



Laboratory Notebook

Ice melting in soda (Part 1)

List of Ingredients and Supplies

- Ice cube tray
- Water*
- Can of diet soda*
- Can of regular soda*
- Food coloring
- Some things that dissolve in water (e.g. sugar, salt, honey)
- Other liquids (e.g. juice, vinegar)*
- 4 or 5 clear, colorless, plastic (or glass) cups

*Should all be at roughly the same temperature; room temperature is best. Also a clear, colorless soda (e.g. lemon-lime variety) works the best.

To do ahead of time:

Put water in a large pitcher or old 2-L soda bottle. Let it stand awhile to come to room temperature. Make some regular ice cubes, and make some colored ice cubes by freezing water with food coloring in it.

Question: Will ice melt faster in diet soda or regular (sugared) soda?

Try it and see. Take a can of regular soda and a can of diet soda that are at the same temperature (why?). Fill each of two cups about half full—one with regular and one with diet soda. Make sure the amount of each soda is very close to the same amount (why?). Put a regular ice cube in each one. Make sure the ice cubes are roughly the same size (why?) and see which one melts faster.

Surprised? What's going on? Here are some more activities and experiments you can try to try to figure it out.

1. Make it quantitative: time how long it takes for the ice cubes to melt in each type of soda
2. Figure out what is the main difference between regular and diet soda. Read the labels and/or look it up on the internet.
3. Compare the rate that ice cubes melt in the regular and diet sodas to how fast an ice cube melts in the same amount of plain water.
4. Put ice cubes in other liquids and compare to water. Examples of other liquids:
 - Sugar dissolved in water
 - Salt dissolved in water
 - Vinegar
 - Juice

5. Make a solution of sugar in water. Pour it into one of your cups and pour about the same amount of water into another cup. Put a colored ice cube into each cup and observe what happens.

So what is going on and why? Put all your observations together and see if you can figure it out. This will be your hypothesis. Try to think of some other experiments you could do to test your hypothesis. Then tune in here in a week or so to see if your explanation matches mine.

Have fun!