Soap suds

Did you know that water can be hard or soft? How does that affect soap suds?

**What to do:** Fill all three containers with warm water. Pour the Epsom salts in one container. Stir the solution thoroughly. Do the same with the washing soda in the second container. Add a teaspoon of dishwashing liquid to each container, including the one with plain tap water. Stir each of the solutions and try to make suds.

**What happens:** Suds form in the water with the washing soda, but few form in the water with the Epsom salts.

**Why:** Washing soda “softens” water, while Epsom salts is a mineral that makes water “hard.”

Tap water often contains calcium salts, which stops soap from making suds. If water has a lot of salts, it is called “hard.” Washing soda “softens” or neutralizes the calcium salts in the water and forms a solid substance, called a precipitate, that falls to the bottom of a solution when a chemical reaction takes place. (This is where that ring in the bathtub comes from.

Epsom salts is a mineral that makes water hard. That is why you couldn’t get soapsuds to form. Did your plain tap water make suds? Is your tap water hard or soft, or in between? Now empty the solutions in each glass. Do you see any precipitates on the sides of the containers?