

John Muir Study Guide  
Science Lesson Plan  
Grade Seven  
**John Muir on Glaciers**

At a time when it was popularly believed that a sudden cataclysmic event had created Yosemite Valley, it was John Muir who rightly conjectured that it was the slow movement of glaciers over time that actually carved the Valley. His observations and measurements helped to prove that living glaciers still existed in the Sierra. This research was instrumental in making significant advances in the new science of his day--glaciology.

Read the following excerpts from John Muir's "Yosemite Glaciers," *New York Tribune*, December 5, 1871; and *Studies in the Sierra*, 1950 reprint of 1874 serial.

"...The great valley [Yosemite] itself, together with all its domes and walls, was brought forth and fashioned by a grand combination of glaciers, acting in certain directions against granite of peculiar physical structure. All of the rocks and mountains and lakes and meadows of the whole upper Merced basin received their specific forms and carvings almost entirely from this same agency of ice."

"Five immense glaciers from five to fifteen hundred feet in depth poured their icy floods into Yosemite, uniting to form one huge trunk, moved down through the valley with irresistible and never-ceasing energy, crushing and breaking up its strongest rocks, and scattering them in moraines far and near. Many, while admitting the possibility of ice having been the great agent in the production of Yosemite valleys, conjecture that earthquake fissures, or cracks from cooling or upheaval of the earth's crust, were required to enable the glaciers to make a beginning and to guide them in the work....During five years' observation in the Sierra, I have failed to discover a single fissure of any kind, although extensive areas of clean-swept glacial pavements afford ample opportunity for their detection, did they exist. "

Sources:

[http://www.sierraclub.org/john\\_muir\\_exhibit/writings/yosemite\\_glaciers.html](http://www.sierraclub.org/john_muir_exhibit/writings/yosemite_glaciers.html)  
[http://www.sierraclub.org/john\\_muir\\_exhibit/writings/studies\\_in\\_the\\_sierra/index.html](http://www.sierraclub.org/john_muir_exhibit/writings/studies_in_the_sierra/index.html)

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