

# Do Some Cranberry Sauce Science!

It's food. It's tradition. And guess what: Cranberry Sauce is also science! This year on Thanksgiving, we invite you and your child to try the simple recipe below. You'll explore the effects of pectin, a complex carbohydrate that is found in the skins and cores of many kinds of fruit. Take just a few cups of cranberries, add sugar, water, and heat, and watch what happens. When you're all done, make sure you eat some, too. We think it's truly delicious!

## What You Need:

- 4 cups of cranberries (approximately one 16-ounce bag)
- 2 cups sugar
- 1-1/2 cups water
- Deep saucepan
- Long handled spoon



## What You Do:

1. First, wash and pick over your cranberries.
2. Mix the sugar and water in your saucepan, and bring the mixture to a boil. Cook over medium heat until the sugar has completely melted, and the solution is clear. (Psst: this is an example of crystalline sugar dissolving into water to form a *solution*).
3. Now add the cranberries all at once, and turn your burner heat up to high. Invite your child to look at the mix and stir with you, while taking care that his face isn't too close to the mixture, which can spatter. At first, the cranberries will float and bob. Within a few minutes, however, you'll watch them start to pop open and turn the whole mixture bright red.
4. Keep stirring as the mixture cooks. Quite quickly—within 5-10 minutes on most stovetops—you'll feel the whole batch thicken substantially. Take it off the heat, stir a little more, and then pour it into glass jars or a pyrex storage container which have either been run through a very hot dishwasher or sterilized in boiling water. Let it cool...and watch it thicken some more. Store in the fridge for up to two weeks before serving, or just enjoy right away!

## What's Going On

When they first made cranberry sauce, our colonial ancestors were actually taking advantage of a natural substance called pectin, which is found in the cell walls of fruit, especially their rinds. When high-pectin fruits (this also includes some grapes and apples, as well as cranberries) are cooked with sugar and water and sometimes a bit of citric acid, the pectin molecules separate from the fruit cells and reconfigure to form a stiff network of complex carbohydrates. This is the jell that we feel when we stick a spoon into a jam pot...or a dish of cranberry jam.

Note: it is possible to “goof” with this experiment. First, make sure you follow the recipe and add the amounts of sugar and water that are required. If the balance isn't right, the network made by pectin molecules may not come together properly. You can still have a tasty sauce, but it won't be firmly jelled!