

Ice Tower Excavation



Activity Description

Archaeology is the study of things that people may have made, used daily, and then left behind. Scientists who study archeology (archaeologists) want to understand what people of the past were like and how they lived.

The first thing an archaeologist has to do is find a site to study. Once a site is found, this scientist digs slowly and carefully—this work is called “excavation”.

In this activity, your archaeologists will excavate a giant ice cube to slowly excavate items from around the house that are frozen inside.

Collect the miscellaneous materials from around the house that are small and can be frozen in water. Kids can help too! You can use a cupcake pan for kids to understand the size factor of materials you need. Fill up a cupcake pan!

Procedure

1. Once all materials have been collected, gather your container and start layering water + materials, freeze for a few hours, then add another layer of water + materials. You can make as many layers as you want or as many materials your container will allow.

Materials

- Water
- Large container like a plastic bowl or pot (do not use glass)
- Misc. items to freeze in the water (blocks, necklaces, rocks, marbles, beads, small plastic toys.)
- A shaker of Salt
- Paint brushes
- **Optional:** a shaker of sugar, a muffin tin rather than a bowl

Preparation and Safety

Be aware of choking hazards with small items (such as beads) for children under 3. Do not use glass bowls to freeze toys. Ice will expand and can shatter the container.

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Procedure (continued)

2. Once your container is completely full and frozen with the materials, remove from the freezer, run water over the outside of the container and hold upside down—**unless it's a heat tempered material, be sure to only use cold water.** The ice block should slide right out.
3. Once the ice block is free, you can present it to your tiny archaeologists in a shallow dish and let them begin excavating!
4. The archaeologists can use small cups (or squeezey bottles) of warm water to start the excavation process, along with using paintbrushes and salt to help the ice melt away faster.
5. If the archaeologists decided that it's time to move on to something else before all materials have been extracted, the ice block can just be placed back into the freezer and used at another time!

Extensions and Adaptations

- Why do we use salt in this experiment? A solution of water and salt, also known as Brine, has a lower freezing point than pure water. The more salt there is, the lower the temperature needs to be. By adding salt to the ice makes a film of brine on the surface, which causes the ice to melt.
- Dress up like an archaeologist to create an immersive experience!
- Freeze items into a cupcake tin for cupcake-sized block
- For older kids who can be trusted to handle tools safely, gather safety goggles, a hammer, and a flathead screwdriver. Supervise the child as they wear goggles and explore how they can excavate with more powerful tools! **SAFETY NOTE:** This works best if the frozen items are made of durable plastic. Do not use this method of excavation if you have frozen marbles or any other glass, or anything that you don't want damaged!