CHEMISTRY IN OUR WORLD

Chemistry literally affects us twenty four hours a day. Let's look at some of the ways this occurs.

Chemistry in Our Bodies

At any one moment in our bodies, thousands of chemical reactions are occurring. All of these reactions are controlled by catalyst-like chemicals called **enzymes**. The role of an enzyme is to bring reactants together and insure that the reaction occurs.

In addition, most of the chemical digestion of food we eat gets done in our small intestines with enzymes. If it wasn't for this process, the vital nutrients that our bodies need would never be absorbed into our blood streams and reach all the cells of our bodies. These nutrients, sugar, amino acids, and fatty acids, are then broken down in the cells to release the energy our bodies need to keep us warm and make our muscles w

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LESSON CHECKPOINT:
What are additives and how do they help us?

Chemistry in the World around Us

Outside our bodies, chemicals and their reactions help us in many practical ways. Like respiration in our bodies, fuels are burned in our cars and power plants to provide energy for movement and heat. Jets move up and across the skies because of the exothermic reaction involving the burning of jet fuel.

Many of the materials that we use are **alloys** or mixtures of at least one metal element with another element. These chemicals usually are stronger or less reactive than just a single element. A good example is stainless steel. Iron by itself would rust quickly but by mixing other substances with iron, a rust-free substance is produced. Good gold jewelry is an alloy because pure gold is very soft. By mixing in copper or silver, the resulting alloy is much harder.

LESSON CHECKPOINT: What are alloys and how do they make products better?

Man-Made Chemicals

Many of the chemicals that have practical value for us are **synthetic polymers** ... nd have many repe... s attached together d... lymers made up o... bonded together.

One examp... ead-like material m... ible polymer, is used in hoses and pipes. Plastics, like polypropylene, are used to make toys and parts of cars. There are many other types of synthetic polymers besides these.

LESSON CHECKPOINT: What are synthetic polymers?

Composites are still another way chemists help us. These mixtures of two or more substances, many of which are polymers with different properties, combine to give us better products. The material Kevlar is an example. This substance, which is used in protective clothing, combines a light weight with high strength. Fiberglass is another composite. A fiberglass surfboard is made up of a combination of glass fiber and liquid plastic. Some countertops are composites of plastic, glass, and cement and are more durable than any of the ingredients would be alone.

LESSON CHECKPOINT: Name two examples of a composite.