

FROZEN Bubbles

by jacob rodenburg

Bubbles in winter? This sounds more than a little improbable! But with a bit of patience and the right conditions, you and your kids can make glittering frozen spheres that crystalize right before your eyes! And while they may be fleeting (each bubble lasts only 30 seconds or so), their exquisite shape, colour, and ability to reflect light will warm your heart, even on the coldest of winter days.

Winter Bubble RECIPE

1 c dish soap (Joy and Dawn brands work well some soaps just hold bubbles better!)

1/2 c corn syrup

3 c water

1. Mix ingredients until combined. Allow bubble mixture to get cold before using (room temperature soap won't make frozen bubbles!).
2. Make sure the temperature is below freezing—the colder the better. Find a place that is a bit sheltered and out of the wind.
3. Using a conventional bubble wand that you can purchase at any toy store, very gently blow a bubble. If you can, catch the bubble on the wand and watch it as it freezes. If it's cold enough (-10 Celsius or colder), you'll see a lattice-work of crystals form around your bubble, almost as if Jack Frost's frozen fingers magically transformed your creation into a sphere of ice!

The crystals will seem like frozen snowflakes marching across the surface of the bubble. Eventually all of these crystals (each shaped like a six sided hexagon) will coalesce to form a frozen bubble. If you are lucky and the conditions are right, your icy bubble can even bounce along the ground. Touch your bubble and see what happens. Does it pop like a summer bubble or does it shatter like a broken pane of glass?

Bubble SCIENCE

When you blow into the wand, your air is both warm and moist. A bubble forms when a thin layer of water (that you breathed out) is caught between two even thinner layers of soap molecules. The cold air crystallizes the water layer before the soap bubble has a chance to burst.

The cold temperature means any air trapped inside the bubble will contract and slowly leak out of the bubble, much like a balloon when it deflates. Eventually the frozen bubble collapses under its own weight. The icy walls of the sphere are unable to support the structure of the bubble and it breaks much like a cracked eggshell.

Isn't it great when something you thought was only possible in one season turns out to have a new twist in another? Go outside and experiment with these frozen dancing orbs of ice. They are as beautiful as they are ephemeral. Check out this YouTube video entitled, "Soap bubbles @ -15 degrees Celsius" and you'll be hoping for cold weather! •



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