

Name: _____ Date: _____

Physical and Chemical Change Worksheet

True or False. If false, correct the underlined portion of the statement so that it is true.

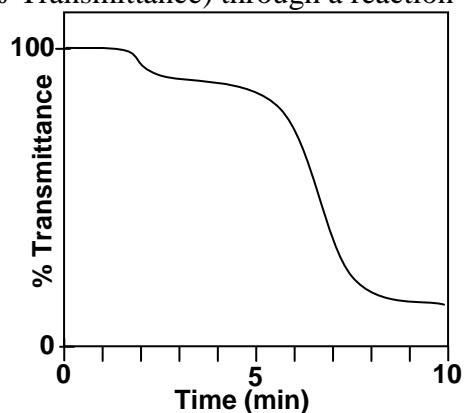
1. A physical change is a change of matter from one form to another without a change in chemical properties.
2. A physical change is a change that occurs when a substance changes composition by forming one or more new substances.
3. Color change is evidence that a chemical change may have occurred.
4. Fizzing or foaming is evidence that a chemical change may have occurred.
5. Production of light is evidence that a physical change may have occurred.
6. Production of heat or light is evidence that a chemical change may have occurred.
7. A change in odor is evidence that a physical change may have occurred.
8. Chemical changes can be reversed by physical changes.

Identify each of the following as either a Physical change (P) or a chemical change (C).

1. You cut your hair. _____
2. Making a peanut, pretzel and cereal mixture. _____
3. Baking soda reacts with vinegar and forms a gas. _____
4. A piece of metal is bent in half. _____
5. An aspirin is crushed into fine powder. _____
6. Copper turns green when exposed to the environment. _____
7. Two clear liquids are mixed and a yellow color forms. _____
8. Baking cookies. _____
9. Diamonds are used to scratch glass. _____
10. A tree burns to form ashes. _____
11. A piece of paper is crumpled up. _____
12. Water freezes to form ice. _____
13. Food spoiling. _____
14. A candle burning. _____
15. A candle melting. _____

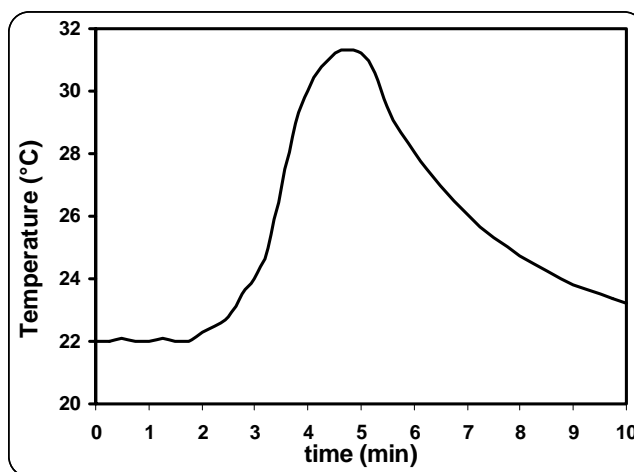
Analyzing Graphs

The graph at the right plots the amount of light transmitted (% Transmittance) through a reaction flask as a function of time. Initially, the flask contains only air. After a short period of time, a light blue solution is added to the reaction flask. After another period of time, a clear solution is added to the flask, and the entire solution turns dark blue.



1. At what time is the light blue solution added to the reaction flask?
2. At what time does the dark blue solution begin to form?
3. The % Transmittance levels off at about 8 minutes. What is happening in the reaction flask?
4. After 15 minutes, another solution is added to the reaction flask and the % Transmittance returns to 100%. Did another reaction take place? Please explain your answer.

5. Two clear, colorless liquids are allowed to come to room temperature (22 °C). The timer is started and then the two solutions are mixed together to form another clear, colorless liquid. Looking at the graph to the right, at what time were the two solutions mixed together?



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A Thought Experiment

A sealed flask of a clear, colorless liquid is left sitting on an interior sunny windowsill. After about an hour, there are droplets of a clear liquid on the glass above the solution, which has turned yellow. After two hours, the solution is dark brown with clear, colorless droplets of liquid on the glass. After sitting on the windowsill for a week, the walls of the flask have a silvery lining and both the solution and the droplets are clear and colorless.

6. Which of the following is not an indication that a chemical reaction has occurred?
 - (a) formation of liquid droplets above the solution
 - (b) the solution color changing from clear to yellow
 - (c) the solution color changing from brown to clear
 - (d) formation of a silvery metallic foil on the walls of the flask
7. The formation of the silvery lining is an example of which of the following indicators of chemical change?
 - (a) evolution of a gas
 - (b) distinct color change
 - (c) precipitate formation
 - (d) temperature change
8. (*Short answer*) There is only one reaction taking place in the flask. What is one possible reason for all of the color changes?
9. (*Short answer*) An observant chemistry student is enjoying a glass of iced tea during lunch (not in the lab!), and she notices that the color of her drink changes as the ice in the glass melts. Is a chemical reaction occurring? Why or why not?