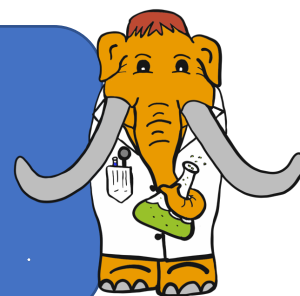


# Science Saturday @ Home

## Thermal Conduction: How Fast Can you Melt an Ice Cube?



### Gathering Supplies:

#### Ice Cubes

- At least two different types of material:
  - Paper, Plastic or Styrofoam Plate/Cup
  - Metal Pan or Aluminum Pie Plate
  - Piece of Aluminum Foil
- Cardboard and/or Styrofoam Pieces
- Paper Towels for Cleanup
- Stopwatch (Optional)

Some materials conduct heat faster than others.  
Let's see which material melts an ice cube the fastest!

### How To Steps:

1. Pick 2 to 3 different types of material and find a counter or table that you can leave them on. Remember that as ice melts it turns to water so make sure it won't damage the surface that you are experimenting on!
2. Place an ice cube on each of the different materials. If you have a stopwatch start it now. You can also have an adult help with tracking time.
3. Check back every few minutes and see how much of the ice cubes have melted.
4. Which material did the ice cube melt the fastest on? Try again with different materials if you want. Keep track of your results by making a table with the material and time it takes for the ice cube to melt.

# Exploring Thermal Conduction with Max



## Did You Know?

Why do metal pipes usually feel cooler to the touch than plastic ones? Why are coolers made out of Styrofoam? It's because different materials have different thermal conductivity. *Thermal conduction* is when heat energy moves from one object to another. The movement of heat energy will always be from the warmer object to the cooler. *Thermal conductivity* is how fast heat energy can move through a material.

Materials like metal have a high thermal conductivity. They absorb heat from your fingers faster, which makes your fingers feel cold. Styrofoam has a very low thermal conductivity rate, meaning that it is very slow to warm up or cool down. This makes it a great material for making coolers that will keep your drinks cold even on a hot summer day.

In your experiment, different materials transfer *heat energy* to the ice cube at different rates, meaning the ice cube melts slower in a Styrofoam cup than in a metal pan, even though both are sitting at the same room temperature. What material in your house has the highest thermal conductivity rate, melting the ice cube in the fastest time?