

Name \_\_\_\_\_

## What is a Chemical Reaction?

### Short Answer Key

1. A synthesis reaction is when two or more substances combine to form a single, more complex product. An example is the formation of water ( $H_2O$ ) from the elements hydrogen ( $H_2$ ) and oxygen ( $O_2$ ).
2. In an acid-base reaction, an acid and a base mix to form water and a salt. For example, when you mix vinegar (an acid) and baking soda (a base), you get water, carbon dioxide, and sodium acetate.
3. A decomposition reaction is when a single substance breaks down into two or more simpler substances. An example is the decomposition of hydrogen peroxide ( $H_2O_2$ ) into water ( $H_2O$ ) and oxygen ( $O_2$ ) when exposed to light.
4. Combustion reactions involve the burning of a substance in the presence of oxygen, producing carbon dioxide, water, heat, and sometimes light. Precipitation reactions involve the combination of two soluble substances in a solution to form an insoluble product.
5. Understanding chemical reactions benefits scientists by helping them develop new materials, technologies, and medicines, ultimately improving our quality of life.

