



ENGINEERING EXPO

VOLUME 1, ISSUE 1

OCTOBER 2018

FANG-TASTIC
YOUTUBE
CHANNELS TO
CHECK OUT!



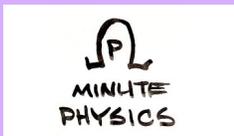
[TED- Ed Channel](#)



[Smithsonian Science
Education Channel](#)



[Minute Physics](#)



[Sci Show](#)



Spooky Science



What you need

- Molasses
- Golden Syrup
- Water
- Food coloring
- Vegetable Oil
- Small items to test for floating

Instructions

Pour each liquid into the glass slowly starting with the molasses, then the golden syrup, followed by the water with added food coloring and finally the vegetable oil.



How Spooky Looking!

Drop a few small items in and see which layer they float on.

You can see in the picture to the left that we have a plastic bug floating on the top, a LEGO brick floating on the water and a paper clip floating on the treacle. Why do they do this?

See the back of this newsletter to find out!

From [ScienceSparks.com](#)

Engineering Expo Planning has begun!

The Engineering Expo committee has been selected and are vigorously working on making next year's Expo even better!

Century II is currently the venue for the event.

SWE is fundraising for this year's Expo. If you know of any good leads

let us know!

The Engineering Expo's website is getting a makeover! Be on the look out for more information about it in the next coming months.

We are all very excited to be back at work. Only 174 days until Expo!



STEM Star of the Month



Shaesta Waiz

Flying around the world solo in a single engine aircraft isn't something that every 30 year old thinks of doing, but Shaesta Waiz is not an average 30 year old. Not only did she become the first female to be certified as a pilot in Afghanistan, but she also took her Beechcraft Bonanza A36 aircraft on a trip of

a lifetime. The purpose of her flight was to help show the importance of STEM Education. "Every time I open the door to an aircraft, I ask myself, 'How did a girl with my background become so lucky?' The truth is, anyone can be me." With that mission in mind she created Dreams Soar. Dreams Soar is a non-

profit organization that was made, "To inspire the next generation of Science, Technology, Engineering and Math (STEM) and aviation professionals, especially girls and young women." Click on the link below to learn more about Shaesta and her story!

[Dreams Soar](#)

*"You must believe
in yourself and
allow your dreams
to soar."*

-Shaesta Waiz

Magic Crystal Science Experiment

This is a sweet way to learn about physical states that a material (in this case sugar) can have. This will show how something solid can become liquid, then solid again.

You will need (for making one rock candy):

- 1 Wooden skewer cut in half
- 1 cup of water water and a big pot to boil water & sugar
- 2.5 cups of Sugar (maybe plus more)
- 1 Clothespin
- Plastic wrap
- 1 8oz ish drinking cups, glasses, or jars.
- Food dye

Step 1: Mix the sugar and the water. Talk to your kids about how the sugar dissolves, but how not all of it can dissolve. Boil your water and sugar in a big pot or saucepan over medium heat. It will grow in vol-

ume while you cook it. Have your kids notice how all the sugar gets dissolved because of the added heat. Continue to add sugar until you can not dissolve any more of it.

Step 2: Turn off the stove and let the supersaturated solution cool about 20 min.

Step 3: The sticks need to be dipped in water and rolled in sugar to create a nucleation site for the sugar to start forming crystals on. Dip the sticks in water about $\frac{2}{3}$ of the stick should be covered in a sugar coating. Allow the sticks to dry.

Step 4: Pour the cooled sugar solution into your jars/glasses/cups. You may add a few drops of food coloring if you would like. Remember, a little goes a long way.

Step 5: Place the fully dried skewers with the sugar coated

side down into the jar/glass/cup. You can fasten it in place with the clothespin. Don't allow the stick to touch any sides of the jar/glass/ cup.

Step 6: You may want to drape some plastic wrap or a paper towel over the solution so that dust doesn't collect on the forming candy. You do not want to fasten the covering over the jar/glass/cup. Part of how this works is by allowing the water to evaporate out into the air. So, however you cover your solution, make sure there is air flow between the surface of the sugar water and the air around it.

Step 7: Wait and watch the candy grow for about a week.

How does the sugar magically vanish and reappear?

See the back of this newsletter to find out!

They
are
even
edible!



Shout Out!

We want to hear from you! Send us your favorite memory from Engineering Expo 2018 and you might just end up in our next newsletter! Send your memory and a picture in to:

ExpoNewsletter@wichitaswe.org



Vocabulary Words from this Issue!

Dissolve: this is when something solid mixes into something liquid and becomes part of the liquid. In this case the molecules of sugar separates from one another to dissolve.

Boiling point: The exact temperature where molecules of a liquid become gas.

Density: How compact an object is.

Saturated: This is when something (in this case water) has absorbed as much of something else (in this case sugar) as it can.

Super Saturated: This is when something (in this case water) has absorbed more of something else (like sugar) than it typically can. In this case the heat allows the water to absorb even more sugar.

Nucleation: This is the first step that a material (like dissolved sugar) goes from one thermodynamic state to another. In this case the sugar goes from a liquid state to a solid state. The spot at which the phase change happens is called the Nucleation site.

Crystallization: This is when something that was dissolved into a liquid or gas separates out into a solid.

“The good thing about science is that it’s true whether or not you believe in it.” -Neil deGrasse Tyson

STEM Events Around Wichita

Family Night at the Museum of World Treasures

Thurs. Oct 4 at 5:00 pm
visit <https://worldtreasures.org/>

Spooky Science at Exploration Place

Sat. Oct 20 at 10:00 am
Visit <http://exploration.org/>

Torchlight Tour at the Sedgwick County Historical Museum

Fri. Oct 26 at 6:00 pm
Visit <http://wichitahistory.org/>

PMAS- Bear Says Thanks at Color Me Mine

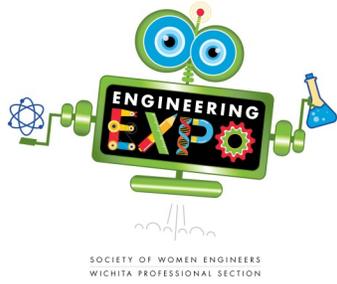
Sun. Nov 11 at 4:00 pm
Visit <https://wichita.colormemine.com/>

Art Toys: Schools Out Adventure at Exploration Place

Wed. Nov 21 at 9:00 am
Visit <http://exploration.org/>

The Polar Express at OJ Watson Park

Fri. Nov. 23 4:00 PM
Visit <http://bit.ly/2018PolarExpress>



Please follow the event on Facebook:

[Here](#)

Follow SWE on Facebook at [Here](#)

Expo Planning Committee: [Here](#)

Visit our SWE website [Here](#)
(the Expo website is still under construction for next year.)

Follow us on Instagram [Here](#)



Hello! This is Sarah and Rachael here and we want to hear from you!

If you have ideas about what you want to see at Engineering Expo 2019 please contact us at:

expo@wichitaswe.org

We hope to hear from you soon!

Spooky Science and Magic Crystal Explanations

Spooky Science

Each of the liquids have a different mass of molecules or different numbers of parts squashed into the same volume of liquid, this makes them have different densities and therefore one can sit on top of the other – the more dense a liquid is the heavier it is.

Objects and liquids float on liquids of a higher density and sink through liquids of lower density. The LEGO brick sinks through the oil but floats on the water, while the coin sinks through both. The coin is therefore more dense than

both the oil and the water. The plastic bug floating on the oil is less dense than both.

From ScienceSparks.com

Magic Crystal

While doing this activity ask your kids where the sugar went when it is dissolved into the water. Then, before the kids eat their treats- ask them where all that sugar came from!

Why it works: Follow the link for a Youtube video!
[Click Here](#)

Here is a good video on How this is related to the real world:

Did you know that snowflakes and gemstones are formed naturally using crystallization. The same science principal that we used here!

Source: [Click Here](#)

Making rock candy
[Click Here](#)