ASSESSMENT UPDATE

Assessment Redesign, End-of-Course Math Tests, and Standard Setting

State Board of Education

March 18, 2010

Highline Community College, Des Moines WA

Joe Willhoft, Asst. Supt., Assessment & Student Information

OFFICE OF SUPERINTENDENT OF PUBLIC INSTRUCTION

Division of Assessment and Student Information

ESSB 5414
REDESIGN OF THE ASSESSMENT SYSTEM

PROGRESS AND PLANNED ACTIVITIES

A presentation to the Washington State Board of Education
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ESSB 5414 (now RCW 28A.300.041)
Legislation to redesign the assessment system

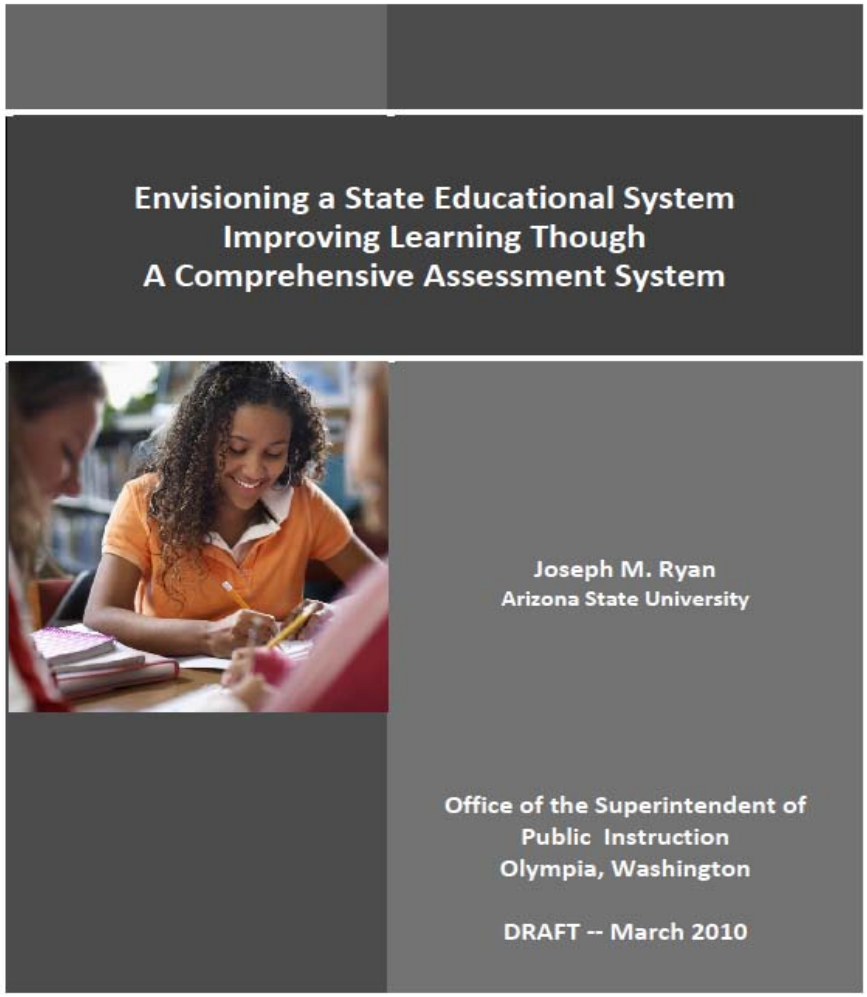
- One component of the assessment system should be instructionally supportive formative assessments;
- A second component of the assessment system should be a state-administered summative achievement assessment;
- The assessment system should include classroom-based assessments, which may be formative, summative, or both;
- Preservice and ongoing training should be provided for teachers and administrators;
- Data should be collected for all state-required statewide assessments
- The superintendent of public instruction, in consultation with the state board of education, shall begin design and development of an overall assessment system that meets the principles and characteristics described in this section

Establishing a Context for Action

OSPI commissioned a review paper by Dr. Ryan to elaborate on the requirements of ESSB 5414 and to provide a research context for next steps.

(A draft copy accompanies this Board presentation; final to be posted soon to the OSPI Web site.)

The following slides focus on activities having to do with the redesign of the state's Formative and Summative assessments



Instructionally Supportive Formative Assessments

- Accomplishments
  - Established a Department of Classroom Assessment Integration within the assessment division
    - Director-level leadership
    - Responsible for K-12 formative assessments, Collection of Evidence, new Kindergarten skills inventory
  - Statewide Formative Assessment Symposium Feb. 1-2
    - National Expert Panel plus input from 150 educator/stakeholders from across the state
    - Follow-up strategy meetings with Planning Team of 30 educators
  - Development of Interim Assessment Tools
    - Fall mathematics pilot: "fluency of operations" in grades 2-5
  - Member of multi-state "MOSAIC" formative assessment consortium

Instructionally Supportive Formative Assessments

- Planned Activities
  - Development of Interim Assessment Tools
    - Pilot of classroom-based mathematics tests: "mathematics operations" in grades 2-5 with supporting intervention strategies
  - Pilot a Professional Development Program
    - Selected schools with readiness to use a "professional learning community" model
    - See Ryan paper on formative assessment as a process
    - Use of formative assessment strategies to improve instruction
    - Expanding to more schools and to online social network

State-Administered Summative Assessments

- Accomplishments
  - Redesigned state assessments to reduce testing time and costs
    - Reading (Gr. 3-8, HS); Science (Gr. 5, 8, HS); Math (HS)
    - Maintaining rigor, reliability, validity (see next slide)
  - New Gr. 3-8 Mathematics tests, aligned to new standards
    - New standard setting in August (discussed later)
  - Voluntary online testing in Gr. 6-8 Reading and Mathematics
    - About 25% of students and of schools participating
    - Expanding to Gr. 5 Reading/Math and Gr. 7 Writing in 2011
  - Future tests under development:
    - High school end-of-course mathematics tests for 2011
    - Gr. 5 and 8 science tests aligned to new standards for 2011
    - High school end-of-course biology test for 2012

Quality Assurance in a "Typical Year": Test Equating

	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8	HS
READ	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008
MATH	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008	Equate 2009 to 2008
SCI			Equate 2009 to 2008			Equate 2009 to 2008	Equate 2009 to 2008

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Quality Assurance for 2010: Multiple Comparability Studies

	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8	HS
READ	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009
				Equate Online to P/P	Equate Online to P/P	Equate Online to P/P	
	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align HSPE to Content Stds
MATH	Build new '10 scale and cuts	Build new '10 scale and cuts	Build new '10 scale and cuts	Build new '10 P/P scale and cuts	Build new '10 P/P scale and cuts	Build new '10 P/P scale and cuts	Equate 2010 to 2009
				Equate Online to P/P	Equate Online to P/P	Equate Online to P/P	
	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align HSPE to Content Stds
	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	
SCI			Equate 2010 to 2009			Equate 2010 to 2009	Equate 2010 to 2009
			Align MSP to Content Stds			Align MSP to Content Stds	Align HSPE to Content Stds

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State-Administered Summative Assessments

- Planned Activities
  - Expanded online testing in 2011
    - Expanding to Gr. 5 Reading/Math
    - Gr. 7 Writing, partnering with NAEP on use of writing tool
  - Tests being developed:
    - High school end-of-course mathematics tests for 2011
    - Gr. 5 and 8 science tests aligned to new standards for 2011
    - High school end-of-course biology test for 2012
  - Consideration of "Colorado Growth Model" for reading and mathematics
    - Measures individual student growth and provides growth trajectories
    - Does not require a vertical scale; could implement immediately
    - Model will be reviewed at next National TAC meeting

QUESTIONS AND DISCUSSION

HIGH SCHOOL END-OF-COURSE MATHEMATICS TESTS

TEST DESIGN AND GRADUATION REQUIREMENTS

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ESSB 5414 amended RCW 28A.655.066

- Section (1)(a)

  The assessments shall be implemented statewide in the 2010-11 school year.

- Section (1)(b)

  The superintendent shall develop end-of-course assessments for the first year of high school mathematics that include the standards common to algebra I and integrated mathematics I and for the second year of high school mathematics that include the standards common to geometry and integrated mathematics II. The assessments under this subsection (1)(b) shall be used to demonstrate that a student meets the state standard on the mathematics content area of the high school Washington assessment of student learning for purposes of RCW 28A.655.061.

ESSB 5414 amended RCW 28A.655.066

- Section (1)(c)

The superintendent of public instruction shall also develop subtests for the end-of-course assessments that measure standards for the first two years of high school mathematics that are unique to algebra I, integrated mathematics I, geometry, and integrated mathematics II. The results of the subtests shall be reported at the student, teacher, school, and district level.

- Section (2)

For the graduating classes of 2013 and 2014 and for purposes of the certificate of academic achievement under RCW 28A.655.061, a student may use: (a) Results from the end-of-course assessment for the first year of high school mathematics plus the results from the end-of-course assessment for the second year of high school mathematics; or (b) results from the comprehensive mathematics assessment to demonstrate that a student meets the state standard on the mathematics content area of the high school Washington assessment of student learning.

What Do The ESSB 5414 Amendments Mean?

- **EOCs "Implemented statewide in 2010-11"**
  - Students enrolled in an end-of-course class in spring 2011 must take the end-of-course test, regardless of grade level.
    - Classes include: Algebra 1, Integrated 1, Geometry, Integrated 2
  - Students taking an EOC class in grades 6, 7, or 8 will need to take the EOC and (per NCLB) take the MSP in math for their grade-level MSP
  - OSPI staff in both assessment and Federal programs are working with US Dept of Ed on a plan for using EOCs for High School Adequate Yearly Progress

What Do The ESSB 5414 Amendments Mean?

- **EOCs assess what is common to Algebra 1/ Integrated 1 and to Geometry/Integrated 2**
  - Performance Expectations (PEs) required for graduation are the overlap of Algebra 1 with Integrated 1 and of Geometry with Integrated 2

Shaded Areas Required for Graduation

	Integ 1	Integ 2	Integ 3	
Algebra I				Alg I PEs
Geometry				Geom PEs
Algebra II				Alg II PEs
	Int 1 PEs	Int 2 PEs	Int 3 PEs	**ALL PEs**

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What Do The ESSB 5414 Amendments Mean?

- **Subtests for standards unique to Algebra 1, Geometry, Integrated 1 and Integrated 2**
  - Unique standards are the "off-diagonal" standards
  - Subtest strength/weakness scores will be reported at the student, teacher, school, district, *and state* levels

"+/-" Reported as Strength/Weakness

	Integ 1	Integ 2	Integ 3	
Algebra I	Grad Req	+/-		Alg I PEs
Geometry	+/-	Grad Req	+/-	Geom PEs
Algebra II		+/-		Alg II PEs
	Int 1 PEs	Int 2 PEs	Int 3 PEs	**ALL PEs**

What Do The ESSB 5414 Amendments Mean?

- **Classes of 2013 and 2014 can graduate by passing both EOCs or "the comprehensive assessment"**
  - OSPI is developing two types of end-of-course test forms:
    - "Full" EOC, with Strength/Weakness scores administered at the end of a course to intact classrooms
    - "Make-up" EOC, assessing only the PEs needed for graduation, available for students needing the test but not in an EOC class
  - No "general" math test after 2010
    - Unclear what standards a separate general test would align to
    - Insufficient resources ($ and item pools) to either continue production of current HSPE or to develop a new test
    - EOC will suffice for No Child Left Behind requirements

A Closer Look at What Test(s) Students Will Take in 2011

- **If enrolled in Alg1/Int1 or Geom/Int2: Take EOC test in intact classrooms**
  - Sums to a grade-level's enrollment for each test (~160K total)
  - Will have the same in-classroom totals in future years

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1							
	Geom/Int 2							
Taken in 2008-09	Alg1/Int 1							
	Geom/Int 2							
Taken in 2009-10	Alg1/Int 1							
	Geom/Int 2							
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								160,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

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A Closer Look at What Test(s) Students Will Take in 2011

- **Shaded areas = Subject to 2013 requirements**
  - Yellow cohort will take Geom/Int2 test next year, in 2012
  - Green cohort took Alg1/Int1 in 2009-10; Needs a "make-up" opportunity

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1							
	Geom/Int 2							
Taken in 2008-09	Alg1/Int 1							
	Geom/Int 2							
Taken in 2009-10	Alg1/Int 1							
	Geom/Int 2							
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								160,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

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A Closer Look at What Test(s) Students Will Take in 2011

- **~67K students who took Alg1/Int1 in 2009-10 will need to pass the Year 1 make-up for graduation**
  - Total number of tests in 2011 is now about 227K
  - Q: What about the students who took Geom/Int2 in 2010?

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1							
	Geom/Int 2							
Taken in 2008-09	Alg1/Int 1							
	Geom/Int 2							
Taken in 2009-10	Alg1/Int 1	1,500	6,500	59,000				67,000
	Geom/Int 2							
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								227,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

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A Closer Look at What Test(s) Students Will Take in 2011

- **About 8,000 students under new requirements will have completed Geom/Int2 in 2010**
  - Will need to take two make-ups in 2011
  - Total number of tests in 2011 is now about 243K

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1							
	Geom/Int 2							
Taken in 2008-09	Alg1/Int 1	1,500	6,500					8,000
	Geom/Int 2							
Taken in 2009-10	Alg1/Int 1	1,500	6,500	59,000				67,000
	Geom/Int 2	0	1,500	6,500				8,000
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								243,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

A Closer Look at What Test(s) Students Will Take in 2011

- **Another 1,500 will have completed Geom/Int2 in 2009**
  - Will also need to take two make-ups in 2011
  - Total number of tests to be given in 2011 = about 246,000

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1	1,500						1,500
	Geom/Int 2	0						0
Taken in 2008-09	Alg1/Int 1	1,500	6,500					8,000
	Geom/Int 2	0	1,500					1,500
Taken in 2009-10	Alg1/Int 1	1,500	6,500	59,000				67,000
	Geom/Int 2	0	1,500	6,500				8,000
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								246,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

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A Closer Look at What Test(s) Students Will Take in 2011 – Summary of Students Tested

- **In 2011 about 153,500 students in grades 7 – 10 will take one or two tests, either in their classrooms as an EOC, or as a stand-alone "make-up(s)"**
- **The "make-up" issue for first-time test takers only occurs in 2011; afterwards make-up tests are used as retakes**

Cohort *(When took Yr 1 HS Math)*	Size	Number of **RETESTS**	Number of **EOCs**
Gr 7 in 2007-08	1,500	2	0
Gr 7 in 2008-09	1,500	2	0
Gr 8 in 2008-09	6,500	2	0
Gr 7 in 2009-10	1,500	1	1
Gr 8 in 2009-10	6,500	1	1
Gr 9 in 2009-10	59,000	1	1
Gr 7 in 2010-11	1,500	0	1
Gr 8 in 2010-11	6,500	0	1
Gr 9 in 2010-11	59,000	0	1
Gr 10 in 2010-11	10,000	0	1
Total Students tested in 2011 for new grad requirement	**153,500**		

Impact of a One-Year Delay of Graduation Requirement

- **A one-year delay would reduce total tested by 75,000 (from 246K to 171K)**
  - 160K of those tested would be in EOC classrooms
  - Make-ups reduced from 86,000 to 11,000

		Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total Tests
Taken in 2007-08	Alg1/Int 1	0						0
	Geom/Int 2	0						0
Taken in 2008-09	Alg1/Int 1	1,500						1,500
	Geom/Int 2	0						0
Taken in 2009-10	Alg1/Int 1	1,500	6,500					8,000
	Geom/Int 2	0	1,500					1,500
Taken in 2010-11	Alg1/Int 1	1,500	6,500	59,000	10,000	3,000	0	80,000
	Geom/Int 2	0	1,500	6,500	59,000	10,000	3,000	80,000
								171,000

(Counts based on actual course history of 8 representative districts, a/o Spg 2009)

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QUESTIONS AND DISCUSSION

STANDARD SETTING GRADE 3-8 MATHEMATICS MEASUREMENTS OF STUDENT PROGRESS

UPDATE

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Some Questions about Standard Setting

- What Is Standard Setting?
  - Standard setting is a formalized process to determine how well students need to perform on an assessment to be classified into performance levels (i.e., "Basic", "Proficient", etc.)
- Why don't we do standard setting every year?
  - Once standards have been set, scores for tests given in later years are adjusted through statistical equating, assuring that the difficulty for the performance levels stays the same
- Why don't we just use something like "80% Correct"?
  - A pre-established percent correct would make the performance levels easier or more difficult simply due to how hard the questions are. Standard setting accounts for both item difficulty and the judgments of expert stakeholders

Standard Setting: One of Several Comparability Studies for 2010

	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8	HS
READ	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009	Equate 2010 to 2009
				Equate Online to P/P	Equate Online to P/P	Equate Online to P/P	
	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align MSP to Content Stds	Align HSPE to Content Stds
MATH	Build new '10 scale and cuts	Build new '10 scale and cuts	Build new '10 scale and cuts	Build new '10 P/P scale and cuts	Build new '10 P/P scale and cuts	Build new '10 P/P scale and cuts	Equate 2010 to 2009
				Equate Online to P/P	Equate Online to P/P	Equate Online to P/P	
	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align new MSP to Content Stds	Align HSPE to Content Stds
	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	Concordance betw. '09 and '10	
SCI			Equate 2010 to 2009			Equate 2010 to 2009	Equate 2010 to 2009
			Align MSP to Content Stds			Align MSP to Content Stds	Align HSPE to Content Stds

Who Sets the Standards?

- The State Board of Education is legislatively authorized to set standards
  - RCW 28A.305.130 (4)(b)

    "Identify the scores students must achieve in order to meet the standard on the Washington assessment of student learning and, for high school students, to obtain a certificate of academic achievement.

    "The board shall also determine student scores that identify levels of student performance below and beyond the standard.

    "The board shall consider the incorporation of the standard error of measurement into the decision regarding the award of the certificates.

    "The board shall set such performance standards and levels in consultation with the superintendent of public instruction and after consideration of any recommendations that may be developed by any advisory committees that may be established for this purpose."

How Does It Work?

- OSPI and its National Technical Advisory Committee design a standard setting plan, including an agenda and sequence of steps for standard setting panels to follow
- The State Board of Education approves the plan
- Standard Setting Panels of about 30 educators and other stakeholders per grade level, meet across four days
- After recommendations from all grade level panels, two other panels convene: an Across-Grade Articulation Panel and an External Policy Panel
- National TAC confirms that the process was followed
- Recommendations from all panels are provided to SBE
- SBE sets standards

The Standard Setting Approval Process

September 2009 – State Board briefed on process

October 2009 – National TAC reviews timeline and overall plan

March 18, 2010 – State Board update

April 2, 2010 – National TAC recommends a detailed plan

May 13-14, 2010 – State Board approves the plan (Action Item)

July 27-Aug 6, 2010 – Standard setting panels develop recommendations

August 8, 2010 – National TAC confirms that process was followed

August 10, 2010 – State Board sets cut scores

Late August 2010 – Cut scores applied to tests; scores reported

Description of Standard Setting Activities

Roles and Responsibilities

- Dr. Tom Hirsch serves as lead facilitator
- Drs. Chad Buckendahl, Chris Domaleski, Yoonsun Lee serve as panel facilitators
- OSPI and ETS staff provide logistical support and to document the process; not engaged with the deliberations of the panels

Panel Activities

- Take the assessment
- Review "Performance Level Descriptors"
- Individually use an "Ordered Item Booklet" to set a bookmark at cut points
- Discuss ratings of the panel, review item data and impact data
- Two more rounds of setting bookmarks and discussion

Articulation and Policy Panels

- Articulation Panel reviews cuts across grades to consider the "system consistency" of the recommended cuts
- Policy Panel reviews external sources (e.g., NAEP, NCLB Impact) to consider consequences of the recommended cuts

QUESTIONS AND DISCUSSION