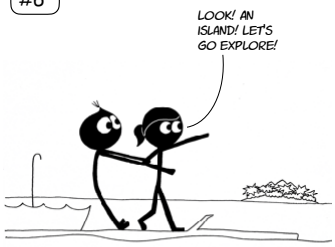
SMG #6



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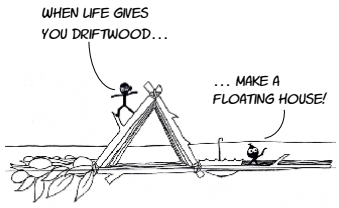
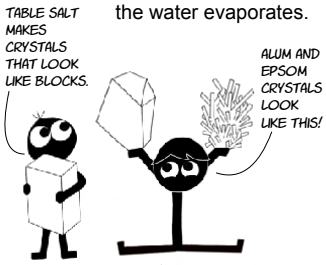
SCIENCE MOM'S
Guide to WATER, Part 6



When water freezes, it forms a crystal. But water's not the only thing that can make crystals.

Most minerals and salts can form crystals, especially if they are in a solution with water and the water evaporates.



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WHAT IS THIS CRYSTAL MADE OF?

Name	Chemical Formula
Table Salt	Sodium Chloride (NaCl)
Alum	Hydrated potassium aluminum sulfate ($KAl(SO_4)*12H_2O$
Borax	Sodium tetraborate ($Na_2B_4O_7{\cdot}10H_2O$)
Sugar	Sucrose ($C_{12}H_{22}O_{11}$)
Epsom Salt	Magnesium sulfate ($MgSO_4$)
Quartz	Silicon dioxide (SiO_2)
Diamond	Carbon (C)

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3

1. Reappearing Salt

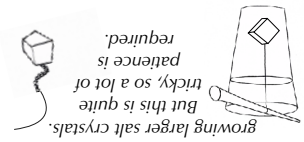
Materials:

- Water
- Jar or cup
- Salt (non-iodized works best)

Method:

a) Heat 1 cups water and stir in 3 Tablespoons of salt.
b) Stir until dissolved. Let cool and carefully transfer to jar or cup.
c) Wait several days. Observe.

The salt that forms on the bottom of the jar makes excellent seed crystals for growing larger salt crystals. But this is quite tricky, so a lot of patience is required.



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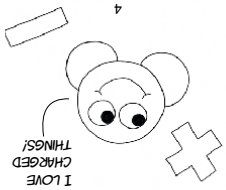
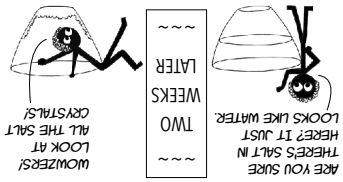


Water can dissolve most salts and minerals because they have charged or polar particles for the water to be attracted to.



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Tip: Make sure the salt water and plain water are the same temperature and then pour the water onto a spoon held by the side of the cup just above the salt water—don't pour it directly into the salt water.

Method:

a) Prepare salt water and let it cool to room temperature.
b) Fill 3 jars or cups. One with plain water, one with salt water, and one by carefully filling it half way with salt water, and then layering the tap water on top.
c) Place the eggs in the jars and observe if they sink or float.

Materials:

- Salt water
- Tap water
- 3 jars or cups
- Eggs

2. Halocline plus Eggs

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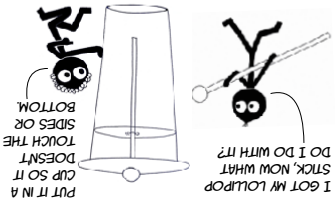
4. Borax Snowflakes

Materials:

- Water
- Pipe cleaner
- String
- Borax powder
- Jars or cups
- Food coloring
- Pencil or piece of cardboard

Method:

a) Heat 4 cups of water and add 1 cup Borax. Stir well.
b) Take three pipe cleaners and fold into a snowflake shape.
c) Suspend the snowflake in the borax solution using the string and cardboard or pencil.
d) Wait 12 to 24 hours and then remove from solution. To preserve the crystal, coat it with clear nail polish.



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3. Eggshell Geodes

Materials:

- Water
- Jars or cups
- Alum
- Food coloring
- Eggshell
- White glue

Method:

a) Heat 2 2/3 cups of water and add 1/2 tsp food coloring and 1 1/3 cup of alum powder.
b) Stir until dissolved, and then carefully transfer the solution to two heat proof jars. *Hotter water makes larger the crystals. Cooler water makes smaller sized crystals.*
c) Optional: Seed the inside of the eggshell with glue and sprinkle alum powder over surface.
d) Place eggshell in alum solution and let sit for 12-24 hours.

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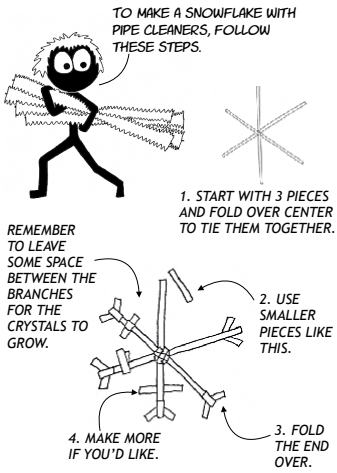

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Tip: You can add lemon juice or other extracts for flavoring.

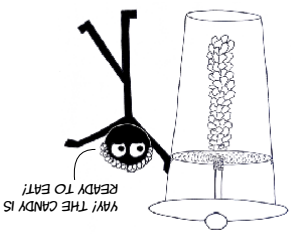
Method:

a) Heat 1 cup of water to boiling and mix in 3 1/2 cups of white sugar. Bring it to a boil.
b) Dip the sticks into the syrup and then roll them in sugar. Let dry.
c) After the sugar solution has cooled, pour it into cups and suspend the sticks inside.
d) Remove when your candy is the desired size.

Materials:

- Water
- Jar or cup
- Sugar
- Cardboard
- Wood popsicle or cake pop stick.

5. Rock Candy



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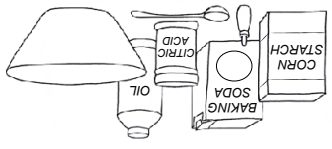
Method:

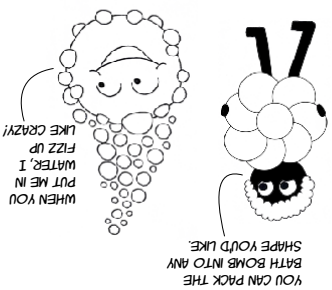
a) Mix the dry ingredients together in a bowl.
b) Mix the wet ingredients together and very slowly combine the wet mixture into the dry mixture using a fork or whisk.
c) Pack the mixture into clear ornament balls or other molds and let sit 24 to 48 hours.
d) Carefully remove egg or ball.

Materials:

- 1/2 C baking soda
- 1 Tbsp water
- 1/4 C citric acid
- 1/3 C cornstarch
- Food coloring
- 1/4 C epsom salt
- 1 Tbsp oil
- Plastic molds
- 1/4 tsp essential oil

6. Bath Bombs





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