Innovations in Science Map, Assessment, and Report Technologies (I-SMART)

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I-SMART Purpose

Improve achievement of multidimensional science standards for students with and without disabilities through accessible, learning map model-based assessments and reporting tools.
I-SMART Goals

Goal 1 - Develop & evaluate science learning map

Goal 2 – Design, develop & evaluate assessments

Goal 3 – Design, develop & evaluate a dashboard

Goal 4 - Dissemination
State Partners

• Maryland – Lead State
• Missouri
• New Jersey
• New York
• Oklahoma

I-SMART Team

• ATLAS - KU
• CAST
• Bruce Yelton, evaluator
Goal 1
Science Learning Map Model Development and Review
Map Model Segment from Neighborhood Essential Element

**EE.MS.LS2-2**: Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems.

**Disciplinary Core Idea**: LS2.B Cycle of Matter and Energy Transfer in Ecosystems.

**Science and Engineering Practice (Blue Circles)**: Developing and using models
I-SMART Review Panel Process

• Onsite panel review with educators
• Panel review methodology, & post-panel review process
• External and internal evaluation of process
Goal 2
Science Testlet Development
Prototype Testlet Development

• Narrative, inquiry-based approach
• Incorporating principles of UDL
• Items developed to assess nodes in the map
• Items grouped into testlets built on "mini-progressions" of connected map nodes used as assessment targets in an essential element neighborhood
• Each mini-progression used as an assessment target includes DCI and SEP nodes
Lisa visits her grandfather’s farm. Cows live on the farm. Many different animals live on the farm. Plants also grow on the farm.

I wonder...
Lisa knows plants grow on a farm. Lisa knows animals live on a farm. Lisa knows people work on a farm. Lisa knows that people take care of plants on the farm. Can plants survive without people?

No, plants need people to give them food.
Yes, plants can make their own food.

Narrative-Based

Includes Engagement Activities
Upcoming testlet development activities

• Item tryouts (cognitive labs)
• Item-writing event with educators from states
• External review
• Pilot
Goal 3
Reporting Dashboard – Design Focus Groups
Reporting Dashboards

Provide immediate access to student data in an accessible, attractive, and engaging way that facilitates comprehension, insight, and instructional design-making.
Dashboard Design Cadre

- Focus groups of educators from states
- Began with needs assessment
- Included iterative process of design, feedback, updated designs
UDL-based - multiple ways to access information

One view of many dashboard screens.
I-SMART State Perspective

• Maryland science assessment involvement

• Participation of educators across state partners
Maryland’s Science Assessment Development

- 2013: Maryland adopts the Next Generation Science Standards (NGSS)
- 2015-2016: Students with significant cognitive disabilities take Alt-MSA Science
- 2016 – 2017: General Education students in grades 5 and 8 take the first year of Maryland Integrated Science Assessment (Alt-MISA)
- 2017-2018: MSDE adopts the Essential Elements
- 2017: Students with significant cognitive disabilities take Dynamic Learning Maps (DLM)
Across State Partners

• Educators have:
  • participated in the I-SMART review panel
  • participated in the dashboard design cadres

• Educators will:
  • participate in cognitive labs (occurring in MD and MO)
  • participate in pilot activities
  • participate in item writing activities
Questions?
Contact Us…

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