



CASTing the Vision for Science Assessments:

Test Attributes and Implementation

Presented by:
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Topics for Today

- Approval of CAST
- CAST Design Features
- Implementation Timeline
- 2017 Pilot Test

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Turn and Talk

What are the first couple of things that come to mind when you think about 3-dimensional learning in a science classroom?

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Approved CA NGSS Summative Assessments

- The SBE approved the development of California Science Tests (CASTs), including three online summative assessments:
 - Grade five assessment, consisting of grade five performance expectations (PEs) and matrix sampling of PEs from kindergarten through grade four;
 - Grade eight assessment, consisting of middle school (grades six through eight) PEs;
 - Grade ten, eleven, or twelve assessment, consisting of high school PEs.

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CAST Design Goals

- Goals for the design are to:
- Emphasize importance of group-level results to promote improvements to teaching and learning.
 - Provide models of high quality, CA NGSS-aligned assessment items.
 - Create incentives for schools to provide science instruction in every grade, not just in tested grades.
 - Measure the range and depth of CA NGSS PEs by leveraging the state's distinctly large student population.
 - Minimize testing time and costs.

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CAST Design Features

- Assessment design measures the range and depth of CA NGSS PEs over a three-year cycle.
- Assessment items, generated by evidence-centered design (ECD) based task models, each integrate a minimum of two CA NGSS dimensions:
 - Disciplinary core ideas (DCIs)
 - Science and engineering practices (SEPs)
 - Crosscutting concepts (CCCs)

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CAST Design Features, *continued*

- Design makes use of a diverse range of item types.
- Both independent items as well as item sets are used.
- This is a two-stage adaptive assessment.
- The assessment is designed to be administered in two hours or less.
- Uses partial matrix sampling of content (PEs)
 - Group level feedback while ensuring individual student performance is measured fairly and comparable

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Summative Segment A

- The design requires that all students in the tested grades (5, 8, and 10, 11 or 12) participate in three segments of the test.
- Segment A is a two-stage adaptive segment:
 - Machine-scorable short answer and selected response items that cover a very broad range of the CA NGSS PEs
 - Contributes to student and group scores

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Transition from Segment A to Segment B

- Performance in Segment A guides selection of DCIs presented in Segment B.
- The assignment of the item content (DCIs) in Segment B will be random unless DCI performance in Segment A is particularly weak.



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Summative Segment B

- Segment B includes item sets which require students to solve a series of complex problems set in discipline-specific contexts which deeply measure a student's command of selected CA NGSS PEs.
 - Contributes to student and group scores



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Summative Segment C

- Segment C includes a range of items that, collectively, broadly and deeply measure the CA NGSS PEs associated with the tested grade-span.
 - All CA NGSS PEs (minus those identified as not suitable for summative assessments) will be collectively assessed at the group-level.
 - Encourages the teaching of science at all grade levels
 - Contributes to group-level scores

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CAST Design Summary

	Segment A	Segment B	Segment C
Reporting Level	Contributes to Student and Group Score	Contributes to Student and Group Score	Contributes to Group Score
Scope and Depth of Measurement	Wide breadth—measures a broad sample of CA NGSS PEs	Deep measurement of targeted sample of 1-2 item sets (multiple CA NGSS SEPs and CCCs per item set, and one or more DCIs per item set as specified by task models)	Broad and deep-full range of measurement of PEs for each grade span
Type of Items	Selected-response, machine-scorable items. Items primarily independent but some organized in sets.	Item sets which require students to solve a series of complex problems set in discipline-specific contexts	Will emulate item types presented in Segment A or B
CA NGSS PEs measured by grade/grade span	Gr. 5: Grade 5-specific PEs Gr. 8: Grade-span PEs Gr. 10/11/12: Grade-span PEs	Gr. 5: Grade 5-specific PEs Gr. 8: Grade-span PEs Gr. 10/11/12: Grade-span PEs	Gr. 5: Grade-span PEs Gr. 8: Grade-span PEs Gr. 10/11/12: Grade-span PEs

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CA NGSS Assessment Implementation Timeline

Year	California Science Test (CAST)	Available Testing Window	California Alternate Assessment for Science	Available Testing Window
2016-17	Pilot test	March 20, 2017 to the LEA's last day of instruction	Pilot test	March 20, 2017 to the LEA's last day of instruction
2017-18	Field test	TBD	Pilot test	TBD
2018-19	Operational test	*Second Tuesday in January to the LEA's last day of instruction	Field test	TBD
2019-20	Operational test	*Second Tuesday in January to the LEA's last day of instruction	Operational test	*Second Tuesday in January to the LEA's last day of instruction

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CAST Pilot Test

- Purpose
- Each form will have 10-25 discrete items and a performance task.
- Student survey:
 - One survey per student
 - Approximately three to five questions
 - No more than seven minutes to complete
- The pilot will take approximately one hour to complete.

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Training Tests

- Available beginning January 2017
- For grades five, eight, and high school



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How to Get Involved in the Development of the CAST and CAA for Science

California's move toward the implementation of the CAST and the CAA for Science offers California educators many opportunities for professional development, including:

- Item writing
- Item review
- Data review
- Form review

To get involved, complete the application available at <http://caaspp.org/reviewers.html>.



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Think About...

What are some of your next steps in bringing 3-dimensional learning to the students you serve?

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For More Information

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