

Ice Excavations

Gather your shovels, brushes, and chisels to find the hidden treasures frozen in the glacier. Discover how careful archeologists have to be when they unearth fragile fossils. Using household items, excavate and examine the 'prehistoric pieces' in this fun Lego dig!

TEKS:

4.2A Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.

How To:

- 1. Fill the small plastic container half way with water and place the Lego figurine on the water's surface. Place the container in the freezer for a few hours. Remove the container from the freezer, add more water to fill the container to the top, and place it back in the freezer to freeze overnight. Take your container out of the freezer and ask an adult to try and remove the ice from the container so that your ice block can sit on a plate.
- 2. Using household items (e.g. magnifying glass, salt, toothpicks, or chopsticks) brainstorm the best method to excavate and dig out your Lego figurine fossil from the ice.

Materials:

- Small plastic container
- Water
- Lego figurine
- Plate
- Salt
- Magnifying glass
- Pipette or turkey baster
- Toothpicks, chopsticks, or any other household items that can be used to dig through the ice

3. Test your plan by trying to carefully remove the Lego figurine. Try different methods to see which one works best. If one method fails, redesign your tools or come up with a new plan and remember, your Lego figurine is a very fragile fossil and you must be able to excavate the fossil without causing any damage.



The STEM Explanation:

Part of the fun in this experiment is that everyone could do it a little differently, yet still accomplish the same goal! If one method doesn't work to free your Lego, there are more ways to try. For instance, you can use water or salt to help the ice melt. This is because they impact the melting point, or the temperature that ice changes to water, of the ice. When you put water with a higher temperature next to ice, molecules from the ice start to move faster, or melt, at a higher rate. Salt will help melt the ice because the salt molecules disrupt the equilibrium of the ice molecules and break them apart. If your ice still isn't melting fast enough to rescue your Lego, you can use some tools to physically break up the ice into chunks. This increases the surface area of the ice exposed, thus allowing more of it to melt.

Career Connection:

An archeologist is a scientist who studies past peoples and cultures by excavating and examining material remains. These remains can be as simple as an arrowhead or as complex as the ruins of a prehistoric village. Archeologists study ancient cultures as well as recent historic occupations. Archeologists are interested in animal bones, plant remains, and certain stone materials when these things occur at archeological sites and have a clear relationship to human activity.

Resources:

- http://www.thc.state.tx.us/preserve/archeology/what-does-archeologist-do
- http://lemonlimeadventures.com/lego-science-ice-excavation-experiment/