

# ICE OF A DIFFERENT COLOR

**Y**ou learned that water molecules come together in a very special way when water freezes. In the activity below, see if water freezes the same way when salt or sugar are dissolved in it.

## You will need

water	three 12-oz plastic or paper cups
ice cube tray	masking tape
food coloring (three different colors)	pencil
freezer	newspaper
sugar	coarse sandpaper
salt	empty coffee can
	sand, gravel, or dirt

**1** Cover your work surface with a layer of newspaper. Label your cups “tap,” “salt,” “sugar.” Put 1 cup of cold tap water in each cup.

**2** Add 1 level teaspoon of salt to the salt cup and stir until as much salt dissolves as possible. Add 1 level teaspoon of sugar to the sugar cup and stir until as much sugar dissolves as possible.

**3** Put 1 drop of a different color food coloring in each cup. Write the color on the cup’s label. Take each cup and carefully pour enough liquid to make 3 or 4 cubes of each color in the ice cube tray. Put the tray in the freezer before going to bed.

**4** The next day, take out one cube of each color and put the rest back in the freezer. Look at the three cubes very closely. Do you see a difference among them? Describe the differences. Feel each ice cube. Describe the way they feel.

**5** Rub each cube on your piece of sandpaper. Is there a difference in the sound they make? Does any cube seem easier to sand down than another?

**6** Fill an empty coffee can with sand, gravel, or dirt. Put the lid on and tape it all around so the lid is very secure. Place one of each type of ice cube from the freezer on a hard surface outside.

**7** Drop the can on each cube from 5 cm above the ground. Remove the can and observe what happened to each cube. Did you expect these results? Why? Do the same experiment again with a new set of cubes to check your results.



Which cube do you think will melt first?  
Do an experiment to find out!

**Caution:** The empty coffee can may have sharp edges. Be careful when filling it. The filled coffee can is heavy. Do not drop it on your fingers or toes.