

Tapping into Student Knowledge about Science Systems

Jodi Davenport
WestEd

Edys Quellmalz
WestEd

Mike Timms
WestEd

Abstract: What do students know about science? If students have a deep understanding of a science system they should understand core concepts and be able to use their knowledge to make inferences and carryout scientific investigations. Thus, the challenge of science assessment is to develop tasks that not only tap into declarative and procedural knowledge, but also schematic and strategic knowledge that allow students to demonstrate the ability to reason through complex systems and use existing knowledge to generate new understandings.

The current study investigates the range of knowledge and skills addressed by existing middle school science assessments administered at state, national and international levels. We conducted an analysis of released and sample items related to ecosystems and chemistry from more than 30 exams. We will present the results of our analysis and a framework that characterizes the types of knowledge likely to be elicited by different types of assessment items.