

The Washington State Board of Education

Governance | Accountability | Achievement | Oversight | Career & College Readiness

Title:	Standard Setting for Alternative Assessments to Math End of Course Exams	
As Related To:	<input type="checkbox"/> Goal One: Effective and accountable P-13 governance. <input checked="" type="checkbox"/> Goal Two: Comprehensive statewide K-12 accountability. <input type="checkbox"/> Goal Three: Closing achievement gap.	<input checked="" type="checkbox"/> Goal Four: Strategic oversight of the K-12 system. <input type="checkbox"/> Goal Five: Career and college readiness for all students. <input type="checkbox"/> Other
Relevant To Board Roles:	<input type="checkbox"/> Policy Leadership <input checked="" type="checkbox"/> System Oversight <input checked="" type="checkbox"/> Advocacy	<input type="checkbox"/> Communication <input type="checkbox"/> Convening and Facilitating
Policy Considerations / Key Questions:	<p>The Washington State Board of Education (SBE) is asked to consider approval of the process for developing cut scores for the Collection of Evidence alternative assessment to mathematics End of Course (EOC) exams. This alternative assessment is available for students who have been unsuccessful in passing a mathematics End of Course exam. The Classes of 2013 and 2014 must pass one mathematics End of Course exam to graduate. The standard setting process for Collections of Evidence alternative assessment for comprehensive assessments in reading and writing was approved by SBE in August 2007.</p> <p>The SBE is also asked to consider approval of scores for the ACT and SAT exams that are equivalent to passing the mathematics End of Course exams. The process for identifying equivalent ACT and SAT scores for the comprehensive assessments was presented to the SBE in November 2007.</p>	
Possible Board Action:	<input checked="" type="checkbox"/> Review <input checked="" type="checkbox"/> Adopt <input checked="" type="checkbox"/> Approve <input type="checkbox"/> Other	
Materials Included in Packet:	<input checked="" type="checkbox"/> Memo <input type="checkbox"/> Graphs / Graphics <input type="checkbox"/> Third-Party Materials <input checked="" type="checkbox"/> PowerPoint	
Synopsis:	<p>The State Board of Education is required, under RCW 28A.305.130(4)(b), to identify the scores high school students must achieve to meet standard in statewide student assessment and obtain a certificate of academic achievement. The SBE sets performance standards and levels in consultation with the Superintendent of Public Instruction. The Office of the Superintendent of Public Instruction will ask the SBE to consider approval of the ACT and SAT scores equivalent to the mathematics EOC exams. The Office of the Superintendent of Public Instruction will also ask the SBE to consider approval of the process of setting cut scores for the Collection of Evidence alternative assessment to the mathematics EOC exams.</p>	

Standard Setting for the Mathematics Year 1 and Year 2 Collections of Evidence

Background

The 2008 Mathematics Learning Standards were first assessed in 2011 with End of Course exams in Algebra/Integrated Mathematics One and Geometry/Integrated Mathematics Two. The State Board of Education set the cut scores for these exams in August 2011. Students who do not meet standard on these general assessments may use a Collection of Evidence in Mathematics Year One and/or Mathematics Year Two as a Certificate of Academic Achievement Option (available for students in the class of 2013 and beyond).

OSPI will present the plan for conducting the standard setting process for these Mathematics Collections of Evidence for the Board's approval. The standard setting process will include a committee of content and grade-level experts and will make use of all available standard setting tools and data including examples of scored student work to develop a picture of proficient student performance. The committee's experience, knowledge, expertise, and expectations will be used to recommend the "cut score" (the number of points necessary to meet standard out of the total of points possible) that most closely aligns to "Meeting Standard" on the End of Course exams.

In March of 2013, the Washington State Board of Education, (SBE) will approve the scores students must achieve to meet performance standards. This briefing on the standard setting process will give SBE an opportunity to review and ask questions about that process. The process for standards setting for Collections of Evidence, for the comprehensive reading and writing assessments, were approved by SBE in August 2007.

Action

The Board is asked to approve the standard setting plan. The Board will approve cut scores in March 2013, based on the recommendations of the standard setting panels.

Certificate of Academic Achievement Options: Determination of SAT/ACT Cut Scores for Mathematics Year One and Year Two

Background

The 2008 Mathematics Learning Standards were first assessed in 2011 with End of Course exams in Algebra/Integrated Mathematics One and Geometry/Integrated Mathematics Two. The State Board of Education set the cut scores for these exams in August 2011. Students who do not meet standard on these general assessments may use appropriate college admissions test (SAT/ACT) scores for mathematics as a Certificate of Academic Achievement Option (available for students in the class of 2013 and beyond).

The Office of Superintendent of Public Instruction (OSPI) will present the data, and the analysis of the data used to determine the SAT and ACT cut scores appropriate for demonstrating proficiency on the Algebra/Integrated Mathematics One and on the Geometry/Integrated Mathematics Two End of Course exams, for the Board's review and approval. The same process was used to determine the cut scores used to determine the SAT and ACT cut scores set for Reading and Writing in 2007. The data used at that time included 25,000 student cases with both tenth grade WASL and SAT scores at time of graduation. An equipercentile linking—that links the percentiles of two different tests to determine equivalent scores—was done between the percent meeting standard on WASL and that same percentile point in the SAT file.

This briefing will give SBE an opportunity to review and ask questions about the process and recommended cut scores. The process for equivalent scores for the SAT and ACT, for the comprehensive exams in reading and writing, was approved by SBE in November 2007.

Action

The Board is asked to approve the SAT and ACT cut scores for Algebra/Integrated Mathematics One and on the Geometry/Integrated Mathematics Two End of Course exams.

Standard Setting for Alternative Assessments to the Mathematics End of Course Exams

State Board of Education

November 8, 2012

ESD 112, Vancouver, WA

Cinda Parton, Director of Assessment Development, OSPI

Dr. Tom Hirsch, Assessment and Evaluation Services



OFFICE OF SUPERINTENDENT OF PUBLIC INSTRUCTION
Division of Assessment and Student Information

End-of-Course Exams: Background

- Students began taking the new End-of-Course exams in Algebra/Integrated Mathematics I and Geometry/Integrated Mathematics 2 in Spring 2011
- Students in the classes of 2013 and 2014 must pass one Mathematics EOC **or alternative**; students in the class of 2015 and beyond must pass both



Legislatively Approved Alternatives: Background and History of CAA-Options

- Legislative action required “legislatively approved alternatives” to the state’s high school exit exams (RCW 28A.655.061 and RCW 28A.655.065).
- Options specified by law:
 - College entrance exams (SAT or ACT scores)
 - Advance Placement (AP) exams
 - GPA comparison
 - Collection of Evidence

Legislatively Approved Alternatives: Today's Discussion

- New K-12 Learning Standards for Mathematics (2008) and new Mathematics End of Course exams (2011) require a re-examination of two options in mathematics.
 - SAT and ACT scores
New cut scores to be set by the State Board
 - Collection of Evidence
State Board approval of the standard setting process

College Entrance Exams: The Law

- RCW 28A.655.06110(b)(i) A student's score on the mathematics, reading or English, or writing portion of the SAT or the ACT may be used as an objective alternative assessment ... The state board of education shall identify the scores students must achieve on the relevant portion of the SAT or ACT to meet or exceed the state standard in the relevant content area...

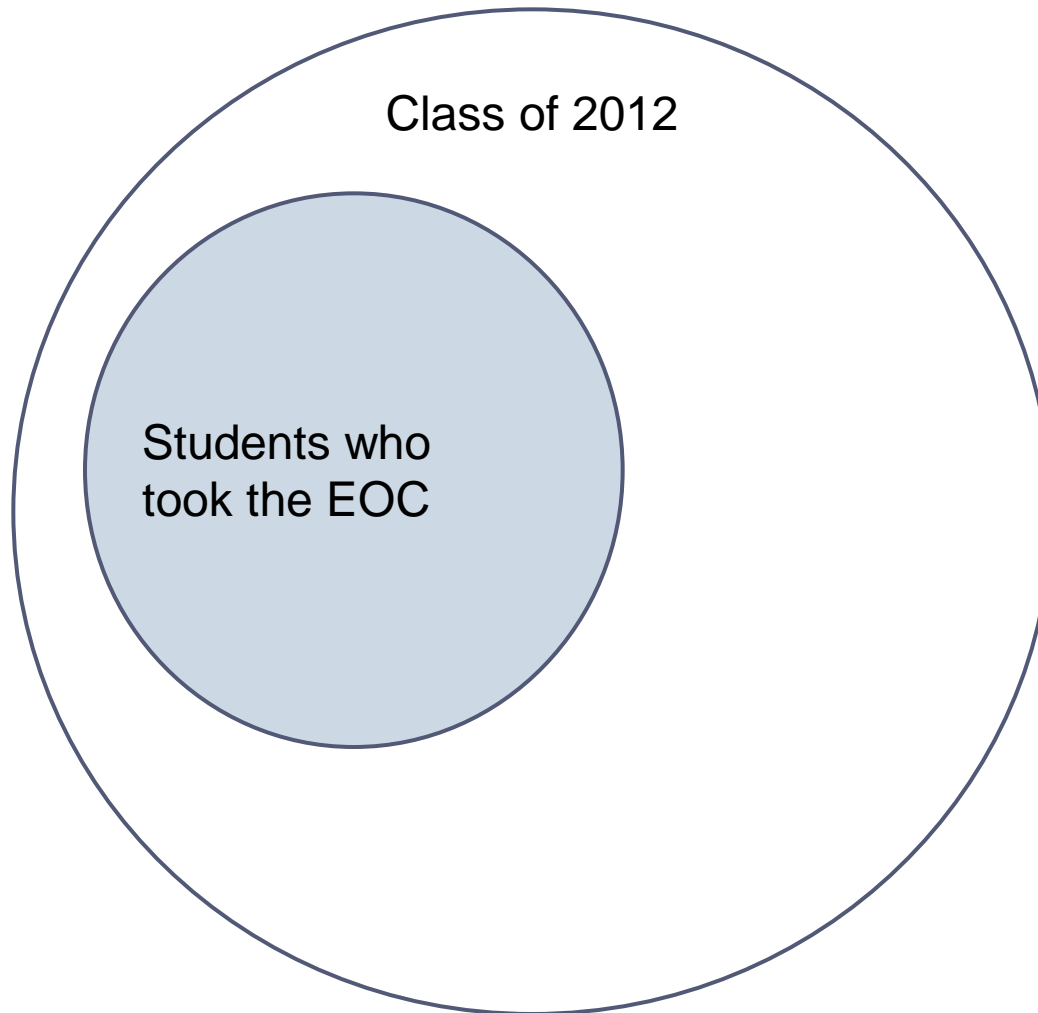
College Entrance Exams: Cut Scores

- SBE is required to find the SAT and ACT scores that can be used as an alternative to meeting standard on general assessments
- SAT and ACT cut scores originally set in 2007
 - OSPI obtained a data sharing agreement from The College Board to use the statewide SAT file for our exit exam analysis
 - Used an 'equi-percentile' method to determine the cut score for SAT
 - Used a concordance table to link to similar score for ACT
- With a change to mathematics end-of-course exams, need to re-establish appropriate cut score

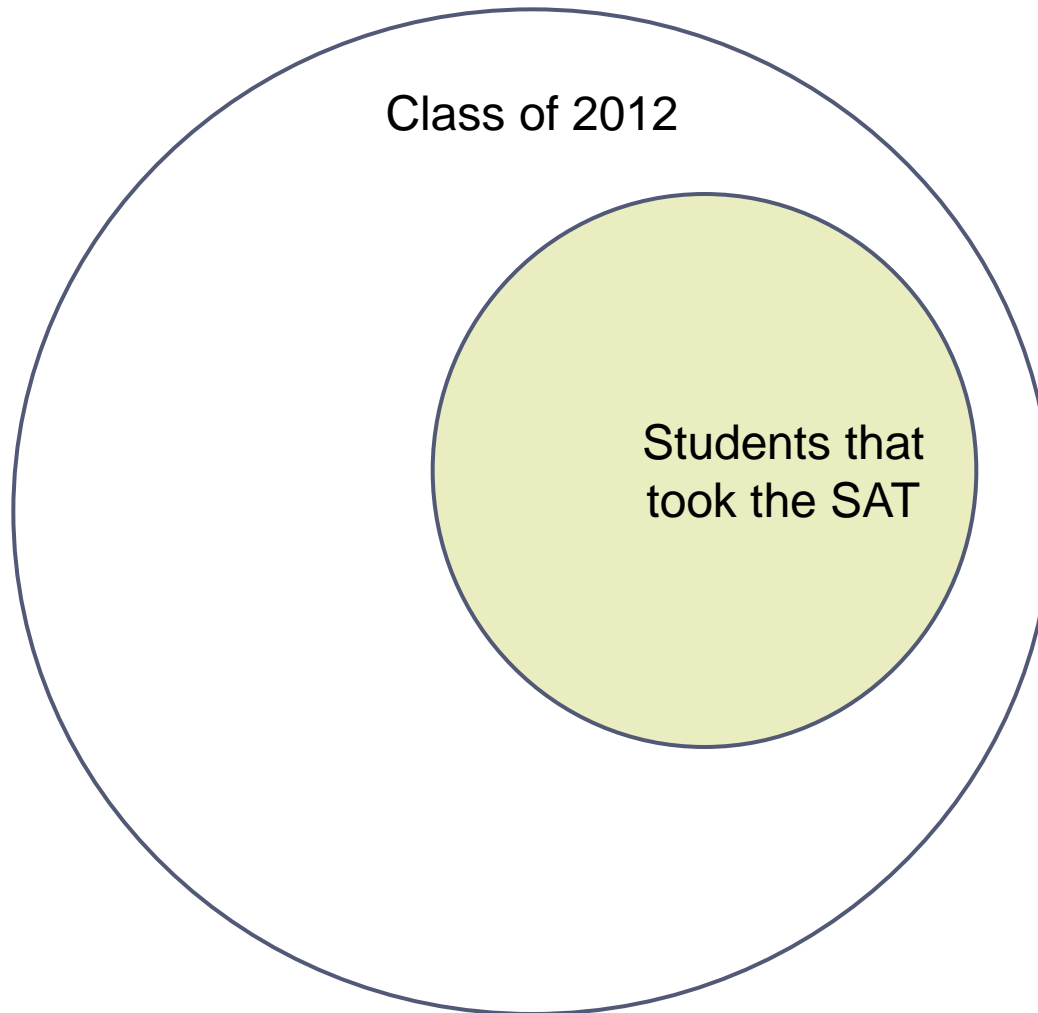
College Entrance Exams: SAT Cut Scores Methodology

- In a procedure reviewed and approved by NTAC, cases were matched with our student data system.
 - Just over 1600 students have both an EOC score (2011 or 2012) and an SAT score (2012)
 - Conducted an equi-percentile linking between the percent meeting standard on each EOC, and that same percentile point in the SAT file

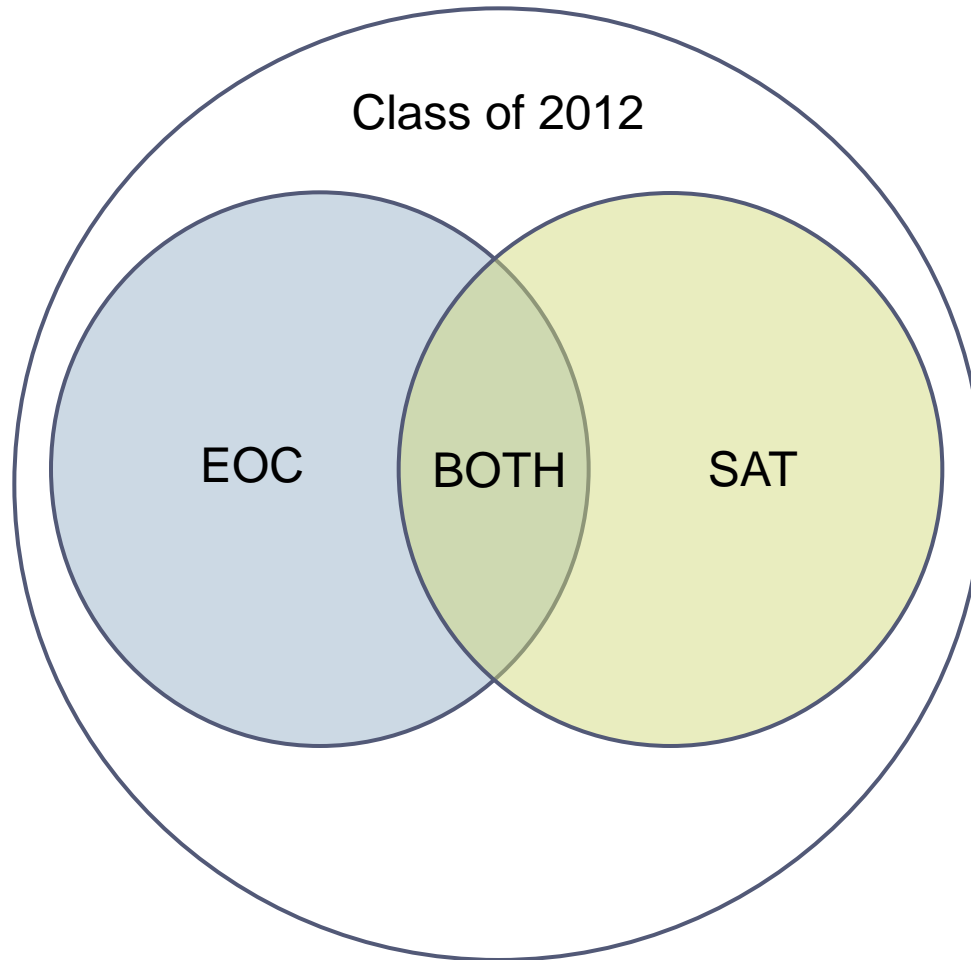
Of all 2011-12 graduating seniors, 21% took the EOC



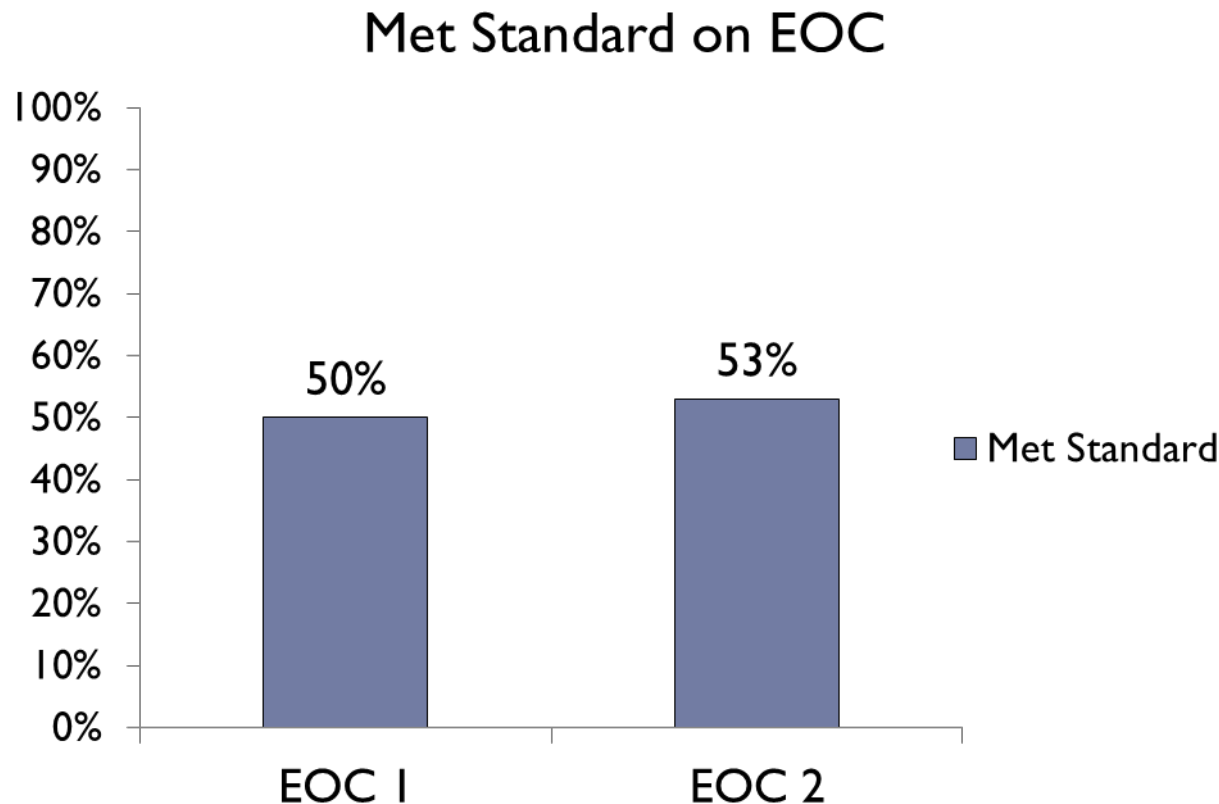
Of all 2012 graduating seniors, 59% took the SAT



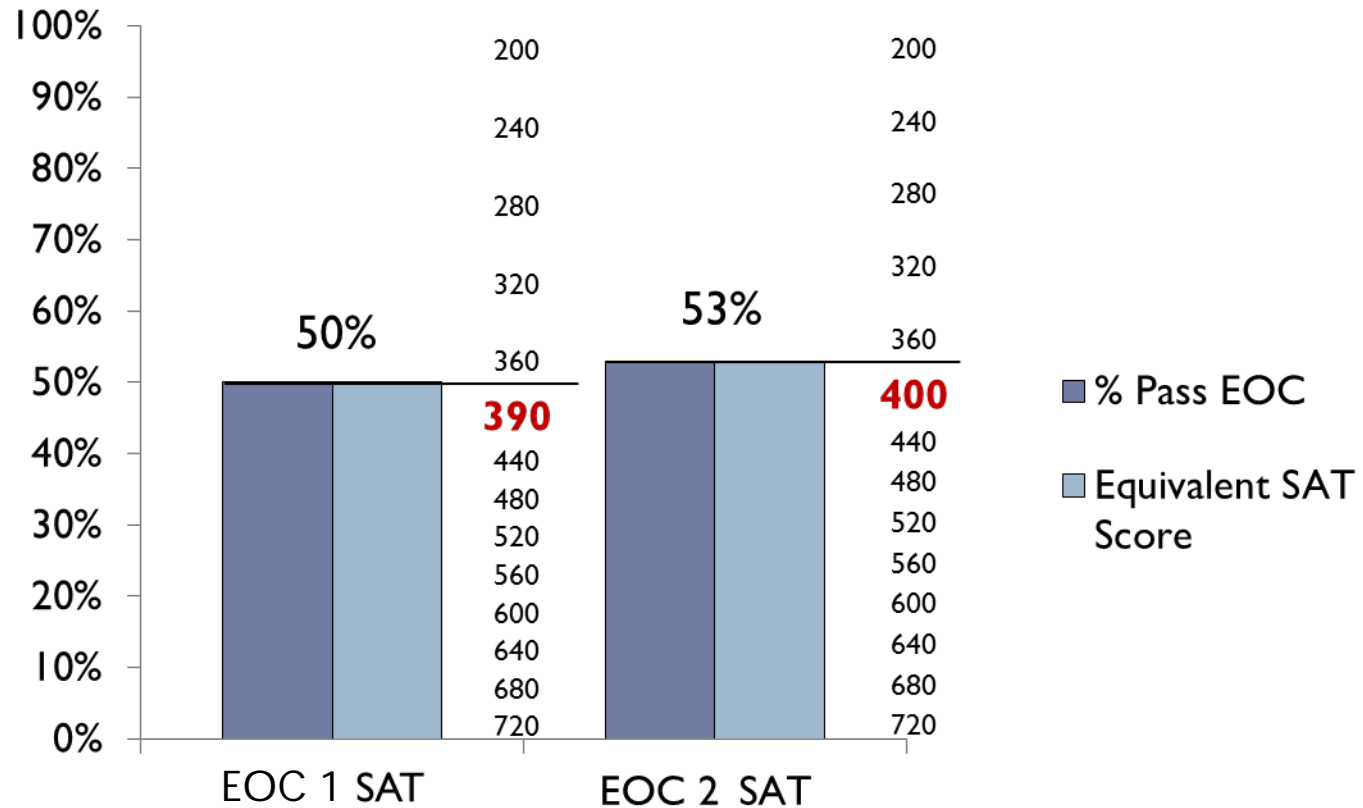
Equi-percentile is based on the students that took both EOC and SAT



Equi-percentile: For students who took both, determine % that met standard on EOC



For students who took both, find the SAT score that yields same % meeting standard



College Entrance Exams: Results for Math in 2012

	SAT	ACT
Proposed Algebra 1	390	TBD
Proposed Geometry	400	TBD
Current HSPE	470	19

Concordance tables published by The College Board and ACT are used to link SAT to ACT.

College Entrance Exams: OSPI Recommendations

- OSPI proposes the SAT cut score for Year 1 Mathematics EOC be set at 390 and the ACT cut score be set at the corresponding score.
- OSPI proposes the SAT cut score for Year 2 Mathematics EOC be set at 400 and the ACT cut score be set at the corresponding score.

Mathematics Collections of Evidence (COE): Background

- The first submission opportunity for Year 1 and Year 2 Mathematics Collections of Evidence (COE) will occur in February 2013.
- A collection of evidence (COE) is a set of work samples, consisting of six to eight performance tasks.
- Two of the tasks in a COE must be “on-demand,” completed in a single sitting under supervision of a teacher. The other tasks may be completed in extended time.
- The COE must be comparable to the EOC in terms of reporting strand representation and rigor.

Mathematics COE Standard Setting: Background

- The COE has **one** cut score, separating two levels of student performance:
 - The cut between “Basic” and “Proficient.”
- The Superintendent recommends a cut score to the State Board.
- The Board’s cut scores will be used to report the 2013 results, and will be used in future years until such time as the standards are revised or revisited.

Mathematics COE Standard Setting: Past and Present Standard Setting Comparisons

- End of Course Exams
 - Bookmark method, using Ordered Item Book
- WAAS Portfolio
 - Body of Work method
- Collection of Evidence
 - Body of Work method, using Ordered Item Book and Performance Level Descriptors from EOC to bridge with EOC

Mathematics COE Standard Setting: The Participants

- **Course-Level Panels**
 - Two standard-setting panels, one for Year 1 and one for Year 2 Mathematics, with 15 committee members each will be convened in late March 2013
 - Implement standard setting activities across three days, resulting in a recommended cut score for each COE
- **Articulation Panel**
 - Reviews course-level recommendations, resulting in a recommendation

Mathematics COE Standard Setting: The Participants

- Facilitators
 - Dr. Tom Hirsch serves as lead facilitator
 - Dr. Chad Buckendahl and Dr. Chris Domaleski serve as panel facilitators
- Additional Support
 - OSPI and ESD staff provide logistical support and document the process but are not engaged with the deliberations of the panels

Mathematics COE Standard Setting: Description of Activities

Day 1

- Welcome/Orientation/Administrative Tasks
- Panel Selection Process
- Overview of Standard Setting Process
- Review of Assessment
 - Learning Standards
 - COE Development Process
 - EOC Test Blueprint and COE Blueprint
- Taking/Scoring the “Assessment” (Tasks)
- Review of Performance Level Descriptors or PLDs
- Review of Ordered Item Booklets

Mathematics COE Standard Setting: Description of Activities

Day 2

- Small Table Discussion of PLDs
- Total Group Discussion
- Summary of Standard Setting Procedure
- Sample Practice Standard Setting
- Round 1 Ratings – “Range Finding”
 - Identify “gray area” using approximately 25 collections

Mathematics COE Standard Setting: Description of Activities

Day 3

- Discussion of round 1 ratings
- Round 2 Ratings – “Pinpointing #1”
 - Provide an expanded “gray area” set of collections
- Discussion of round 2 ratings
- Presentation of Impact Data
- Round 3 Ratings – “Pinpointing #2”
- Discussion of results
- Recommendations to Articulation Committee
- Articulation Committee Discussion

Legislatively Approved Alternatives: Summary of Today's OSPI Recommendations

College Entrance Exams

- OSPI proposes the SAT cut score for Year 1 Mathematics EOC be set at 390 and the ACT cut score be set at the corresponding score.
- OSPI proposes the SAT cut score for Year 2 Mathematics EOC be set at 400 and the ACT cut score be set at the corresponding score.

Mathematics COE Standard Setting

- OSPI proposes a "Body of Work" methodology for setting the cut scores on the Year 1 and Year 2 Mathematics Collections of Evidence.
- OSPI will present the results of the Mathematics COE Standard Setting to the State Board late in March.