

I'm Melting! I'm Melting! [Activity]

This activity explores the heat transfer between various surfaces and an ice cube. The surfaces vary in color and material. And the transfer rates vary dramatically!

Answers to Procedure Questions

1. Both metal surfaces feel colder than both Styrofoam surfaces.
2. and 3. Predictions will vary.
4. The ice cube on the black defrosting tray melts most quickly.
5. The ice cube on the white Styrofoam melts most slowly. (It may be a close call between it and the ice cube on the black Styrofoam.)

Answers to Summing Up Questions

1. Answers will vary.
2. Heat flowed from the various objects (defrosting tray and Styrofoam plates) to the ice cubes.
3. Defrosting tray are metal and therefore conductors; Styrofoam plates are insulators.
4. The black defrosting tray can radiate better than the silvery (foil-covered) defrosting tray.
5. The blackened plate can radiate better than the white plate.
6. a. This is supported: both defrosting tray ice cubes melt faster than either Styrofoam plate ice cubes.
b. This conclusion is only supported when comparing surfaces made of the same material: The black defrosting tray ice cube melts faster than the silvery (foil-covered) defrosting tray.