Chemical transformation can change the properties, composition, and structure of substances. What better way to try your hand at a chemical reaction than with cotton candy? Circus concessions sold all kinds of sugary and salty treats, from popcorn to cotton candy. This recipe calls for heating the sugar to the hard crack stage, transforming the chemical makeup of the solution.

COTTON CANDY SCIENCE

Warning! To make cotton candy, you will need to get the sugar VERY hot. Conduct this activity only under parent supervision, and wear long pants and closed toed shoes.

INGREDIENTS
Yields 2-3 servings

1 1/3 cups sugar
1/3 cup plus 1 tablespoon light corn syrup
1/3 cup water
Food coloring
Flavored extracts or oils

Directions for the activity are on the next page
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DIRECTIONS

1. Prep work space. Cover tabletop, legs, and 5 feet of surrounding floor with newspaper or cut open trash bags. Lay two wooden spoons off the edge of the table and weigh down with something heavy. Spray spoons lightly with cooking spray. For best results, use an old whisk and use wire cutters to cut the round ends off the whisk, arranging the tines so they are evenly spaced. If you don’t want to alter a whisk, using a regular whisk works fine but your strands will be thicker, so your cotton candy more brittle than fluffy. Make sure you are wearing shoes and long pants.

2. Combine sugar, corn syrup, and water in thick-bottomed sauce pan. Heat on medium-high heat, stirring gently. Do not let edges of pan crystalize. Let boil until mixture reaches the hard crack stage, 320 degrees Fahrenheit on a candy thermometer. Remove immediately from heat and pour into microwave and heat safe container, such as a glass bowl. Rest bowl on tea towel to prevent the bowl from wobbling and to protect your hands from the heat. Add any flavored extracts or oils or food coloring at this stage and carefully mix in.

3. Carefully carry hot sugar to work station using tea towels or oven mitts. Using a whisk, dip the whisk into the hot sugar and allow to drain off for 1 to 2 seconds, until the draining strands are the same consistency (no globs!). Wave the whisk over the extended wooden spoons, allowing the strands to gently drift to rest on the spoons. Be sure to wave 12-18 inches above the spoons. You will have about 10 minutes to work before the sugar cools enough to be thick. If that happens, microwave for a couple seconds at a time until the sugar is liquid enough to work with again.

4. Roll spun sugar on paper cone or wooden stick and serve immediately. Avoid making cotton candy on rainy or very humid days as the sugar will melt quickly in very warm and wet conditions. Store in airproof container if not serving immediately.

EXPLAIN IT
Why do you need to heat the sugar to 320 degrees? What would happen if you didn’t heat the sugar all the way?