The 49ers STEM Leadership Institute’s
Weekly Digest
During the coronavirus shutdown
May 4th, 2020

Chemistry in the Kitchen: Candy
How does sugar turn into rock candy, fudge, or toffee? White sugar is made of sucrose molecules. Because of intermolecular forces, sucrose molecules align & create crystals (hence sugar’s grainy texture). To make candy, sugar is dissolved in water, heated to a specific temperature, & then cooled. The max temperature & the cooling stage will determine the type of candy. As sucrose is heated in water, the crystals dissolve, creating a supersaturated solution. If the mixture is cooled slowly, crystals form (ex rock candy). If the mixture is cooled quickly, these crystals do not have enough time to form before the mixture becomes solid (ex toffee). In addition, when heated, sucrose starts to break down into two molecules: fructose & glucose. At lower max temperatures, more sucrose exists & can more easily form crystals (ex rock candy); at higher max temperatures, less sucrose & more fructose & glucose exist, making crystals less possible (ex toffee). If you decide to make candy, use EXTREME CAUTION when handling hot candy. Adult supervision necessary!

Try your hand at candy making: Broken Glass Candy | Almond/Chocolate Toffee


Check this Out!
Need a laugh? On March 17th, the security chief at the National Cowboy Heritage Museum added Twitter to his duties, despite having no social media experience. Check out this NPR article for more info & visit the National Cowboy Museum twitter page to see his posts.

Many people have reported feeling more exhausted after a day of video calls, rather than in person meetings. Why? National Geographic dives into the reasons behind this phenomenon known as Zoom Fatigue.

Need a happy thought? Little foxes on Santa Cruz Island were the reason for the first ever Earth Day & have recently been taken off the endangered species list. Read about their recovery & Earth Day at NationalGeographic.com

Logical Fallacy of the Week
Appeal to Fear
If we decide to eat Ms. B’s brownies, then we will gain weight & no longer be able to fit into our favorite outfits.

“This fallacy plays on the fears of an audience by imagining a scary future that would be of their making if some proposition were accepted. Rather than provide evidence to show that a conclusion follows from a set of premises, which may provide a legitimate cause for fear, such arguments rely on rhetoric, threats or outright lies.”

An Illustrated Book of Bad Arguments, Al Abrossow, p22. footloosearguments.com

Craft Corner
Edible Play Dough? Yes please! With just some oil, marshmallows, food coloring, and starch, you can play with your food and eat it too! Check out the recipe & flavor variations at TheSpruceEats.com. What cool creations will you make with your food?

Related to our Chemistry in the Kitchen, have some fun making rock candy! All you need is a stick, skewer, or string, sugar, water, and a little bit of patience. Learn more at TheSpruceEats.com. Yum! What chemical & physical properties make the sugar crystals form?

Happy Pic
Of the Week

A cute cow in Marin. Check out these tips for photography from Paige Green herself.

Japan’s Stratford Festival is streaming Shakespeare shows for free! Coriolanus & King Lear are already streaming. This Weekend: MacBeth! Visit StratfordFestival.ca/AtHome/Watch for more info!

Fun Fact...
So, you are a fan of Star Wars. What about Shakespeare or Kurosawa’s The Hidden Fortress? No? Maybe you should be!
There are several similarities between Star Wars & Shakespeare’s plays (including the less famous history plays). And George Lucas is very open about the inspiration he got from Kurosawa’s film.

Culture during COVID-19
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