88

- How can data about characteristic physical and chemical properties of substances be used to identify whether a physical or chemical change has occurred?
  - What factors affect the rate at which a chemical change occurs?
1. When vegetables cook on a grill, what other changes occur? List 3 ways that the vegetables change.  
\_\_\_\_\_  
\_\_\_\_\_
  2. A \_\_\_\_\_ alters the form of appearance of a substance without changing it into a different substance.
  3. Give 3 examples of a physical change.  
\_\_\_\_\_
  4. What are characteristic physical properties?  
\_\_\_\_\_  
\_\_\_\_\_
  5. What is a chemical change?  
\_\_\_\_\_
  6. In a chemical reaction, you start with \_\_\_\_\_ and end with products, or what is formed from a chemical change.
  7. Why are burning and rusting examples of chemical changes?  
\_\_\_\_\_  
\_\_\_\_\_
  8. What is the difference between a physical and chemical change? Give an example of each to support your thoughts.  
\_\_\_\_\_  
\_\_\_\_\_
  9. \_\_\_\_\_ occur when existing bonds break and new bonds form.
  10. When magnesium burns, \_\_\_\_\_ and \_\_\_\_\_ are the reactants, and \_\_\_\_\_ is the product.
  11. How do magnesium and oxygen bond in this reaction?  
\_\_\_\_\_
  12. Chemical changes are often represented by equations. Physical changes are not represented by equations. Why?  
\_\_\_\_\_  
\_\_\_\_\_
  13. \_\_\_\_\_ and \_\_\_\_\_ are both signs that a chemical reaction has occurred.
  14. What is the only way to be certain that a chemical reaction has occurred?  
\_\_\_\_\_  
\_\_\_\_\_
  15. What observable changes can indicate that a chemical reaction has occurred?  
\_\_\_\_\_  
\_\_\_\_\_
  16. What is a precipitate?  
\_\_\_\_\_
  17. While hiking in the woods, you see a brown, rotting apple lying on the ground. What changes in the physical properties of the apple are signs that a chemical reaction has occurred?

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18. Reactions are classified as \_\_\_\_\_ or \_\_\_\_\_, based on direction of heat flow.

19. Define exothermic reaction.

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20. In an exothermic reaction, do the products have more or less energy than the reactants? \_\_\_\_\_

21. Define endothermic reaction.

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22. What is activation energy ?

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23. True or False: Chemical reactions all occur at the same rate.

24. What 5 factors affect rates of a reaction.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

25. True or False: Increasing the surface area will increase the reaction rate.

26. The higher the \_\_\_\_\_, the faster the reaction.

27. The lower the temperature, the \_\_\_\_\_ the reaction rate.

28. What is the difference between a catalyst and an inhibitor.

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29. What is the role of collisions in reaction rates?

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30. How does reducing the temperature of a chemical reaction affect the rate at which it occurs?

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