

5th Grade - Lesson 3.5

Different Substances React Differently

Student Reading

In a chemical reaction, the atoms and molecules of the reactants interact with one another. The atoms rearrange and form new substances. As a result of a chemical reaction, you might see bubbling, the formation of a solid, a color change, or a temperature change. You might even see a combination of two or more of these possibilities.

Since different substances are made from different atoms and molecules, substances react in their own characteristic way. You could compare how citric acid and calcium chloride react by mixing each one with baking soda in an indicator solution. Since citric acid and calcium chloride are different substances, they should have their own characteristic reaction with baking soda in universal indicator.

Different Substances React Differently

When citric acid and baking soda are added to the indicator, the mixture turns red and then a little pinkish. Lots of bubbles are produced quickly and the temperature goes down.

When calcium chloride and baking soda are added to the indicator, the mixture turns pinkish but the color change is slower and the solution is cloudier than the reaction between the citric acid and baking soda. Not as many bubbles form, they take longer to produce, and the temperature goes up.

Chemical Reactions in Everyday Life

Although chemical reactions may cause a color change, bubbling, and other fun things, they are also very useful for making many of the products we use every day.

For example, cooking and digesting food rely on chemical reactions. The golden brown on a piece of toast is the result of a chemical reaction caused by heating the ingredients in the bread. Almost all of the baking and cooking we do relies on chemical reactions of some sort.

Chemical reactions also help break down the food we eat so the nutrients can be absorbed into our bloodstream and our cells. In our cells, other chemical reactions help build muscles and bones and provide the energy for all of our activities.

