The 49ers STEM Leadership Institute’s

**Weekly Digest**

**During the coronavirus shutdown**

May 11th, 2020

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**Chemistry in the Kitchen: Melting Cheese**

In April 20th’s Weekly Digest, we talked about how cheese is made; but why does some cheese melt into stretchy, gooey deliciousness (like mozzarella) & some cheese doesn’t (like paneer)? Mostly, it has to do with the behavior of long protein molecules called casein & whether the cheese was made with acid or rennet. In milk, casein traps water & fat molecules as it fold on itself. In acid-made cheese, the casein molecules are broken up into smaller molecules by the acid, causing the water & fat to flow freely through the cheese. However, in rennet-made cheese, the casein proteins are not broken up; instead, they link together like a large network that continues to trap the fat & some water. When rennet-made cheese is heated, this protein network stretches & the fat & water flow more freely; but the proteins still cling together, creating a gooey melty cheese that sticks together. Acid-made cheese’s casein proteins cannot stretch like this, since they have been broken down into smaller unlinked pieces by the acid.

*Play with melting cheese this week: the Food Network’s 50 grilled cheese recipes*


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**Check this Out!**

**Need a bit more zen in your life?**

Take a breather and learn about how Zen Gardens help relieve stress from *National Geographic.*

**Unusual recipes inspired by hard times?**

Have fun baking Apple-less Apple Pie, or Maple Syrup Day-old Bread, “Nothing Soup,” and more at *www.atlasobscura.com*

**Ever wonder about those strange beaked masks that doctors wore during the Black Death in Europe?**

Turns out, doctors thought they helped to fend off the plague (they were wrong). Learn more about this unusual practice in this article from *National Geographic.*

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**Logical Fallacy of the Week**

**Hasty Generalization**

I asked ten people and they all said that Ms. B’s brownies are the best in the world; therefore, I think it safe to say that they are.

“This fallacy is committed when one generalizes from a sample that is either too small or too special to be representative of a population.”

An Illustrated Book of Bad Arguments, Al Alvarez, p.24; *bookofbadarguments.com*

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**Craft Corner**

**Have extra glass jars floating around?**

Whether from curry sauce, jam, salsa, or pickles, glass jars are great for reusing or repurposing. Here are a couple ideas of what to do with them:

- With some glue, you can create frosted glass jars for candles or string lights. Get step by step instructions at *ABeautifulMess.com*

- Love plants? With some dirt, pebbles, and a small plant, you can transform an old jar into a terrarium! Check out this how-to guide at *huffpost.com*

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**Culture during COVID-19**

PBS’s Great Performances is streaming 12 shows for free! And NYC’s Shakespeare in the Park’s critically acclaimed *Much Ado About Nothing* is one of them. *Check it out!*

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**Did you know...**

June Almeida dropped out of school at 16 years old and worked as a lab technician & then with electron microscopes. Then she discovered coronavirus. Only now is she being fully recognized for her work! Read more at National Geographic.com

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Happy Pic Of the Week

Find out more about the tawny frogmouth bird at *SanDiegoZoo.org*