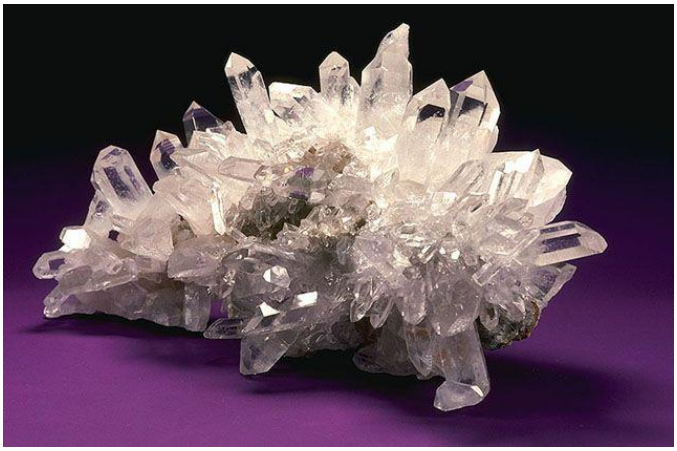
Homemade Crystals!



Simple Supplies:

- Clear Glass Cups
- Stainless Steel Spoon
- Refrigerator
- Epsom Salt/Magnesium Sulfate (Unscented)
- Magnifying Glass (Optional)

*Tip – Before starting this activity, ensure that all of your materials are as clean as possible and avoid touching the unscented Epsom Salt/Magnesium Sulfate solution to prevent contamination, which can cause your crystals to stop growing.

How To:

1. Review how crystals are made in nature.
    a. Crystals often form in nature when liquids cool and start to harden.
    b. Under ideal growing conditions, certain molecules in the liquid gather together as they attempt to become stable. They do this in a uniform and repeating pattern that forms the crystal.
    c. In nature, crystals can form when liquid rock, called magma, cools.

2. Have your child(ren) measure out ¼ cup of the unscented Epsom Salt/Magnesium Sulfate with your measuring cup and pour it into their glass cup.
3. Carefully pour ¼ cup of hot water (our magma/lava) into the glass cup and them mix the solution with a spoon for 2 minutes or until most or all of the Epsom Salt/Magnesium Sulfate has dissolved.
4. Allow the child(ren)'s cup to cool. Once your cup has cooled to room temperature, have the child(ren) place their cup in the refrigerator in a place where it will not be disturbed or moved.
5. Leave in the glass in the refrigerator for at least 12 hours. Encourage your child(ren) to check on their glasses every three hours and ask them what changes they observe. Make sure they do not move the glass.
6. After 12 hours, have your child(ren) remove their glass cup and examine the crystals using a magnifying glass. Ask them what they see.
7. Drain half of the liquid from the glass cup and then leave the glass out on the counter for a few more hours as the crystals continue to grow.
8. Now, carefully pour out the remaining liquid, leaving the crystals in the glass. Ask your child(ren) how strong do they think their crystals are?
9. After getting their answers, test their answers. Have them gently touch their crystals. Once touched, the crystals will start to turn a powdery white, indicating they are beginning to degrade.

What Happened:

During our experiment, we sped up nature's crystal making process. In nature, crystals form over long periods of time and in perfect conditions making strong crystals in various colors depending on the minerals and environment around them. In our experiment, we use the refrigerator and Epsom Salt/Magnesium Sulfate (Unscented) to make our crystals faster, but at a cost. Our crystals are not as strong as those found in nature.

Vocabulary:

- *Magma* – Hot fluid or semifluid material below or within the Earth's crust from which lava and other igneous rock is formed on cooling.

- *Minerals* – A naturally occurring inorganic element or compound having an orderly internal structure and characteristic chemical composition, crystal form, and physical properties. Common minerals include quartz, feldspar, mica, amphibole, olivine, and calcite.

- *Environment* – the complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival.

More Fun:

- Carefully crack an egg, keeping the shell as intact as possible. Clean and sanitize the shell. Then repeat the experiment, carefully using the egg shell instead of the glass. After your done, the child(ren) will have their own miniature geodes.
- Repeat the experiment but double or triple the amount of water and salts. This will make bigger crystals.