



## Exploring Ice



by BostonChildrensMuseum

**Overview:** In this activity, children are invited to take a closer look at something familiar to them-- ice. It might seem a little strange, but the study of a common object can lend itself to some really good practice in thinking like a scientist. Learning to observe something is an important skill in STEAM. It can be intriguing to truly look at something you've seen many times before. It's the difference between just seeing something and observing it.

This Instructable should be not be read as a step-by-step guide, but more of a list of our favorite ways to engage learners in this activity. Take what works for you and leave what doesn't. Experiment with new things and let us know how it goes!

### Skills Focus:

- Persistence
- Experimenting
- Observing
- Predicting
- Creativity
- Tool Use

**Ages:** all ages

**Time requirements:** ice should be prepared the night before



## Step 1: Making Ice: Shapes

Ice should be prepared the night before you plan to use this activity. We use a variety of ways to make ice for kids, depending on their age or the duration of the activity.

- **Regular ice cubes.** Using ice cube trays or an ice maker, make a bunch of ice cubes! We like to put these in a sensory bin for younger children.

- **Big ice cubes.** Instead of freezing water in a tray, use Tupperware or mixing bowls to make large ice cubes. Different shaped containers make interesting

ice creations! Larger pieces of ice are ideal for a longer session of ice exploration, as it will take longer for them to melt. They also lend themselves well to working in groups or pairs.

- **Ice cups.** If we want each child to have their own personal ice chunk to explore, we freeze water in plastic Dixie or Solo cups.

- **Funky shapes.** We have frozen water into balloons, gloves, and silly shaped ice cube trays.

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## Step 2: Making Ice: Colors

A great way to transform ice is to add color to it! Kids will be amazed to see ice in a new and beautiful form. We add **liquid watercolor** to the water when we make colored ice. Liquid watercolor is kid-friendly and reduces the risk of stains, as compared to food coloring or similar materials.

- To make beautiful, layered colors, fill your ice mold

halfway with water. Add color and let freeze. Once the layer has frozen, pour more water on top to fill the container. Add a different color to the water and let freeze.

- Note: The liquid watercolor will not uniformly dye the water one color. Some natural separation may occur.



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### Step 3: Making Ice: Freezing Objects Into Ice

Freeing objects frozen into ice requires children to be persistent and make choices about tool use. Objects may appear different than they typically do, which can spark curiosity and observation. Here are some objects we have frozen into ice:

- Mardi Gras beads
- natural objects, such as: pine cones, flowers, leaves
- plastic toys
- ping pong balls

Tried something else? Let us know!





#### Step 4: Exploring Ice: Tools

Ice melts, ice cracks, ice slips-- it does so many things! Tools can help children explore the many properties of ice and test their own predictions: "What will happen if we hammer ice? What will happen if we add hot water to ice?" By providing children with a few tools, they can carry out their own experiments. Here are some tools children have enjoyed using at the Museum:

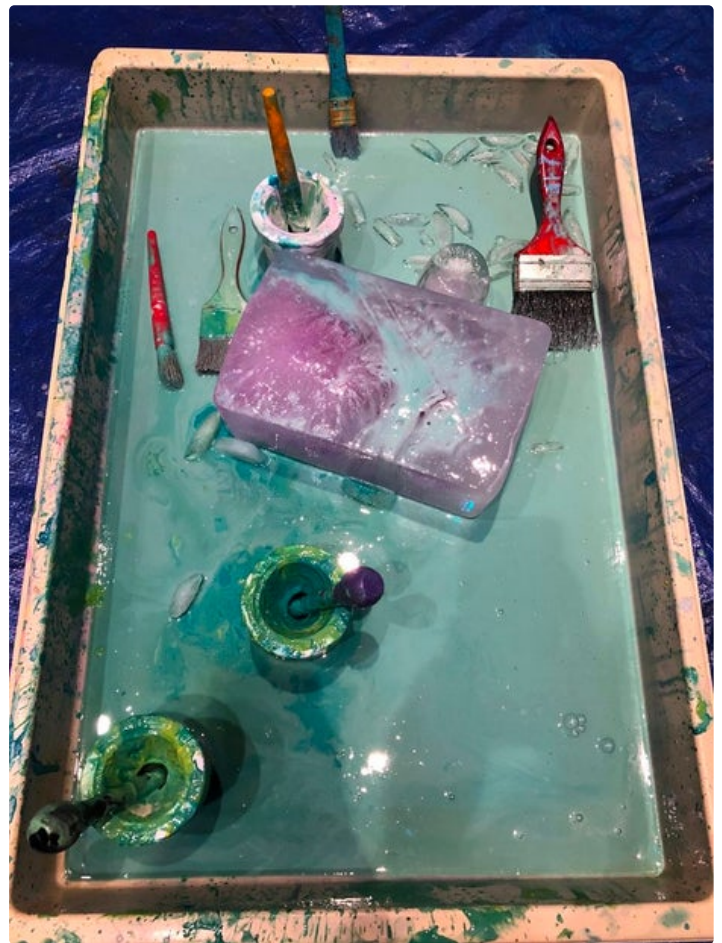
- mini spray bottles, with hot or cold water
- kid-sized hammers & screw drivers (these tools

definitely require safety goggles!)

- brushes
- eye-droppers
- magnifying glasses
- magnifying lens for smartphones/tablets
- scoops and shovels







## Step 6: Let Us Know What You Did!

We are always looking for new ways to do this activity. Let us know what you did with your children!



We enjoyed experimenting with freezing glitter glue, Orbeez, and small toys! What a fun way to tinker on a hot day! Plus, this led to some great imaginative play and storytelling!



Your creations look amazing! I have always wanted to try freezing Orbeez. Thank you so much for sharing!



What gorgeous photos of ice! I've been wanting to make a guide on creating candles using ice... an old trick from my days as a kid! :D Thanks for sharing this, can't wait to try it with my littles.