



#FontanaTogether

Build a Cooler

How does a cooler keep things cold? Which material makes the best insulation? Try this project to find out how long you can keep an ice cube from melting once it's out of the freezer!

Materials:

- Two equally sized plastic food storage containers (one will need to have a tight-fitting lid).
- Ice cubes (at least two of the same size)
- Two plastic zip-top bags or matching smaller food storage containers/cups that fit inside the larger ones
- A work surface where both of your containers will have equal exposure to external sources of heat (such as sunlight or a vent). To speed up the activity put your containers in the sun and/or take them outside on a warm day.
- An insulating material such as cotton balls, bubble wrap, crumpled paper, and so on (more than one is optional)—enough to mostly fill one of your large food containers

Prep work:

1. Mostly fill the inside of one of your plastic containers with insulating material. This is your "cooler."
2. Place a zip-top bag or smaller plastic container inside each of the larger containers (make sure that the lid on the insulated container will be able to close all of the way; remove any insulation needed until the lid can close; leave it open for now).

Instructions:

1. Ace one ice cube in each of your smaller containers or bags.
2. Quickly close the lid on the "insulated" cooler container. (Do not put a lid on the other larger container.) Which ice cube do you think will last the longest?
3. If your workspace isn't very warm, the ice cubes might take a while to melt. Go do something else for 15 minutes, and then come back. How big is the ice cube in the open container now?
4. Depending on how fast it is melting, continue to check the ice cube periodically. Keep checking until it has melted completely.
5. As soon as that ice cube finishes melting, open your cooler and check on that ice cube. Has it also fully melted? If not, how big is it?

