

Alexandra McKenna

*The Effects of Cooling Rate on Crystal Growth*

This experiment was designed to simulate molten rock escaping the earth's surface and cooling at different rates. Since atoms arrange themselves layer-by-layer to make a crystal, a slower cooling rate should allow molten rock more time to produce larger crystals. If all other factors that affect crystal growth are kept constant (pressure, chemical conditions, and space), a slower cooling rate should result in larger crystals. These experiment tests the effects of cooling rate on crystal growth by using three beakers filled with: boiling water, water at room temperature, and ice cold water. Placed in the beaker with boiling water were three test tubes filled with a mixture of crayon and mothball. Once the mixture in the test tubes liquefied, two of the test tubes were placed in the other two beakers and the third test tube remained in the beaker with the hot plate turned off. The test tubes remained in the beakers for 90 minutes. Then, the test tubes were removed from the beakers and the hardened crystal mixture was observed and recorded. All mixtures from the beaker with boiling water showed significantly larger and more crystals when viewed under a microscope. All mixtures from the beaker with ice water showed the smallest and least number of crystals. Each of the six texts produced consistent and significant visible differences in the three crystal mixtures subject to different cooling rates.