Checkout Questions

Lab 2. Chemical and Physical Changes

What Set of Rules Should We Use to Distinguish Between Chemical and Physical Changes in Matter?

1. What is a physical change in matter?

2. What is a chemical change in matter?

3. A scientist has a collection of substances, both solids and liquids, that she mixes in different combinations. For each mixture, she puts a smaller amount of solid into a larger amount of liquid. She is trying to determine if mixing these substances produces any physical or chemical changes.

Mixture	Solid	Liquid	Observation after mixing
Α	Sugar—white crystals	Water-clear	Clear solution
В	Sugar—white crystals	Vinegar—clear	Clear solution
С	Baking soda—white powder	Water-clear	Clear solution
D	Baking soda—white powder	Vinegar—clear	Clear solution with bubbles

- a. Which mixture(s) involve only a physical change?
- b. How do you know?

- c. Which mixture(s) involve only a chemical change?
- d. How do you know?

- 4. Scientists do not use creativity or imagination when they are investigating the physical world.
 - a. I agree with this statement.
 - b. I disagree with this statement.

Explain your answer, using an example from your investigation about physical and chemical changes.

- 5. The result of mixing vinegar and baking soda is a chemical change.
 - a. I agree with this statement.
 - b. I disagree with this statement.

Explain your answer, using an example from your investigation about physical and chemical changes.

6. Scientists often need to look for patterns that occur in the data they collect and analyze. Explain why identifying patterns is important, using an example from your investigation about physical and chemical changes.

7. Physical systems will become stable over time after experiencing a period of change. Explain why it is important to understand how a system stabilizes after experiencing change, using an example from your investigation about physical and chemical changes.