

Chapter 21

REINFORCEMENT

Use with Section 1

• Describing a Chemical Reaction

Complete each item.

- Chemical changes in a substance result in _____

- Physical changes in a substance result in _____

- A chemical reaction begins with substances called _____ and ends with substances called _____ .
- In a word equation, the substances on the left of the arrow are the _____ , and the substances on the right side of the arrow are the _____ . The arrow should be read as _____ .
- Give two reasons why scientists prefer to use chemical equations instead of word equations?
 - _____
 - _____
- What do the subscripts in a chemical equation tell about the equation?

- Suppose you have a holiday celebration and over the evening six logs are burned in a fireplace. All that's left is ashes, but you know that there are just as many atoms as there were before—they're just in a different form. Explain how you know that.

- The fire in the fireplace is an example of an endothermic reaction. Explain what happens in an exothermic reaction. _____

- In one of the lab experiments you observed, water was split into hydrogen and oxygen in an endothermic reaction. Explain what happens in an endothermic reaction.

- If the equation below is balanced, write *Yes* in the line provided. If it is not balanced, write *No*.
 - _____ a. $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$
 - _____ b. $4\text{Al} + 3\text{O}_2 \rightarrow \text{Al}_2\text{O}$
 - _____ c. $\text{NH}_4\text{OH} + \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{NH}_4\text{C}_2\text{H}_3\text{O}_2 + \text{H}_2\text{O}$
 - _____ d. $2\text{Al} + 6\text{NaOH} \rightarrow 2\text{Na}_3\text{AlO}_3 + 2\text{H}_2$