



the stars
challenge

Is it Science or Magic?
Winter 2012



Time certainly flies when you are having fun. Our time together is ending but you have just begun to touch the surface on your quest for learning about science. Where has our quest taken us? Together we examined the chemistry of atoms and molecules, density, bonding, polarity, gases, bubbles, acids and bases, indicators, and some of the science of familiar foods. We have worked hard but for the most part, we had FUN. As a cohort of learners we left each week chatting about our experiences and pictures to share with our families.

We all remained enthusiastic while we safely observed, examined, questioned, defined, modified and discovered. You are great collaborators and through this experience together we used creative approaches to explain scientific laws and theories. Anuja and I had a wonderful time sharing our magic and knowledge with you. I always learn from my students and you kept me true to that statement. You are well prepared for the more difficult science subjects that you will be engaged in during your years in high school and college. Your parents and teachers should be very proud of your accomplishments thus far.

I expect the future to be very bright for my young scientists. Doctors, pharmacists, engineers, researchers, professors, teachers—all of these and more are very possible. Your enthusiasm and energy are contagious. Keep on the quest for the truth. There are many other things you could have been doing on Monday evenings. Thanks for spending the time with us. The world is secure with you as its future.

Chemically yours, Mrs. McCarthy (aka Mrs. McChem)



Milk kaleidoscope has a rainbow racing to the edge—all it takes is a little soap.



More milk, more food coloring, more soap and repeat. There were several variations of the combination.



What happens when you mix hot water with cold water—it actually takes a while to mix. What “property” of water was changed? Density, of course.



Thermometers that are filled with alcohol—hum, warm alcohol rose in the the straw, cool alcohol did not. We couldn't get the water to do that. What's different about the alcohol?



We can't see molecules but we can see the changes they undergo when they are heated and cooled. Solids expand—our sphere wouldn't fit through the ring.



Gases will expand when heated. We made "magic" bubbles in empty water bottles. Our secret is that the bottles aren't empty, they are filled with room air that is now heated.



Intermolecular bonding allowed us to hang spoons from our noses, chins, cheeks. The trick is water vapor on the spoon.



Frozen water vapor from the air. We did it in a warm classroom. It just takes ice, salt, and a metal can.



Sublimation—very cool. Carbon dioxide is all we needed in the form of dry ice.



From a solid to a gas, we could change the pressure and cause the top to fly off a tennis ball cylinder, make oodles of bubbles, change the pH of water, and change the density of air.



Acid or alkaline? Cabbage juice indicator works great but smells bad. Great color changes!!!!



Indicators in paper? We made magic ink and wrote in "blood".



Polarity magic!!! Water Olympics was the event. Adhesion and cohesion were our teammates.



Pressure can make us look like we've been freeze-dried.



Solutions provide an “electrifying” event. Wow, a pickle that lights up!



I scream, you scream, we all scream for ice cream! This is really cool, actually very cold!!





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