

A Closer Look at Crystals

The tiny particles that make up all substances are connected in a particular way for each substance. In crystals, the particles repeat in a pattern that gives the crystal its special shape. Take a look at the crystals below to see what we mean.

Materials:

- Salt
- Epsom salt
- Monosodium glutamate (MSG – Accent)
- Coarse kosher salt
- Black construction paper
- Masking tape
- Pen
- Magnifier

Procedures:

1. Use masking tape and a pen to label four areas on your black paper “salt”, “Epsom salt”, “msg” and “kosher salt”. Place a very small amount of each type of crystal on its labeled area of the black paper.
2. Use a magnifier to look very closely at each type of crystal. Describe the size, shape, and color of each type of crystal. Do they look the same or different?



Think about this ...

Even though salt and kosher salt look different, they are actually made of the same substance! The reason they look different is because of the way they are produced at the salt factory. In order to make kosher salt, the crystals are moved constantly during the recrystallization process. Do you think the crystals would look the same or different if salt and kosher salt crystals were both left alone as the crystals formed?

Where's the Chemistry?

Each type of crystal has its own special shape. Remember how each salt crystal is shaped like a cube? As long as the crystals of a particular substance are allowed to form under the same conditions, the shape of that type of crystal will always be the same. This is because a crystal is formed by repeating the same small shape many times and in the same pattern. Different crystals are made up of different repeating shapes in different patterns. This is why salt, Epsom salt, and MSG look different. Kosher salt is a different story. It is the same substance as salt but looks different. If kosher salt was allowed to form the same way as salt, both kosher salt and salt would look exactly the same.



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The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at www.acs.org/kids.

Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

Never eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

Never experiment on your own!

For more detailed information on safety go to www.acs.org/education and click on "Safety Guidelines".

