


# ICY ORBS


It would be easy to mistake these multicolored, patterned balls for precious jewels, mysterious deep-sea creatures, or even alien worlds from outer space. But, actually, they're just balls of colored ice.

No two ice balloons look the same because the food coloring that is added spreads differently through the melted ice of each ball.

Remember: they won't last forever, so you might want to photograph your colorful creations before they melt.



Your ice ball is easy to make: simply put a water-filled balloon in the freezer overnight.

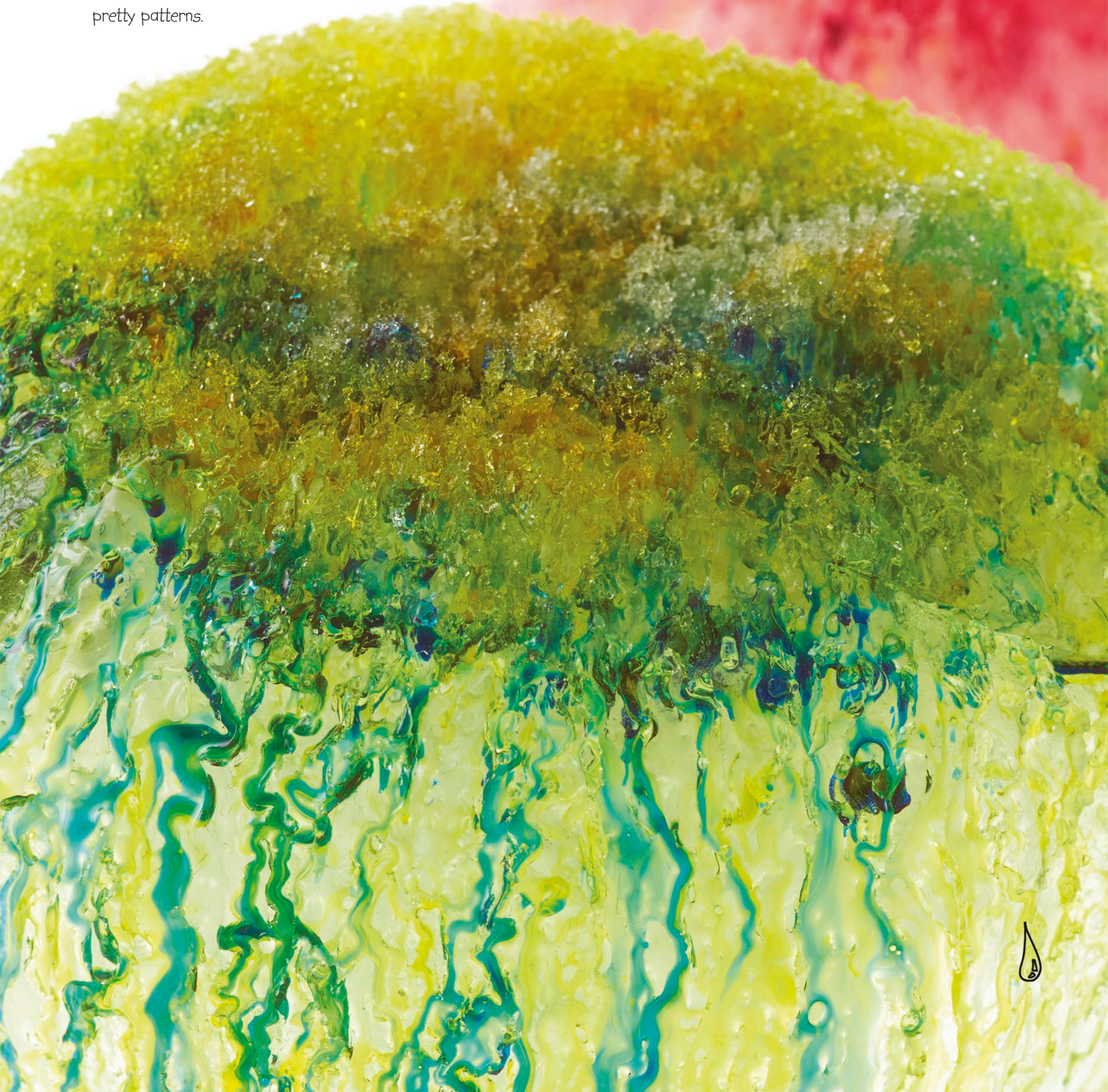


Sprinkle grains of salt onto your ice ball; wherever salt lands, the ice will melt.

Colorful streams of water flow down the side of the ball.

### COLORFUL ICE BALLS

These beautiful balls are made by freezing water in a balloon. Sprinkling salt on top of the ice makes sections of ice melt, creating rivulets of water that run down the sphere's sides. Add food coloring to the mixture and watch it dissolve in the liquid water, making the rivers run green, blue, and any other color you add, to make pretty patterns.



# HOW TO MAKE ICY ORBS

This simple but effective experiment creates spectacular results: simply make a ball of ice, add salt and food coloring, and watch fabulous patterns paint the ice. You will need to be careful, though; adding salt to ice makes the ice even colder—a mixture of salt and ice can get as cold as  $-6^{\circ}\text{F}$  ( $-21^{\circ}\text{C}$ ), so make sure you don't touch the ice when it is mixed with the salt.

	
<b>Time</b> 10 minutes plus freezing time	<b>Difficulty</b> Easy

## WHAT YOU NEED



Food coloring (the more colors, the better)



Balloon



Large bowl



Salt



Scissors

You will also need a freezer and a water faucet

If there is space in your freezer, put the water-filled balloon in a bowl, so it keeps its round shape.



**1** Place your balloon's opening over the end of a cold-water faucet. Turn it on to a trickle and half-fill the balloon with water. Remove and tie off the balloon—ask an adult for help if you need it. Put the balloon in the freezer and leave it overnight.

If the ice feels too cold for your hands, wear some gloves.



**2** The next day, remove the balloon from the freezer. It should feel hard because the liquid water has turned into solid ice. Cut the tied end off the balloon, and peel off the rubber.



**3** Put your ball of ice back in a bowl or on a tray. Sprinkle a little salt on top of the ice ball. Watch the ice melt where the salt grains land, peppering the icy surface with lots of tiny holes.



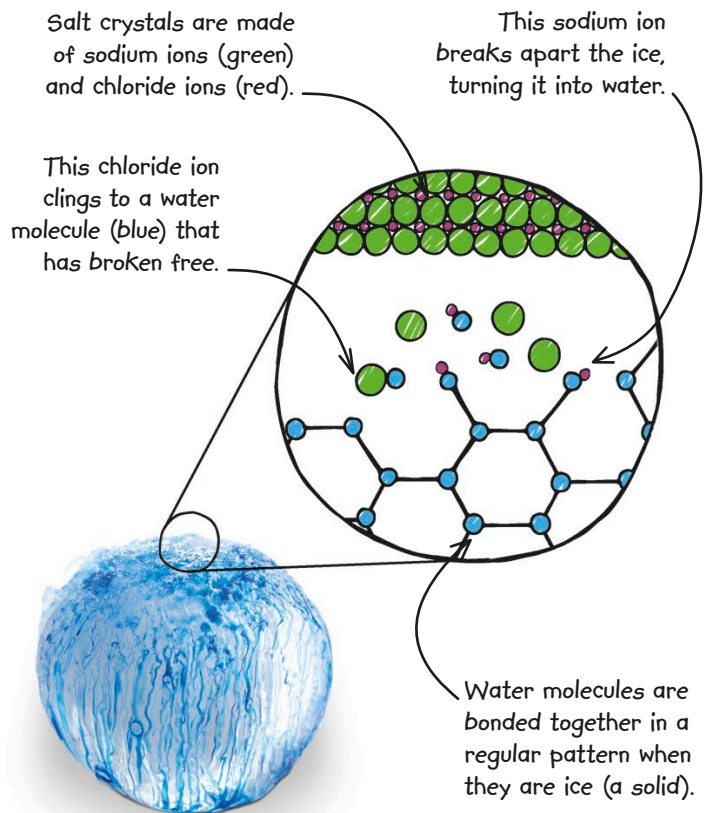
**4** Drip some food coloring onto the ice. The coloring will mostly sit on top of the solid ice, but it will quickly dissolve in the melted ice to make colored rivers that stream down the side.

**5** To make your icy creation look even more beautiful, add different food colorings. And if you shine a flashlight or lamp under one of your icy creations, you can get a really spectacular effect!

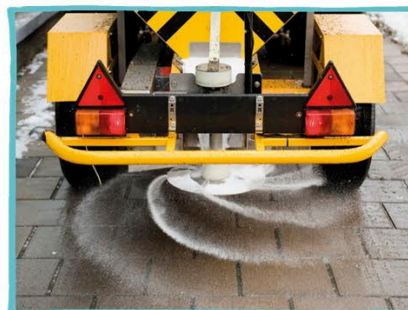


## HOW IT WORKS

Salt grains are crystals, and are made of two types of particle—sodium ions and chloride ions—joined together. When salt is sprinkled on an icy orb, the ions break up the regular arrangement of water molecules in the ice. Once the water molecules are broken apart, the ice becomes liquid. Since sodium and chloride ions attach to the water molecules, the water molecules cannot bond together unless the temperature becomes very cold again.



## REAL WORLD SCIENCE DE-ICING ROADS



In freezing temperatures, specially designed trucks spread salt spread on major roads and sidewalks to prevent accidents. The salt melts any snow or ice that is already on these surfaces, and also prevents water from turning into ice. This is because adding salt lowers the freezing point of water.