



Washington State  
Board of Education



Working to Raise Student Achievement Dramatically

## Implications of Using Science End-of-Course Assessments for High School Exit Exams

Presentation to the Board  
November 6, 2008

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### Purpose of the Review

**Education First Consulting addressed the question...**

***“How well do comprehensive and end-of-course (EOC) assessments meet the four major purposes of high school assessments?”***

**This review review addresses the question...**

***“How well do comprehensive and EOC assessments serve the major goals of science education?”***



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## National Context: State Exit Exam Requirements for Science

State Exit Exam Requirements for Science Current or Planned by 2012	
Exit Exam Requirement	Number of States <sup>1</sup>
No exit exam requirement	24
Comprehensive exit exam without a science component and without a science EOC	6
Comprehensive exit exam with a science component	8
Science EOC exit exam requirement	13
<i>Biology EOC Assessment Only</i>	7
<i>1 Science EOC Assessment</i>	3
<i>Biology as 1 EOC Assessment Option</i>	1
<i>Average of 3 Science EOC Assessments</i>	1
<i>Integrated Science EOC Assessment</i>	1

Sources: Education First Consulting (2008); U.S. Department of Education (2007).

1) Includes Washington DC. Washington State is included in the "Comprehensive exit exam with a science component" category.



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## National Context: State Uses of Science EOC Assessments

State Uses of Science EOC Assessments				
EOC Assessment	Total States Offering Exam <sup>1</sup>	States Requiring Exam for Graduation	States Using Exam as a Graduation Option <sup>2</sup>	States Using Exam for NCLB
Biology	18	8	4	14
Physics	9	1	2	4
Chemistry	8	1	2	4
Earth Science	5	0	1	2
Integrated Science	2	1	0	1
Living Environment	1	0	0	0
Technology/Engineering	1	0	0	1

Sources: Education First Consulting (2008); U.S. Department of Education (2007).

1) Includes states for which the exam is currently under development.

2) Students may choose this EOC assessment as one of their required EOC assessments.



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## Washington Context: Assumptions

1. New standards for science education.
2. Science credit requirement for graduation.
3. Science assessment requirement for graduation.
4. National requirement for state accountability for science.
5. Washington stakeholders value local control.



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## Implications of EOC Assessments for Meeting the Main Goals of Science Education

### Science Content

- EOCs provide a better measure of depth of knowledge.
- EOCs would likely narrow the variety of science courses offered.

### Scientific Inquiry

- Assessment should focus on measuring knowledge and abilities related to design of investigations, control of variables, collection of data, and use of evidence in support of a conclusion.
- EOCs provide more opportunities for in-depth and subject-specific evaluations.



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## Implications of EOC Assessments for Meeting the Main Goals of Science Education -- Cont'd

### Applications

- EOCs are better suited to assess specific disciplines and types of investigations.

### Career Awareness

- A collection of EOCs could provide multiple assessments of inquiry and applications skills as they are introduced and learned in different courses or content areas.
- Use of EOCs would require statewide coordination with regard to which science courses are used to address specific career awareness skills and abilities.



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## Other Considerations

### Graduation Requirements

- New graduation requirements for science and the 10th grade WASL create an alignment challenge.
- Maintaining the science WASL and implementing science EOCs is an option.

### Development and Implementation of EOC Assessments

- EOCs can leave open local options relative to: instructional materials, teachers' professional development, and course selection for graduation.
- EOCs demand greater statewide consistency in high school course offerings.
- EOCs could raise tensions around issues of local control.



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## Other Considerations -- Cont'd

### State, District, and School Accountability

- Either assessment type could support SBE principles for an accountability index.
- Either assessment type could be used to meet federal NCLB requirements.
- EOCs would more closely measure how specific courses support student achievement.

### Student Accountability & Engagement in Learning

- EOC medium stakes options include recording results on a student's transcript and basing a final course grade on an EOC.
- Research suggests positive benefits of EOCs for students and teachers.

(See Bishop, Mane, Bishop, Moriarity, 2000; Bishop, Mane, Bishop, 2001; Bishop, 2007)



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## Other Considerations -- Cont'd

### Alignment of Standards, Curriculum, Assessments

- A comprehensive science exit exam will have implications for course sequencing.
- EOC exit exams would likely narrow the range of science course offerings.
- EOC exit exams would likely clarify content and performance expectations for science courses.



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## Conclusion

***Comprehensive and EOC assessments for science have different implications for motivating and measuring student achievement as well as meeting the major goals of science education across the educational system overall. The SBE must weigh these differences and choose an assessment system that acknowledges the values of statewide stakeholders and Washington's goals for improving science teaching and learning.***



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