Crystallization Demonstration
Phenyl Salicylate Crystals
Teacher Resource

Grade Level 6-12

Objectives

1. The student will develop an understanding of temperature and the melting points of chemicals.
2. The student will employ simple equipment and tools to gather data.
3. The student will demonstrate the use of 21st century technology with a digital microscope to locate, evaluate, and collect information.

National Standards

NS.K-4.1; NS.5-8.1; NS.9-12.1	Science as Inquiry
NS.K-4.2; NS.5-8.2; NS.9-12.2	Physical Science
NS.K-4.5; NS.5-8.5; NS.9-12.5	Science & Technology
NT.K-12.1	Basic Operations and Concepts
NT.K-12.3	Technology Productivity Tools
NT.K-12.6	Technology Problem-Solving & Decision-Making Tools

Teacher Background Information

This demonstration is perfect to use as a demonstration to a unit on crystallization. Crystallization occurs through a natural process where solid crystals precipitate from either a solution, by melting, or by a gas. This demonstration will show crystallization occurring by heating phenyl salicylate in its solid form around 43°C, so the process is through cooling. When it begins to lower in temperature from the melting point, crystals will begin to form.

MATERIALS

Digital Microscope	Glass Microscope Slides
Personal computer	Hot Plate
Interactive White Board/Projector	Forceps
Phenyl Salicylate	Safety goggles

PROCEDURE

1. Wear safety goggles at all times.
2. Sprinkle a small amount of phenyl salicylate on a glass slide.
3. Heat on a hot plate until the phenyl salicylate powder starts to melt.
4. Immediately remove the slide from the hot plate with the forceps.

   Note: place 2 washers on the hot plate with the slide on top of the washers…this will be easier to remove the slide form the hot plate.
5. Place the slide underneath the digital microscope and focus.
6. Start recording the recrystallization of phenyl salicylate under the microscope.

DISCUSSION

Connect this demonstration to geologic processes with your class about crystallization, the differences between minerals cooling rates, and the orderly framework of how minerals form (these ideas can be seen in the demonstration).