

Growing Crystals (for fun)

What you need:

- 1/2 to 1 cup of Epsom salt, sugar, alum, or table salt (*Note: Epsom salt and alum are not edible!*)
- 1 to 2 cups of warm water
- A disposable pie plate or a glass baking dish you can use for a couple of weeks
- Optional: food coloring; a charcoal briquette or a string (for crystals to grow on)

Dissolve *either* Epsom salt, sugar, alum, or table salt in the water, until no more will dissolve. Colored crystals can be grown by putting a little food coloring to the solution. If you want, place a charcoal briquette or string in the water. Let the solution stand undisturbed in the container. Crystals will grow for *at least* a week. The more slowly the water evaporates, the larger the crystals will grow.

You can make **rock candy** by dissolving as much sugar as possible in hot water in a glass jar. Let the crystals grow on a (non-toxic) weighted string you hang from a stick across the top of the jar. See <http://www.angelfire.com/mo/sasschool/DKScieMatter10.html> for description and sketches.

- ➔ Using a magnifying glass, sketch and describe the shapes of the crystals you grew. Compare them to the materials you started with. Break a large crystal and describe what you see.
- ➔ If you grew crystals from more than one kind of material, how do their shapes and sizes differ? Why might this be?
- ➔ What factors can you vary in this experiment? How might each variation change the result? For example, what would happen if you covered the containers? if you put them in direct sunlight? What might you do to reduce the amount of time needed to grow the crystals?

Ocean in a Jar (for fun)

I enjoy making bath salts, scented oils, lotions, etc for my friends, family, and self. I realized recently that the base recipe I use for bath salts creates "seawater"! (Lower salinity, unless you use a vat of the stuff, but most of the key elements/ions are in there.) Martha Stewart showed viewers a very similar recipe when she was on Oprah recently (though let's not get into how I know that, ahem, and she didn't draw parallels with oceanography for some reason...). My concoction, below, is a combination of recipes from "Natural Beauty at Home", by Janice Cox, plus some trial and error. You can play around with the proportions to suit your preferences.

Epsom salts, 1 cup - *magnesium sulfate* ($MgSO_4 \bullet 7H_2O$) - available (cheap) in drugstore aches-and-pains aisle

Kosher salt or coarse sea salt*, 1/4 cup - *sodium chloride* ($NaCl$)

* You can substitute baking soda (*sodium bicarbonate*, $NaHCO_3$) and/or cornstarch (*organic stuff*), for some or all of the kosher/sea salt.

Optional:

Vegetable oil, about 1/8 cup - almond, coconut, avocado, walnut, olive... - *If only oil spills were vege oils!*

Food coloring, a few drops - the kind you can get in the grocery store baking aisle in little bottles

Essential oil, a few drops (I use the pure, natural ones) - lemon, rosemary, lavender, rose, mint, pine...

Mix the ingredients together well, by shaking in a jar with lid or in a Ziploc-type bag. It will take a couple minutes of shaking to distribute the oils and color well. I like using a bag so I can work out some of the colored lumps with my fingers.

To use, add about 1/4 cup to running bathwater. It will keep a month or so in a closed container. Not edible, so keep away from youngsters, pets, etc. With vegetable oil added, you can also use it as an exfoliating, moisturizing salt rub (my sister-in-law the kickboxer loves it this way): Add a little water to a handful of the salts and then rub on damp body skin in the shower; rinse with warm water. Don't use it as a rub if your skin is broken out or sensitive, and don't use it on your face (too irritating).

Enjoy! ☺ Gwyn