The Nation's Report Card

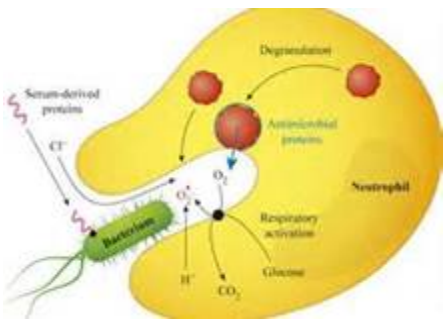
Science in Action

Hands-On and Interactive Computer Tasks From the 2009 Science Assessment

Report 2011

ABSTRACT

The National Assessment of Educational Progress (NAEP) conducted the interactive computer and hands-on tasks (ICT-HOTS) assessments to determine how well students could perform scientific investigations, draw conclusions, and explain their results. Administered in 2009, *Science in Action* assessments were given to students in grades 4, 8, and 12 and represented a more open-ended scenario that required a deeper level of planning, analysis, and synthesis on the part of the student. The hands-on tasks were a 40-minute activity, where students performed actual science experiments and had the opportunity to demonstrate how well they were able to plan and conduct scientific experiments. The interactive computer tasks consisted of either 20 or 40 minutes and required students to solve scientific problems in a computer-based environment, giving students the opportunity to demonstrate a broad range of skills involved in doing science without the logistical constraints associated with hands-on tasks. For both tasks over 2,000 students participated at each of the three grades. Three key discoveries emerged from the results of this assessment: 1) students were successful on parts of the investigations that involved limited sets of data and making straightforward observations of that data; 2) students were challenged by parts of investigations that contained more variables to manipulate or involved strategic decision making to collect appropriate data; and 3) the percentage of students who could select correct conclusions from an investigation was higher than for those students who could select correct conclusions and also explain their results.



NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS AT GRADES 4, 8, AND 12