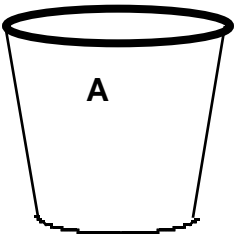
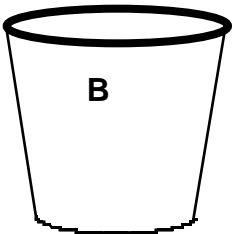
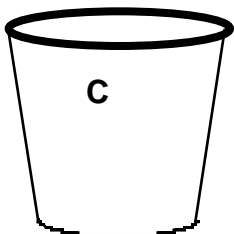
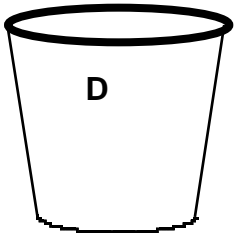
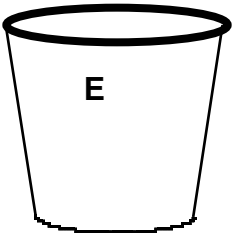
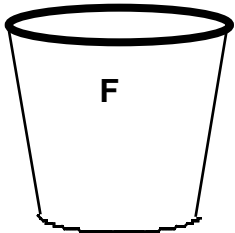


Copper and Water in Styrofoam Cups—Maximum Temperature ¹⁰⁹

You have six styrofoam cups containing the same amount of water at 20°C. You also have six copper blocks whose masses and initial temperatures vary as shown below. One block goes into each cup. (Assume the mass of the water is between 500 g and 1000g.)

Rank these cups according to the maximum temperature of the water after the block is added.

$T = 30^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">100 g</div>  <p>A</p>	$T = 60^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">200 g</div>  <p>B</p>	$T = 90^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">300 g</div>  <p>C</p>
$T = 15^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">400 g</div>  <p>D</p>	$T = 30^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">300 g</div>  <p>E</p>	$T = 60^{\circ}\text{C}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">100 g</div>  <p>F</p>

Highest 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ Lowest

Or, all of the cups have the same maximum temperature. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed

Sure

Very Sure

1 2 3 4 5 6 7 8 9 10

¹⁰⁹ I. Szalai, W. Thompson, J. Hehn, M. Mann