

WARNING — This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

HOME/SCHOOL CONNECTION

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Investigation 3: Saturation

You can grow crystals in your home laboratory. Choose one of the approaches described below. Use safe laboratory procedures when working with chemicals.

Alum or Epsom Salts Crystals

1. Evaporate an alum (or Epsom salts) solution and save the crystals.
2. With an adult, make a supersaturated alum solution by dissolving alum in very hot water (close to boiling) until nothing more will dissolve. Cool the solution. Pour it into a jar.
3. Tie one alum crystal to the end of a thread. This is the seed crystal.
4. Hang the seed crystal in the jar of supersaturated alum solution, and wait several days for the crystal to grow.
5. Remove the crystal, make another supersaturated alum solution, cool it, pour it into the jar, and put the crystal back into the solution. Repeat this process for bigger and bigger crystals.

Bluing Crystals

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|---------|------------------------|---|--------------------|
| 1/4 cup | Water | 1 | Plastic cup or jar |
| 2 Tbsp. | Liquid bluing | 4 | Pipe cleaners |
| 2 Tbsp. | Salt | 1 | Small lump of clay |
| 2 Tbsp. | Ammonia (no detergent) | • | Food coloring |

1. With an adult, make a solution with the water, liquid bluing, salt, and ammonia.
2. Place a lump of clay on the bottom of a clear plastic cup or jar. Push four pipe cleaners into the clay. Put food coloring on the tips of the pipe cleaners.
3. Pour the solution into the cup so that it covers the clay and all but 1 cm of the pipe cleaners.
4. Set the cup where it will not be bumped or disturbed. Crystals will start to form in a few hours.

NOTE: The solution may be poured over broken charcoal, sponges, or sections of cardboard tubes instead of clay and pipe cleaners. Whichever material you use, part of it must extend above the surface of the liquid.