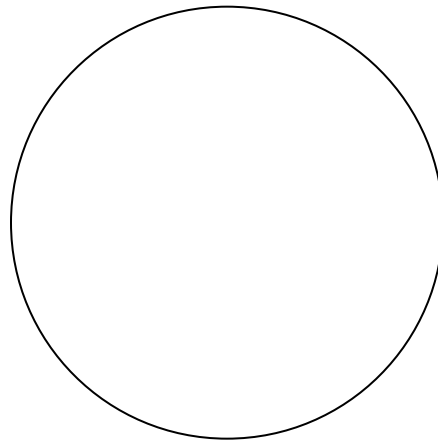
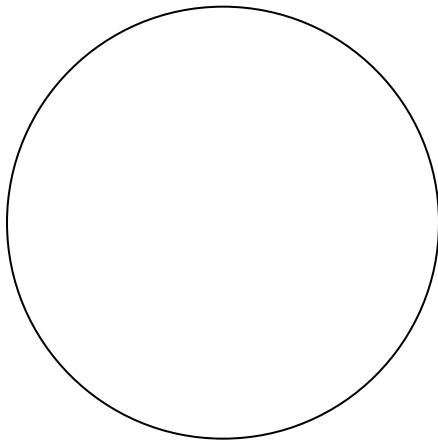
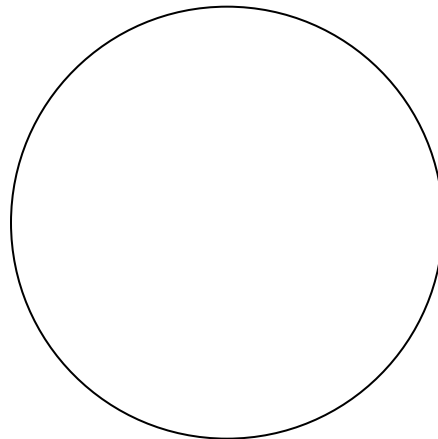
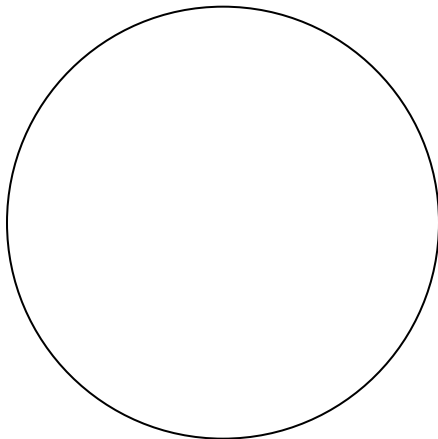









# Fast Crystallization

Objective: observe mineral crystal growth under a microscope.

<p>Materials:</p> <ul style="list-style-type: none"><li>• Magnesium sulfate solution</li><li>• Aluminum-potassium sulfate solution</li><li>• Copper sulfate solution</li><li>• Sodium Chloride solution</li><li>• Rubbing alcohol</li><li>• Glass petri dish or slide</li><li>• Droppers for each solution</li><li>• Microscope</li><li>• Safety glasses and gloves</li><li>• Pumice, basalt, granite and obsidian specimens</li></ul>	<p>Procedure:</p> <ol style="list-style-type: none"><li>1. Put on your safety glasses and gloves.</li><li>2. One at a time, use one of the droppers to add <u>1 or 2 drops</u> of a salt solution to the center of a glass slide.</li><li>3. Add 1 drop of rubbing alcohol using a separate dropper to drop the vapor pressure and speed up evaporation of the water.</li><li>4. Observe crystal growth using the microscope as the water evaporates.</li><li>5. In the circles below, draw the crystals that form. Be sure to label your drawing.</li><li>6. Repeat steps 1-5 for the remaining three salt solutions.</li></ol>
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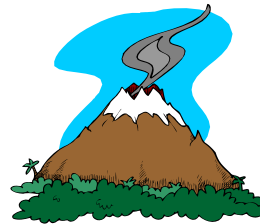
What is the Crystal Shape for Each Solution?

Salt Solution	Crystal Shape	 Cubic	 Orthorhombic
MgSO <sub>4</sub>		 Tetragonal	 Monoclinic
AlK(SO <sub>4</sub> ) <sub>2</sub>		 Hexagonal	 Triclinic
CuSO <sub>4</sub>			 Trigonal
NaCl			

Match the everyday use to the salt solution

- |  |   |
|--|---|
| <input type="checkbox"/> Magnesium sulfate<br>(Epsom salt) | A Food additive, food preservative, ice melt                  |
| <input type="checkbox"/> Sodium Chloride                   | B Used in herbicides, fungicides, metal plating and hair dyes |
| <input type="checkbox"/> Aluminum potassium sulfate        | C Bath salts  |
| <input type="checkbox"/> Copper sulfate                    | D Used in medicine and for dyeing fabrics                     |

IGNEOUS ROCKS



Rock Name	Crystal size	Rate of cooling	Intrusive or Extrusive
Pumice			
Basalt			
Granite			
Obsidian			