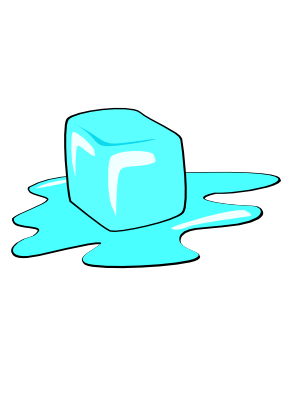
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**Ice Melting Blocks**

**Purpose:** To determine which material, metal or plastic, transfers heat better.

**Materials:** lab sheet, 4 ice cubes of the same size, 1 pair of melting blocks with rubber O rings, timer, paper towel

**Procedure:**

1. Have students touch both blocks to get a sense of their apparent temperatures *(If IR thermometers are available, let them take temperature of blocks and surroundings)*
2. Students complete the hypothesis statement on their sheet.
3. Have students place the rubber O rings on the blocks.
4. Students will then place an ice cube on each block, inside the ring and time them until 1 cube has melted completely.
5. The students will record the time it took the cube to melt and will note which block caused an ice cube to melt first.
6. Students will repeat the process one more time. *(Let them record the temperatures of surroundings and blocks with IR thermometer)*
7. Students will complete the conclusion statement on their sheet.

**Teacher Info:** The Ice Melting Blocks look similar, but are composed of different materials. One block feels cold to the touch while the other block feels slightly warm. Both blocks are at room temperature but have very different thermal conductivities.

After allowing students to hold the blocks, ask them which block would melt ice more quickly. Place an ice cube on each block and watch their amazement as the "cold" block melts the ice cube within about 2 minutes.

Ask - *What do you notice is different about the ice cubes? Why do you think the one melted faster? Which received heat - the block or the ice cube? How does this compare to pouring a warmer drink over ice cubes?*

The melting of the ice cube is barely noticeable on the "warm" block. The "cold" block is aluminum and has a much greater ability to transfer heat to the ice cube or from the hand. The "warm" block is plastic, which does not conduct heat well. Thermal energy or heat always moves from high to low. So energy moves from block to ice and from drink to ice.

*Use of IR thermometer should show that energy (heat) flows from the surroundings through the metal block to the ice much faster, thus the surroundings get colder. Insulators like plastic or styrofoam do not allow thermal energy to conduct through them as well.* ***Change of state always involves change in thermal energy - or the energy from the motion of the particles.***