

Will an Ice Cube Melt Faster in Saltwater or Freshwater?

Suggestions for Performance Assessments:

Provide an evidence based explanation for why an ice cube melted faster in freshwater than saltwater. Using a claim, evidence, reasoning format. C.E.R.

Scientific Explanations.. an explanation for our observations; for our questions.

Claim: A statement or conclusion that answer the original question.

Evidence: Data that supports the claim. The data needs to be appropriate (related to the conclusion) and sufficient (complete) to support the claim.

Reasoning: An explanation for your claim. It links or connects the evidence (data) to known scientific principles.

On the next page is a possible scoring rubric to use from:

Inquiry and Scientific Explanations: Helping Students Use Evidence and Reasoning by Katherine L. McNeill, Boston College and Joseph Krajcik, University of Michigan pp. 121-123. *Science as Inquiry in the Secondary Setting*. Julie Luft, Randy L. Bell, Julie Gess-Newsome. NSTA Press, Jan 1, 2008

Base or Generic Rubric

		Claim	Evidence	Reasoning
		<i>A statement or conclusion that answers the original question/problem.</i>	<i>Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim.</i>	<i>A justification that connects the evidence to the claim. It shows why the data counts as evidence by using appropriate and sufficient scientific principles.</i>
L E V E L F R O M 1 to 5	0	Does not make a claim, or makes an inaccurate claim.	Does not provide evidence, or only provides inappropriate evidence (Evidence that does not support claim).	Does not provide reasoning, or only provides inappropriate reasoning.
		Makes an accurate but incomplete claim.	Provides appropriate, but insufficient evidence to support claim. May include some inappropriate evidence.	Provides reasoning that connects the evidence to the claim. May include some scientific principles or justification for why the evidence supports the claim, but not sufficient.
		Makes an accurate and complete claim.	Provides appropriate and sufficient evidence to support claim.	Provides reasoning that connects the evidence to the claim. Includes appropriate and sufficient scientific principles to explain why the evidence supports the claim.

This base or generic rubric (McNeill & Krajcik, 2012) is then adapted to a specific question and the number of levels depends on the question.

Connecting thermohaline circulation in the ocean and climate.

Student Project: Younger Dryas Period

About 14,500 years ago, the Earth's climate began to change from an ice age to a warmer state, but about 1500 years into this transition a sudden influx of freshwater into the North Atlantic slowed thermohaline circulation and sent the Northern Hemisphere back into another cold period for another 1400 years.

Assignment:

Complete a writing assignment that summarizes the evidence for, as well as the possible triggers for this cold period in Earth's history.