

HomeLab: Which Freezes Faster: Hot Water or Cold Water?

Name _____ Period _____

An ongoing controversy has been that hot water will freeze faster than cold water. Even Jearl Walker wrote an article on it in *Scientific American*. Those who try it sometimes find inconsistencies in their results.

Considering **Newton's Law of Cooling** (rate of heat conduction is proportional to the temp. difference) and **Stefans's Law of Radiation** (fourth power of the temp. in K). We might guess that it would be impossible for a hotter substance to catch up with and surpass a colder substance if all other conditions are equal. So why the big disagreement over the years? Hence we shall try it ourselves!

We shall have to be careful to make the conditions the same for both samples-- identical containers, the same mass of water in each, the same location in the freezer, are they covered or uncovered, etc.

PURPOSE: To find out which freezes faster, hot or cold water.

PROCEDURE: Devise and WRITE YOUR procedure here:

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PERFORM THE EXPERIMENT: List your observations and what was the final outcome?

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WRITE AN HYPOTHESIS on why it came out the way it did.

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QUESTIONS:

1. Was your result conclusive or too close to be sure?

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2. What could be done to improve your results?

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3. Try again??

CRITIQUE (on back):