

# Growing Mineral Crystals

## Summary

Students will watch mineral crystals grow from solution under the microscope. They will see how crystal shape is a distinctive property of minerals.

## Time Frame

1 class periods of 60 minutes each

## Group Size

Small Groups

## Materials

microscopes

slides

saturated solutions of salts such as table salt, Epsom salts, copper chloride, alum, potassium nitrate or anything in your chemical cabinet that will dissolve in water.

dropper bottles or small beakers with medicine

droppers or pipettes

- [student sheet](#)  
(attached)

## Student Prior Knowledge

Students should know that minerals have 5 qualities: natural, solid, non-living, pure and have a crystal form. Minerals are what rocks are made of and occasionally you can see them in rocks such as granite.

## Instructional Procedures

Review background information with students. It is NOT important that students know the names of the crystal shapes, in fact, it will be counter productive to share those names with them.

Those names are only important to a very select group of people and 8th graders are not in it.

Show students where solutions, slides and microscopes are. Discuss the use of microscopes if students have not used them recently. Remind students NOT to use high power. It is unnecessary and will coat the lens with minerals.

Put students in groups of 2-3 or smaller if enough microscopes are available.

Read procedures with students. Remind them that the crystals will take a few minutes to grow and they will need to take turns looking while they wait.

If you are uncomfortable with students having a little time (about 5 minutes) on their hands, provide a short video clip on minerals or discuss a related topic with the class.

Have a few students go to the board and draw a crystal from each solution. See if other students saw the same thing. Discuss why crystals would not be identical in a solution. The answer is that they grown into each other and interfere with the growth of adjoining crystals. If they will draw a crystal that grew by itself, they should look similar in each group. The atomic structure of the atoms in the solution will determine the shape of the crystal.

## Assessment Plan

## Scoring Guide

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1. Students set up a microscope slide and look at the solutions.....4
2. Students draw the crystals .....4
3. Students answer analysis questions correctly.....4
  - Were your crystals shaped the same as other groups in the class?
  - Why-because they were made from the same atoms coming together in the same way.
  - Salt crystals were not the same size because
  - The salt crystals were the same shape because salt molecules always come together in the same way.
  - Crystals form in nature when molten rock cools or minerals dissolved in water crystallize out as the water evaporates.

#### Bibliography

Lesson Design by Jordan School District Teachers and Staff.

#### Authors

[Utah LessonPlans](#)