SimScientists Research and Development Program

GOALS
The SimScientists program aims to design simulation environments that model dynamic science system phenomena “in action” in order to create simulation-based assessments and curriculum supplements to assess and promote Next Generation Science Standards. The projects gather evidence of impacts on science learning, the technical quality of the assessments, the feasibility of implementing them across a range of school settings, and their potential as components in a balanced state science assessment system. The projects integrate research on Model-based learning (Buckley, 2012; Gobert & Buckley, 2000) to represent science systems in the natural and designed world in a framework that depicts the system components, interactions, and emergent system behavior. The projects employ Evidence-centered assessment design (Mislevy et al, 2003) to link learning targets, task designs and evidence of learning gathered. Cognitive science research findings guide design and use of representations & interactions in tasks.

PROJECTS
• Calipers II: Using Science Simulations to Assess Complex Science Learning (NSF)
• Foundations of 21st Century Science Assessments (NSF)
• Multilevel Assessments of Science Standards (MASS) (IES)
• Integrating Science Simulations into Balanced State Science Assessment Systems (OESE)
• SimScientists: Interactive Simulation-based Science Learning Environments (IES)
• Model Progressions (IES)
• SimScientists Assessment Systems (IES)
• SimScientists Assessment Systems: Physical Science Links (NSF)
• SimScientists Crosscutting Concepts: Progressions in Earth Systems (NSF)

SCIENCE CURRICULUM TOPICS

Life Science
• Ecosystems
• Cells
• Human Body Systems
• Genetics
• Evolution

Physical Science
• Force and Motion
• Atoms and Molecules
• Energy
• Waves

Earth Science
• Geosphere
• Climate
Selected Reports and Publications


How can I get involved?

Teachers interested in pilot testing contact Kevin Jordan: kjordan@wested.org

Districts interested in integrating into curricula contact Edys Quellmalz: equellm@wested.org

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