

# Weekly Digest

During the coronavirus shutdown

April 27th, 2020

*Did you know...*

The history of handwashing is relatively short. Up until the mid-1800s, doctors thought that water caused diseases, & not until the 1980's did the CDC create guidelines for hand hygiene. Find out more about the history of handwashing at [Tree Hugger.com](http://TreeHugger.com)

## Chemistry in the Kitchen: Jam

What turns fruit into jam? Three things: pectin, acid, & sugar. **Pectin** molecules are long chains of bonded sugar molecules & is found in the cell walls of fruit. To make jam, fruit is heated to release the pectin inside. Around 104°C, these long pectin chains bind to themselves, forming large nets that trap liquid. These molecules can no longer move around as easily & the heated fruit becomes more viscous. (Since fruits naturally have varying pectin levels, extra pectin is sometimes added.) Now for **acid & sugar**. Along the pectin chains, clusters of atoms (esters) tend to take a negative charge (which makes the chains repel each other & not bind together). By increasing acidity, this negative charge is can be neutralized. Water (naturally found in fruit) likes to clump around these negative charges as well, preventing pectin from binding to itself. Sugar (hydrophilic) absorbs water, keeping it away from the pectin. Now chains can easily bind when heated. By absorbing water, sugar also slows microbial growth & acts as a preservative!

**Now it's your turn:** [Try making jam yourself](#) or just enjoy jam in [one of these recipes](#)

Brunning, Andy. "What Makes Jam Set?" *Compound Interest*. 22 Sept, 2014. [CompoundChem.com](http://CompoundChem.com)

## Check this Out!

Looking for fun **puzzles** and ways to keep your brain active while Sheltering in Place? Check out the [New York Times' Puzzles!](#) They have a wide variety of puzzles for all sorts.

### What is the biodiversity of your home?

Chances are, it's greater than you think! Check out what [these scientists found in their homes](#) and take the Biodiversity Challenge yourself! Check out posts on [Twitter](#) & [Instagram](#).

#StayHomeBiodiversityChallenge

The **Santa Clara Valley Water District's** education outreach program is hosting [Watershed Wednesdays via Eventbrite](#), where they have fun activities they lead hands on activities that explore "where our water comes from."

## Taking care...

Nowadays, everyone is talking about "mindfulness." But what is it? The Smiling Mind defines it as "paying attention to the present moment with openness, curiosity & without judgement." That sounds lovely, but why is it important? Turns out it has been shown as an effective way to regulate stress, emotions, sleep & to improve creativity, concentration & more.

Explore more at

[SmilingMind.com.au](http://SmilingMind.com.au)

### Culture during COVID-19

Renowned modern dance company Alvin Ailey American Dance Theater is streaming performances every week. Check out this week's [18 minute show, Night Creature](#).

Logical Fallacy of the Week

### False Dilemma

**People either love chocolate cake or vanilla cake.**

"A false dilemma is an argument that presents a set of two possible categories & assumes that everything in the scope of that which is being discussed must be [in one of those two categories]." In the above example, the speaker is excluding people that (1) like neither, (2) like both, (3) like & dislike aspects of both, (4) are neutral about these two cake flavors.

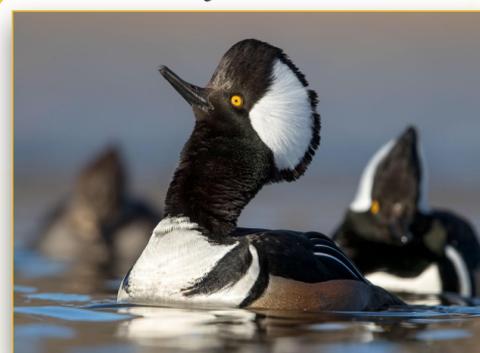
An Illustrated Book of Bad Arguments, Ali Almosawi, p18, [bookofbadarguments.com](http://bookofbadarguments.com)

## Craft Corner

Play around with **marbling paper** this week! Marbled paper is great to use for cards, decorations, book covers, wrapping paper, and more! This [blog post from the Paper Mill Store](#) has five different techniques for marbling & this [article from scientific american](#) discusses the science behind them.

**Got string & paper?** You can make this [Ultra High-Speed Toy](#). What physics properties are being used when you play with this? What are some real world applications for this toy?

*Happy Pic Of the Week*



[Check out these "15 bird faces that will make you smile" from Audobon](#)

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