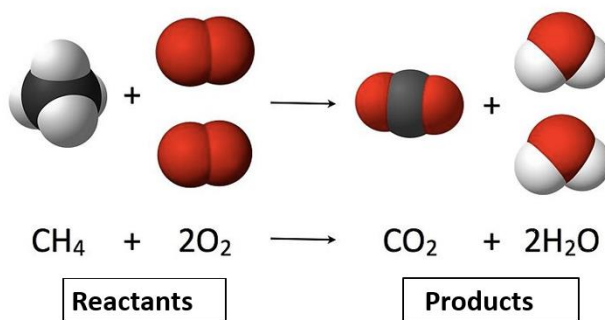


Chemical Changes and Chain Reactions

A **chemical reaction**, or chemical change, occurs when two or more **substances** combine to form new substances. During this process, the **bonds** between atoms in the **reactants** (starting substances) are broken. The atoms then rearrange and new bonds between the atoms are formed to make the **products** (final substances).

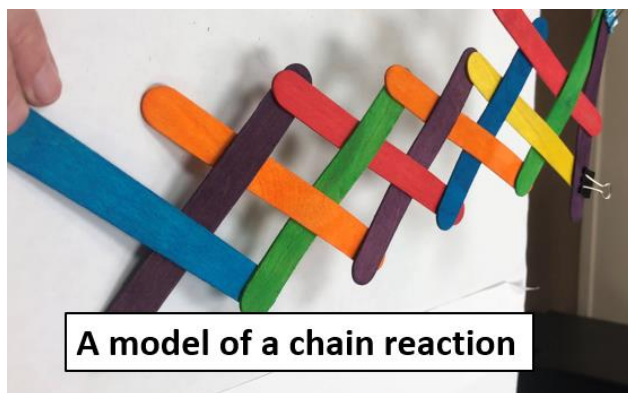


A chemical reaction



During a chemical reaction, other changes often occur. Common signs that a chemical reaction has occurred include changes in color, smell, and temperature. In addition, the formation of gas bubbles (without boiling) and the formation of a solid from the mixing of two liquids are often indications that a chemical change has occurred.

Sometimes, a chemical reaction can be facilitated by a **chemical chain reaction**. During a chain reaction, the products of the reaction themselves promote and spread the reaction. The first event starts the next event and this cycle continues until everything is done. This speeds up the reaction so that it can happen very quickly. Some chain reactions are so fast that they can lead to an explosion.



A model of a chain reaction

In this STEM Challenge, your task is to design, create and test a model of a chemical chain reaction.