Three Sizes of Crystals

Chapter 3

The size of crystals in igneous rocks gives you a clue to its origin. By looking at the size of crystals in igneous rocks, you can determine the type of volcano that produced the rock and where it cooled. The crystal size in igneous rocks lets you know the following:

- If the rock blew out of a volcano during an eruption
- If the rock cooled in a lava flow
- If the rock cooled near the Earth's surface
- If the rock cooled deep within the Earth
- If the rock started cooling deep within the Earth and finished cooling in a lava flow or near the Earth's surface

Microscopic crystals

Microscopic crystals form when lava cools very quickly after a volcanic eruption. Pyroclastic rocks in lava flows have enough time to crystallize but the minerals are microscopic in size. The tiny crystals are visible under high-powered microscopes. Scientists cut rocks into very thin slabs to study microscopic crystals in the lab. Basalt, andesite, and dacite usually have microscopic crystals.

Microscopic crystals

Small crystals

Igneous rocks that cool underground near the surface of the Earth usually have small crystals visible to the unaided eye. The diorite and granodiorite in your set are intrusive rocks that cooled near the Earth's surface and have small crystals.

Small crystals

Gumdrop Crystals

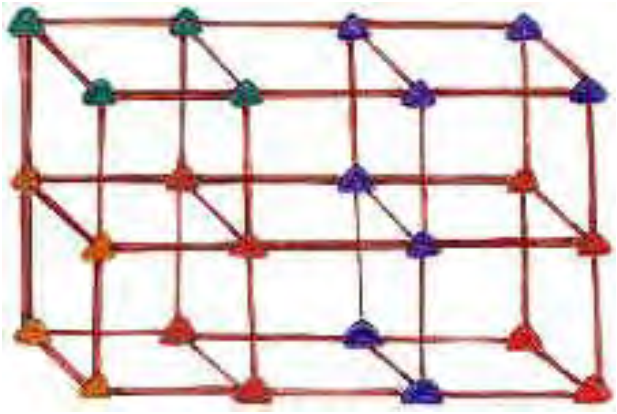
Activity 3

Introduction

In this chapter, you learned about large crystals, small crystals, and microscopic crystals. You will get a chance to build each of these crystals. Be sure and wash your hands before you start the activity.

Materials

- Bag of gumdrops
- ½ box of toothpicks



Candy crystal lattice

Glassy rock

Directions

Step 1

1. Place the gumdrops and toothpicks on a clean surface in random order.
2. The gumdrops and toothpicks represent a **glassy rock** like obsidian. It does not have a crystalline structure.

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