K-12 Core Science Instructional Materials Review

June 2009 Preliminary Report & Initial Recommendations

6-30-09

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Revision History

Date	Version Notes	Updated By
6/24/2009	Preliminary Draft Completed	Porsche Everson
6/30/2009	Preliminary Report with Initial Recommendations Completed	Porsche Everson

1 Project Overview

1.1 Introduction/Purpose

The purpose of this document is to describe the process and outcomes from the 2009 Core Science Instructional Material Review for K-12. The report contains information about the entire process, as well as statistical results from the review.

Although comprehensive, research-based instructional materials lie at the heart of the most effective science education programs, it is important to note that successful science programs may exist with many of the reviewed curricula. While instructional materials matter, other factors contribute to the success of students in Washington State learning science. Those factors include quality of instruction, parent involvement, available supports and myriad other aspects.

The recommended curricula will ultimately receive the bulk of attention within this report; however, it also provides other key results as well. These results include:

- **Support to districts in evaluating instructional materials:** Local school districts can use the rich set of information contained within this report to evaluate a wide variety of materials based upon factors they deem important, to help them make decisions in the future regarding science instructional materials adoptions.

- **Information on all instructional materials reviewed:** Districts who currently use instructional materials *that were not recommended* will find this report valuable. It contains detailed, specific information on how all programs reviewed meet the newly revised 2009 Washington State K-12 Science Standards. Instructors, coaches, curriculum specialists and administrators can easily see how their materials line up against the standards, course by course, and identify areas where supplementation may be needed. *No one set of instructional materials matches the new standards completely; each one will need some augmentation, even within the materials that are recommended.*

Key Points

- The evaluation process was rigorous and comprehensive. (Page 19)
- No elementary programs reviewed met the composite threshold for inclusion in the initial recommendations. (Page 6)
- Five products at the middle school level scored well. (Page 10)
- High School had 1-2 initial recommendations per course. (Page 17)
- The State Board of Education has two months to provide comment on the initial recommendations, then OSPI will issue final recommendations. (Page 32)
- All materials, even those that are recommended will need some degree of supplementation.
- Future versions of science instructional materials will likely have stronger alignment to Washington Science Standards.

Some words of caution are necessary. Reviews like this represent a point in time, in a continuously evolving process. New versions of materials may rapidly supplant those reviewed herein.

In general, there are multiple versions of instructional materials in use by districts across the state. This review process examined only one version of each program; typically the most recently copyrighted version. Readers should be aware that older versions of the programs would likely have different results. It is likely that many districts across the state may be using older versions of these programs.

The programs submitted for analysis in this review were evaluated against newly revised Washington State K-12 Science Standards. No publisher has had the chance to update their material to produce a new version since the science standards were released in April 2009. This review simply provides a baseline comparison, from which publishers can adapt their material to be more closely aligned with the recently revised Washington State K-12 Science Standards.

1.2 Scope and Background

The purpose of the project was to review core science instructional materials in order to fulfill the original legislative directive to make recommendations for no more than three basic science curricula each for elementary, middle and high school grade spans in cooperation with the State Board of Education.

Following the revision of the Washington State K-12 Science Standards (December 2008), the Office of Superintendent of Public Instruction (OSPI) was required by 2008 Senate Bill 6534, section 1(7)(c-g), and the 2008 supplemental budget bill (ESHB 2687) section 501, (6)(d-e) to make recommendations for no more than three basic science curricula each for elementary, middle, and high school grade spans to the State Board of Education (SBE)

Subsequent legislation (HB 5414) modified the terms of the original legislation to allow for recommendations by major courses at the high school level, and extended the deadline for making the recommendations to June 30, 2009.

Within two months after the presentation of the recommended curricula, the SBE shall provide official comment and recommendations to the State Superintendent of Public Instruction regarding the recommended science curricula. The State Superintendent of Public Instruction shall consider the comment and recommendations from the SBE and other community input. The Superintendent of Public Instruction will then recommend and adopt K-12 science curricula.

In addition to the recommended core science curricula, OSPI must identify supplemental material as necessary to support all the core programs. OSPI is issuing a separate report on supplemental science material.

1.3 Contributing Stakeholders

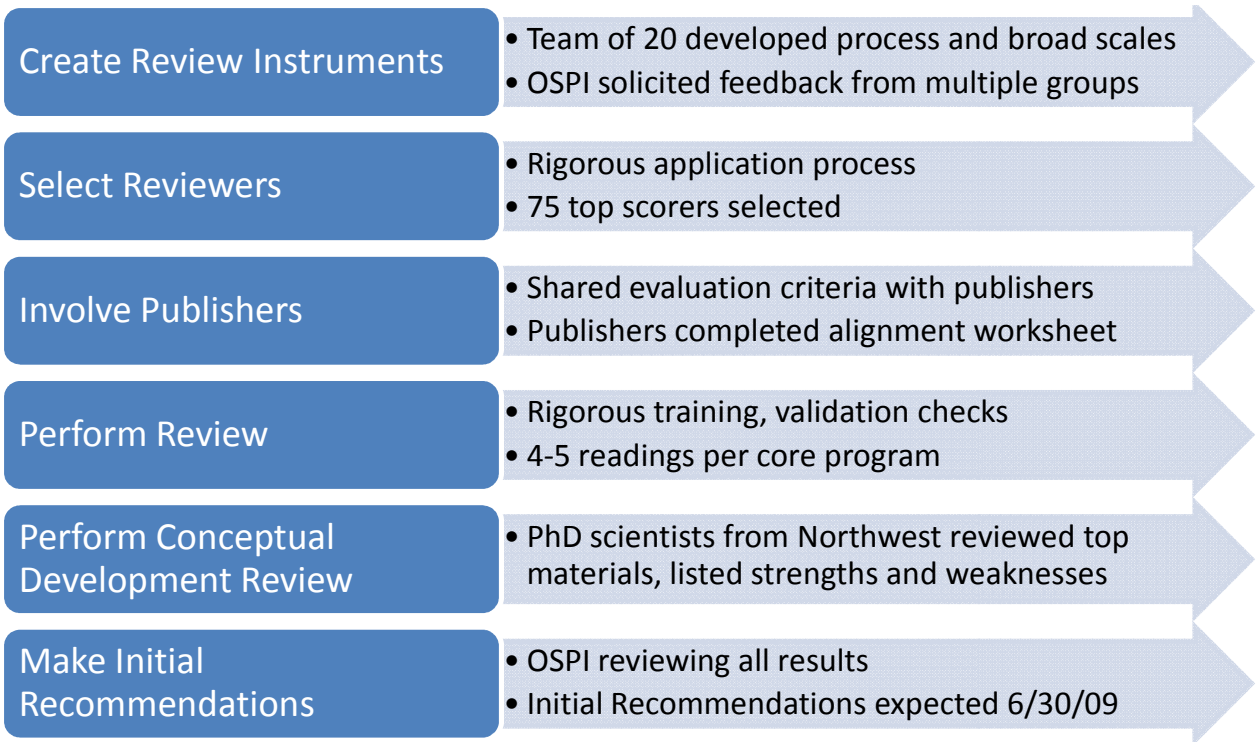
Many people, representing multiple stakeholder groups from across the state, participated in the process of designing review instruments, evaluating instructional materials, and providing input

throughout the project. Several representative groups are listed below. Please note that inclusion of the representative groups does not indicate that the group endorsed the outcomes from the review itself. See *Appendix C. Acknowledgements* for more information.

- State Board of Education Science Panel
- LASER Alliances and Leadership
- All Educational Service Districts
- Science Educators and WSTA
- Scientists
- Parents/PTA
- MESA
- Curriculum Specialists and Coaches
- District Administrators
- University Faculty

1.4 Process Overview

The following graphic highlights the major steps involved in the science instructional materials review. See *Section 2. Project Process* for more detail.



1.5 Findings

The following tables show the overall ranking for all core comprehensive programs submitted for review. The scale score is calculated by averaging the raw scores in a category, then dividing by the maximum possible scale value to obtain a scaled average. Each scale was assigned a weight. The weights were used to derive a final composite score.

The final composite score was calculated using the formula:

$$\sum(Average\ Scale\ Score)(Scale\ Weight)$$

Table 1. Scales and weights used to calculate the Composite Score.

	Standards Alignment	*Program Coherence*	*Facilitating Instruction*	*Student Learning*	*Equity and Accessibility*	*Assessment*	*Composite Score*
Scale Weights	*50%*	*20%*	*10%*	*10%*	*5%*	*5%*	*100%*

Table 2. Elementary program scale and composite scores.

Elementary Programs							
Program Name	***Standards Alignment***	**Program Coherence**	**Facilitating Instruction**	**Student Learning**	**Equity and Accessibility**	**Assessment**	**Composite Score**
Science Companion	0.59	0.79	0.68	0.83	0.45	0.78	0.67
STC	0.51	0.75	0.69	0.85	0.67	0.69	0.63
FOSS (K-5)	0.50	0.71	0.71	0.82	0.61	0.67	0.61
Science - Diamond Edition	0.55	0.63	0.73	0.61	0.74	0.61	0.60
Science: A Closer Look	0.59	0.64	0.61	0.60	0.65	0.45	0.60
Experience Science	0.41	0.41	0.45	0.49	0.31	0.37	0.42
Grand Total	*0.53*	*0.66*	*0.64*	*0.71*	*0.57*	*0.60*	*0.59*

Table 3. Middle school program scale and composite scores.

Middle School Programs							
Program Name	***Standards Alignment***	**Program Coherence**	**Facilitating Instruction**	**Student Learning**	**Equity and Accessibility**	**Assessment**	**Composite Score**
Science Explorer	0.88	0.81	0.94	0.92	0.97	0.64	0.87
ML: Science Modules	0.79	0.84	0.84	0.84	0.85	0.84	0.81
FOSS (6-8)	0.71	0.87	0.90	0.90	0.64	0.82	0.78
LA: Issues Series	0.64	0.83	0.74	0.81	0.63	0.69	0.71
IAT: Earth/Life/Physical Series	0.68	0.76	0.63	0.81	0.49	0.72	0.70
STC Earth/Life/Physical Series	0.47	0.75	0.68	0.78	0.52	0.63	0.59
Glencoe Earth/Life/Physical	0.54	0.53	0.64	0.62	0.80	0.47	0.57
Science - Diamond Edition	0.47	0.54	0.74	0.52	0.81	0.63	0.54
Holt Science & Technology	0.47	0.50	0.50	0.56	0.74	0.37	0.50
KH: Investigating Series	0.38	0.62	0.55	0.66	0.47	0.56	0.49
Glencoe Blue/Green/Red	0.37	0.44	0.56	0.47	0.71	0.32	0.43
Grand Total	*0.58*	*0.70*	*0.68*	*0.74*	*0.63*	*0.63*	*0.64*

Table 4. High school scale and composite scores by course.

High School Courses/Programs								
Course	**Program Name**	***Standards Alignment***	**Program Coherence**	**Facilitating Instruction**	**Student Learning**	**Equity and Accessibility**	**Assessment**	**Composite Score**
Biology	Biology: A Human Approach	0.88	0.89	0.94	0.96	0.86	0.97	0.90
	Insights in Biology	0.77	0.89	0.76	0.91	0.51	0.81	0.80
	Pearson Biology	0.62	0.67	0.63	0.74	0.82	0.74	0.66
	Glencoe Biology	0.68	0.54	0.68	0.68	0.79	0.58	0.65
	Agile Mind Biology	0.63	0.70	0.65	0.57	0.46	0.65	0.63
	Holt Biology	0.54	0.51	0.61	0.52	0.75	0.42	0.54
	McGraw-Hill Life Science	0.47	0.54	0.50	0.47	0.65	0.44	0.49
	What is Life? A Guide to Biology	0.49	0.59	0.12	0.29	0.40	0.31	0.44

High School Courses/Programs								
Course	**Program Name**	***Standards Alignment***	**Program Coherence**	**Facilitating Instruction**	**Student Learning**	**Equity and Accessibility**	**Assessment**	**Composite Score**
Biology Total		*0.64*	*0.68*	*0.62*	*0.66*	*0.67*	*0.62*	*0.65*
Chemistry	Active Chemistry	0.77	0.92	0.90	0.97	0.90	0.84	0.84
	Kendall/Hunt Chemistry	0.68	0.76	0.56	0.77	0.56	0.66	0.69
	Chemistry: Matter and Change	0.59	0.54	0.58	0.56	0.61	0.47	0.57
	Chemistry: C&A	0.53	0.62	0.55	0.57	0.54	0.47	0.55
	Chemistry in the Community	0.54	0.62	0.31	0.52	0.52	0.34	0.52
	Holt Modern Chemistry	0.56	0.47	0.43	0.43	0.49	0.42	0.51
	World of Chemistry	0.54	0.44	0.44	0.50	0.59	0.38	0.50
	Pearson Chemistry	0.42	0.47	0.61	0.47	0.75	0.51	0.48
	Investigating Chemistry	0.38	0.42	0.22	0.39	0.24	0.29	0.36
Chemistry Total		*0.57*	*0.60*	*0.52*	*0.59*	*0.58*	*0.50*	*0.57*
Earth Science	EarthComm	0.79	0.79	0.85	0.92	0.53	0.88	0.80
	Glencoe Earth Science: GEU	0.51	0.57	0.63	0.60	0.61	0.44	0.54
	Holt Earth Science	0.47	0.60	0.52	0.51	0.58	0.56	0.51
	McGraw-Hill Earth & Space Science	0.47	0.47	0.35	0.35	0.67	0.46	0.46
	Pearson Earth Science	0.30	0.31	0.39	0.40	0.54	0.21	0.33
	Science of Earth Systems	0.28	0.29	0.17	0.20	0.47	0.16	0.26
	Discovering the Universe	0.14	0.44	0.11	0.26	0.17	0.15	0.21
	Essential Earth	0.18	0.24	0.01	0.00	0.42	0.06	0.16
Earth Science Total		*0.39*	*0.46*	*0.38*	*0.40*	*0.51*	*0.36*	*0.41*
Integrated	Science: An Inquiry Approach	0.74	0.86	0.90	0.94	0.75	0.82	0.80
	Coordinated Science	0.55	0.86	0.85	0.96	0.74	0.90	0.71
	Science and Sustainability	0.42	0.74	0.68	0.87	0.57	0.76	0.58
	Conceptual Integrated Science	0.48	0.40	0.35	0.31	0.42	0.38	0.43
Integrated Total		*0.53*	*0.72*	*0.69*	*0.78*	*0.61*	*0.72*	*0.62*
Physical Science	Active Physical Science	0.65	0.75	0.78	0.83	0.68	0.76	0.71
	Foundations of Physical Science	0.73	0.71	0.60	0.71	0.56	0.56	0.69

High School Courses/Programs								
Course	**Program Name**	***Standards Alignment***	**Program Coherence**	**Facilitating Instruction**	**Student Learning**	**Equity and Accessibility**	**Assessment**	**Composite Score**
	Holt Physical Science	0.61	0.58	0.62	0.61	0.75	0.54	0.61
	Glencoe Physical Science	0.52	0.51	0.61	0.56	0.66	0.35	0.53
	Glencoe Physical Sci w/ Earth Sci	0.51	0.47	0.54	0.60	0.68	0.40	0.52
	Holt Physical, Earth & Space	0.51	0.43	0.58	0.43	0.65	0.43	0.50
	McGraw-Hill Physical Science	0.47	0.50	0.49	0.49	0.51	0.47	0.48
	Pearson Physical Science	0.51	0.33	0.46	0.47	0.68	0.28	0.46
	Conceptual Physical Science	0.40	0.40	0.32	0.40	0.38	0.25	0.39
Physical Science Total		*0.55*	*0.52*	*0.56*	*0.57*	*0.63*	*0.45*	*0.55*
Physics	Active Physics	0.83	0.89	0.94	0.97	0.89	0.92	0.88
	Foundations of Physics	0.59	0.69	0.56	0.65	0.30	0.61	0.60
	Holt Physics	0.65	0.40	0.47	0.61	0.56	0.36	0.56
	Physics: A First Course	0.62	0.49	0.39	0.49	0.50	0.36	0.54
	Conceptual Physics	0.51	0.54	0.51	0.40	0.43	0.36	0.50
	Glencoe Physics	0.55	0.42	0.38	0.46	0.39	0.42	0.48
Physics Total		*0.63*	*0.57*	*0.54*	*0.59*	*0.52*	*0.50*	*0.59*
Grand Total		*0.56*	*0.58*	*0.54*	*0.59*	*0.59*	*0.51*	*0.56*

The following tables and graphs show the 95% confidence intervals for the core programs by grade and course level. The confidence interval is calculated by the following formula. See *Section 5. Data Analysis Approach* for more detail.

$$CI = Composite \pm t(SE)$$

Table 5. Elementary program 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Science Companion	0.6661	0.0083	0.6498	0.6823
STC	0.6258	0.0097	0.6067	0.6449
FOSS (K-5)	0.6066	0.0095	0.5880	0.6252
Science - Diamond Edition	0.6048	0.0100	0.5852	0.6244
Science: A Closer Look	0.5973	0.0094	0.5789	0.6158
Experience Science	0.4159	0.0098	0.3967	0.4351

Table 6. Middle school program 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Science Explorer	0.8694	0.0146	0.8402	0.8987
ML: Science Modules	0.8147	0.0124	0.7902	0.8393
FOSS (6-8)	0.7813	0.0116	0.7584	0.8043
LA: Issues Series	0.7057	0.0105	0.6850	0.7264
IAT: Earth/Life/Physical Series	0.6972	0.0100	0.6776	0.7168
STC Earth/Life/Physical Series	0.5869	0.0097	0.5679	0.6059
Glencoe Earth/Life/Physical	0.5675	0.0132	0.5416	0.5934
Science - Diamond Edition	0.5404	0.0210	0.4982	0.5825
Holt Science & Technology	0.4952	0.0197	0.4560	0.5344
KH: Investigating Series	0.4890	0.0101	0.4692	0.5088
Glencoe Blue/Green/Red	0.4269	0.0169	0.3933	0.4606

Table 7. HS Biology 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Biology: A Human Approach	0.8981	0.0101	0.8782	0.9181
Insights in Biology	0.7973	0.0138	0.7701	0.8246
Pearson Biology	0.6564	0.0210	0.6148	0.6980
Glencoe Biology	0.6531	0.0207	0.6120	0.6942

Program	Composite Score	SE	Lower Bound	Upper Bound
Agile Mind Biology	0.6332	0.0205	0.5926	0.6738
Holt Biology	0.5437	0.0161	0.5120	0.5754
McGraw-Hill Life Science	0.4949	0.0188	0.4579	0.5319
What is Life? A Guide to Biology	0.4401	0.0201	0.4004	0.4798

Table 8. HS Chemistry 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Active Chemistry	0.8434	0.0124	0.8190	0.8678
Kendall/Hunt Chemistry	0.6854	0.0157	0.6544	0.7163
Chemistry: Matter and Change	0.5724	0.0188	0.5352	0.6095
Chemistry: C&A	0.5500	0.0187	0.5132	0.5868
Chemistry in the Community	0.5224	0.0227	0.4777	0.5671
Holt Modern Chemistry	0.5073	0.0224	0.4630	0.5516
World of Chemistry	0.4992	0.0179	0.4641	0.5344
Pearson Chemistry	0.4757	0.0232	0.4300	0.5215
Investigating Chemistry	0.3629	0.0214	0.3206	0.4052

Table 9. HS Earth & Space Science 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
EarthComm	0.7992	0.0185	0.7627	0.8357
Glencoe Earth Science: GEU	0.5434	0.0234	0.4971	0.5896
Holt Earth Science	0.5133	0.0167	0.4804	0.5463
McGraw-Hill Earth & Space Science	0.4553	0.0225	0.4109	0.4997
Pearson Earth Science	0.3281	0.0169	0.2946	0.3615
Science of Earth Systems	0.2648	0.0171	0.2311	0.2985
Discovering the Universe	0.2131	0.0193	0.1748	0.2514
Essential Earth	0.1615	0.0184	0.1250	0.1980

Table 10. HS Integrated Science 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Science: An Inquiry Approach	0.8023	0.0164	0.7697	0.8348

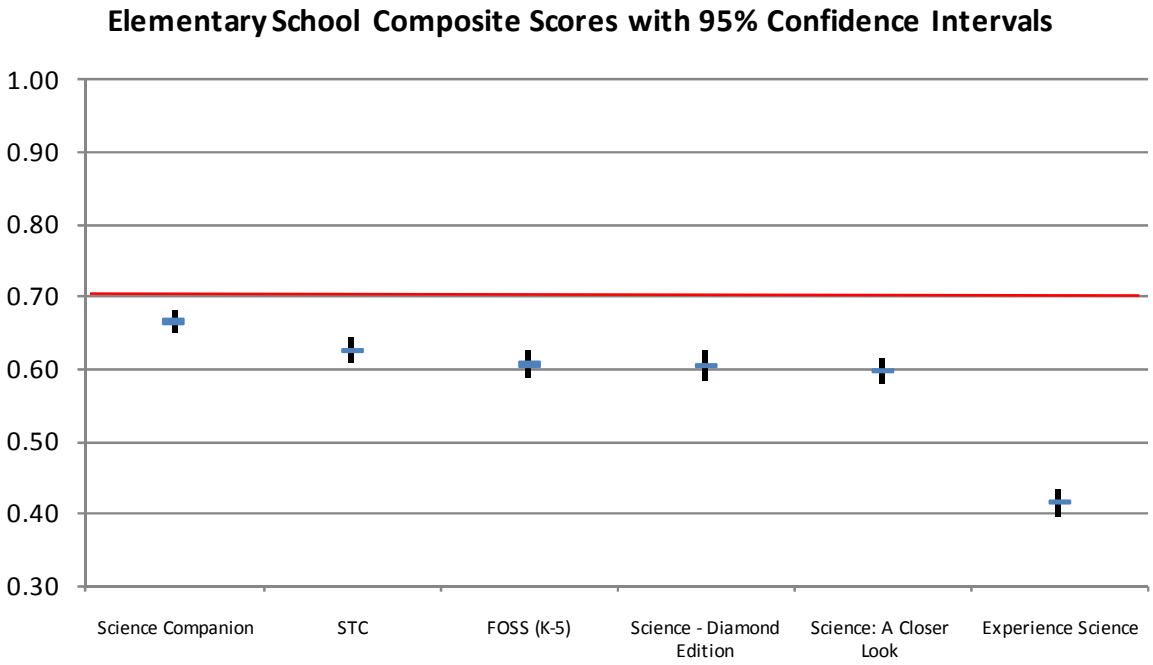
Program	Composite Score	SE	Lower Bound	Upper Bound
Coordinated Science	0.7079	0.0170	0.6744	0.7413
Science and Sustainability	0.5813	0.0139	0.5538	0.6087
Conceptual Integrated Science	0.4267	0.0174	0.3921	0.4614

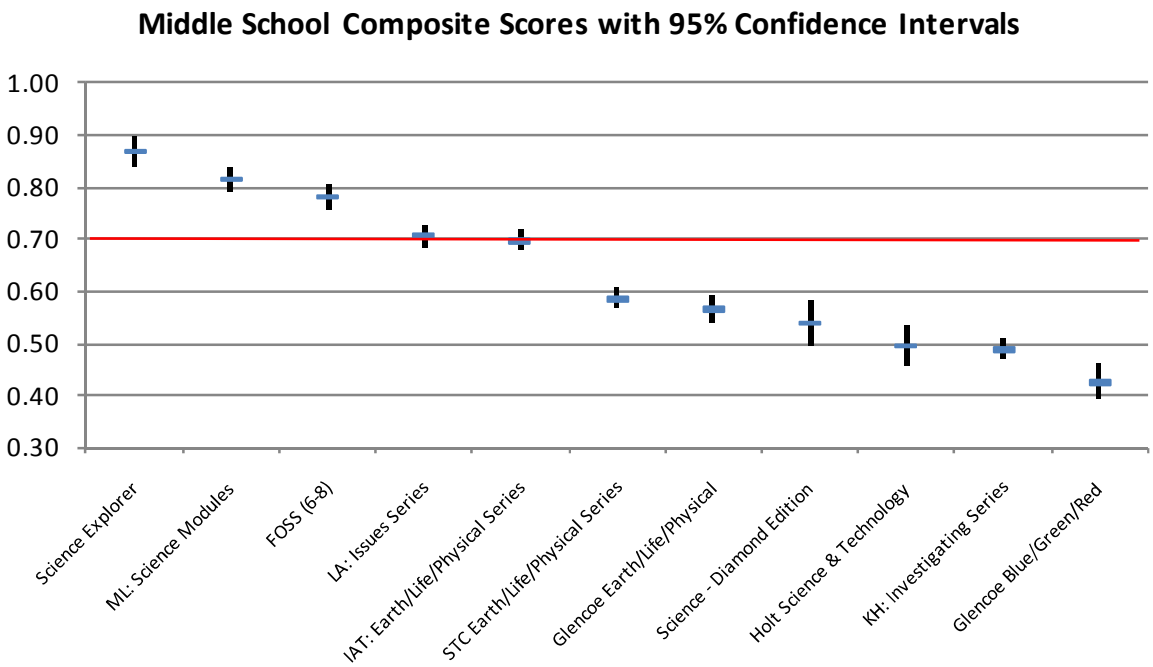
Table 11. HS Physical Science 95% confidence intervals.

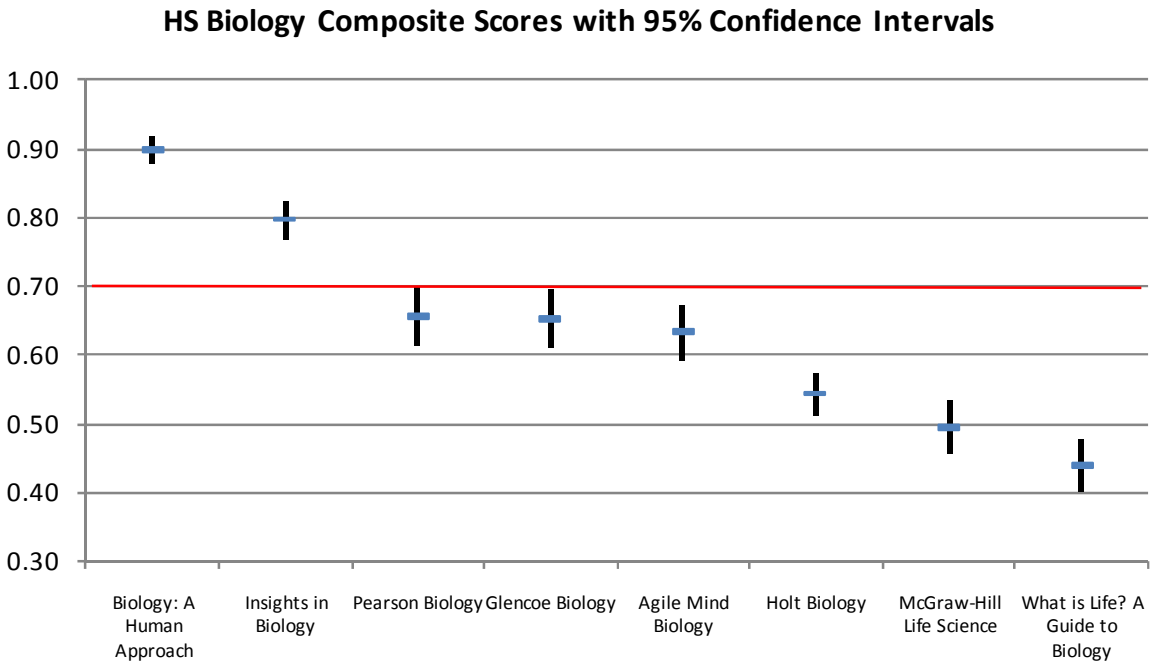
Program	Composite Score	SE	Lower Bound	Upper Bound
Active Physical Science	0.7077	0.0199	0.6683	0.7472
Foundations of Physical Science	0.6948	0.0160	0.6632	0.7264
Holt Physical Science	0.6097	0.0150	0.5801	0.6393
Glencoe Physical Science	0.5302	0.0162	0.4982	0.5622
Glencoe Physical Sci w/ Earth Sci	0.5185	0.0179	0.4831	0.5538
Holt Physical, Earth & Space	0.4956	0.0174	0.4612	0.5300
McGraw-Hill Physical Science	0.4807	0.0227	0.4357	0.5256
Pearson Physical Science	0.4636	0.0175	0.4290	0.4982
Conceptual Physical Science	0.3854	0.0228	0.3401	0.4307

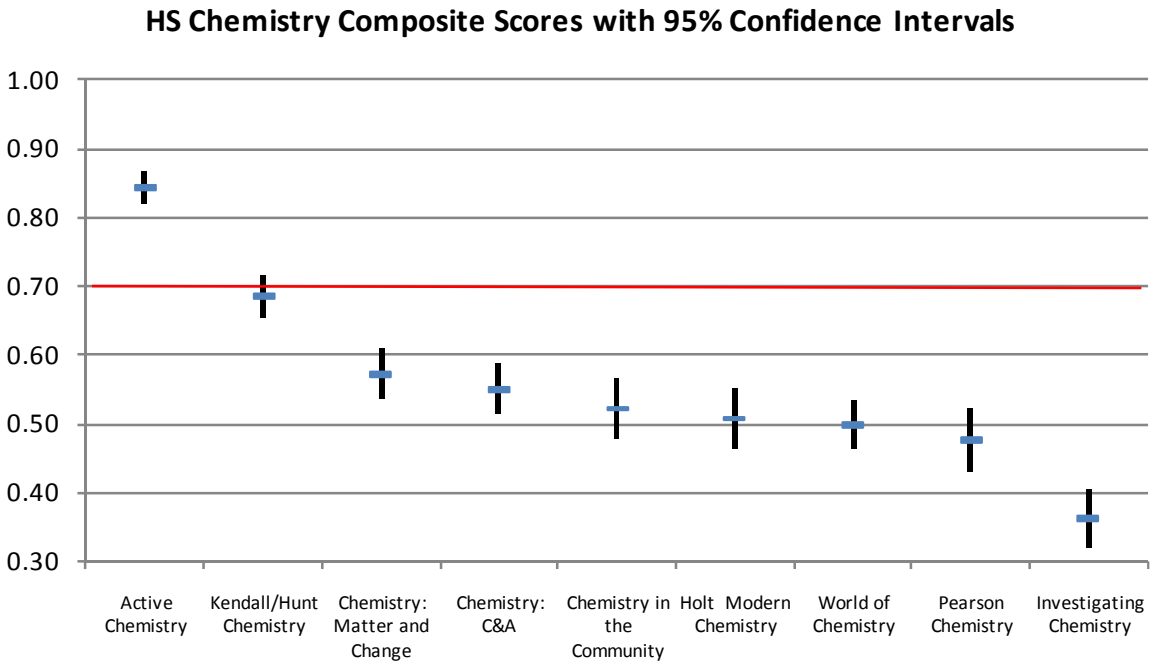
Table 12. HS Physics 95% confidence intervals.

Program	Composite Score	SE	Lower Bound	Upper Bound
Active Physics	0.8764	0.0163	0.8442	0.9086
Foundations of Physics	0.6003	0.0244	0.5519	0.6487
Holt Physics	0.5573	0.0234	0.5111	0.6036
Physics: A First Course	0.5369	0.0202	0.4970	0.5768
Conceptual Physics	0.4963	0.0247	0.4476	0.5451
Glencoe Physics	0.4811	0.0199	0.4418	0.5205


Elementary School Composite Scores with 95% Confidence Intervals
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Science Companion
STC
FOSS (K-5)
Science - Diamond Edition
Science: A Closer Look
Experience Science


Middle School Composite Scores with 95% Confidence Intervals
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Science Explorer
ML: Science Modules
FOSS (6-8)
LA: Issues Series
IAT: Earth/Life/Physical Series
STC Earth/Life/Physical Series
Glencoe Earth/Life/Physical
Science - Diamond Edition
Holt Science & Technology
KH: Investigating Series
Glencoe Blue/Green/Red


HS Biology Composite Scores with 95% Confidence Intervals
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Biology: A Human Approach
Insights in Biology
Pearson Biology
Glencoe Biology
Agile Mind Biology
Holt Biology
McGraw-Hill Life Science
What is Life? A Guide to Biology


HS Chemistry Composite Scores with 95% Confidence Intervals
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0.60
0.50
0.40
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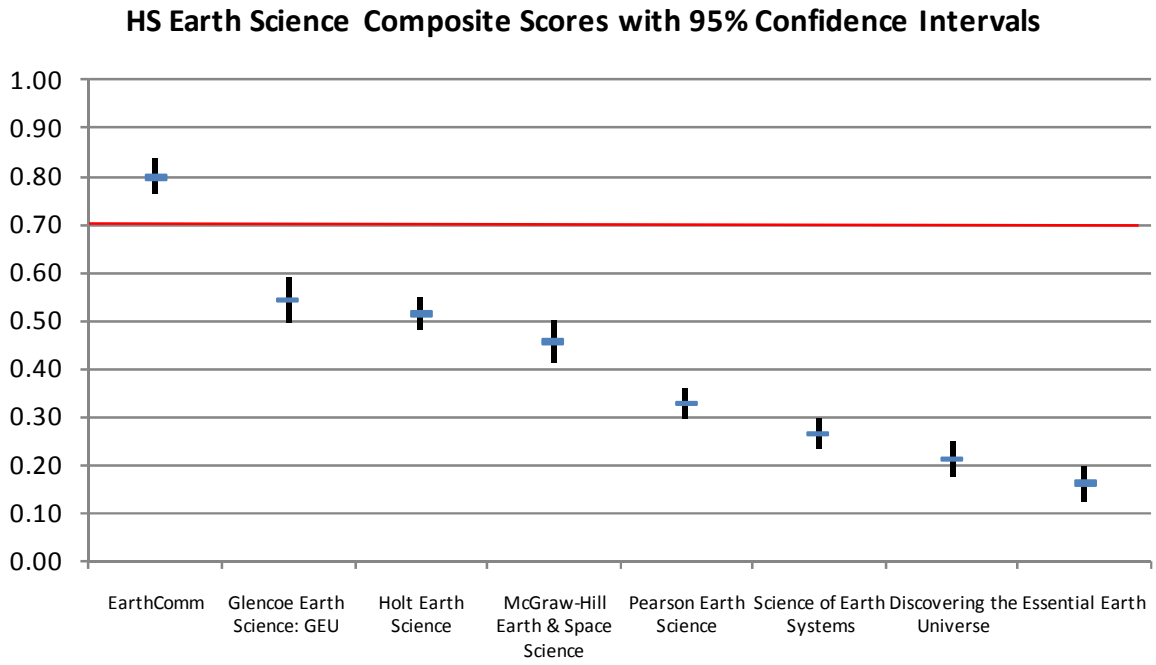
Active Chemistry
Kendall/Hunt Chemistry
Chemistry: Matter and Change
Chemistry: C&A
Chemistry in the Community
Holt Modern Chemistry
World of Chemistry
Pearson Chemistry
Investigating Chemistry


HS Earth Science Composite Scores with 95% Confidence Intervals
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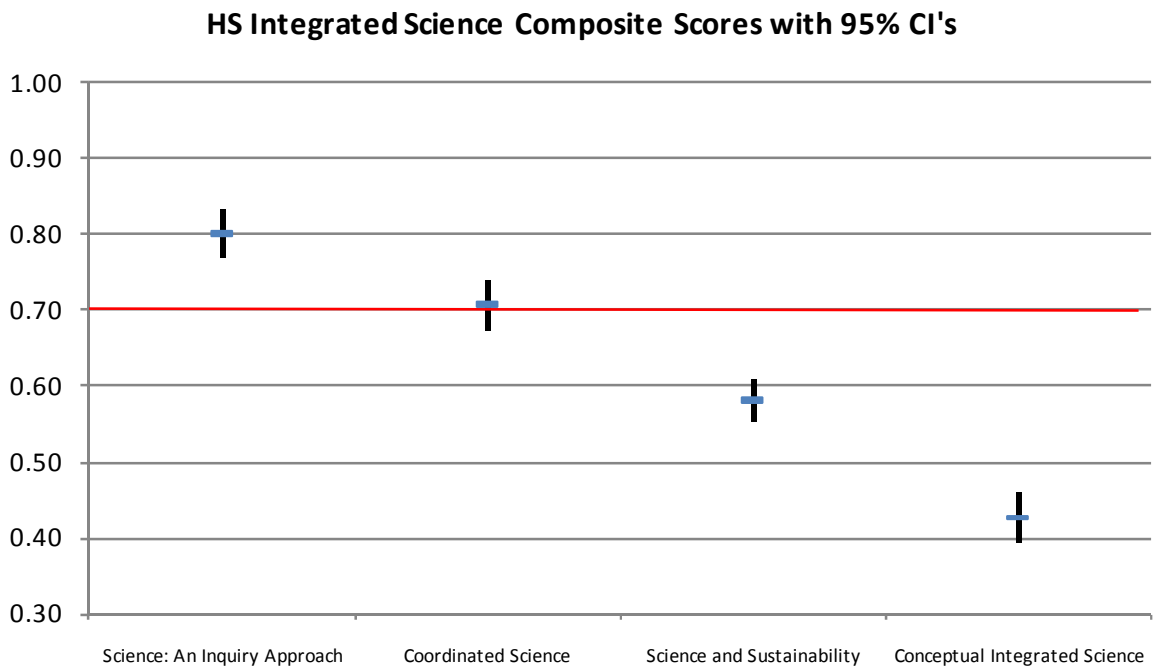
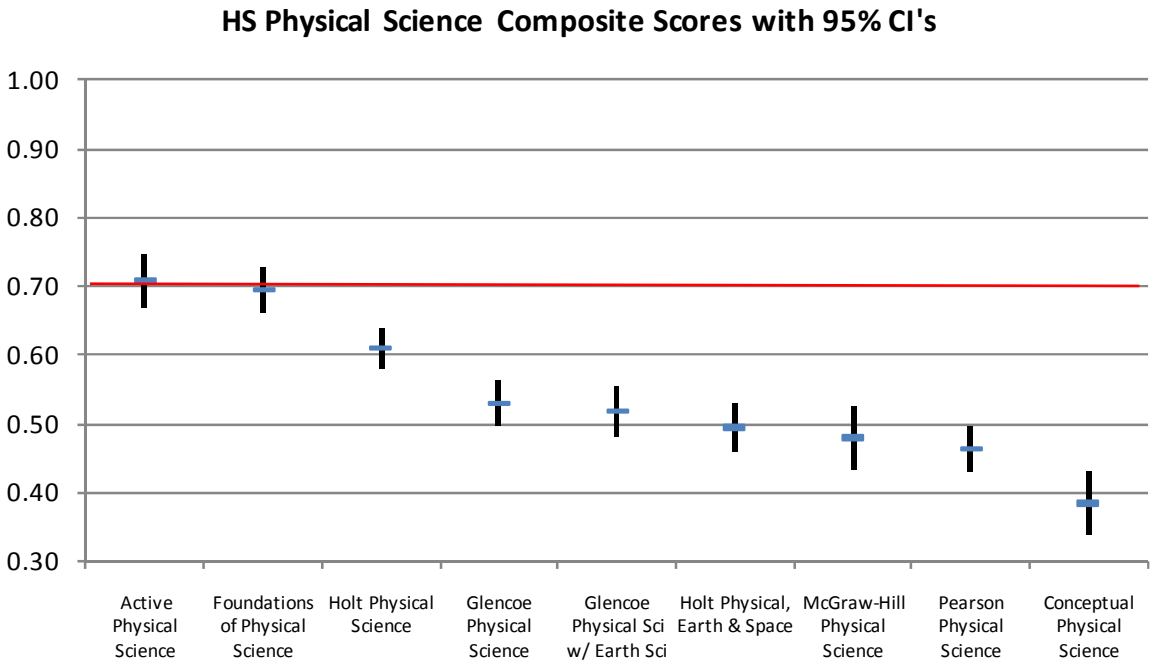
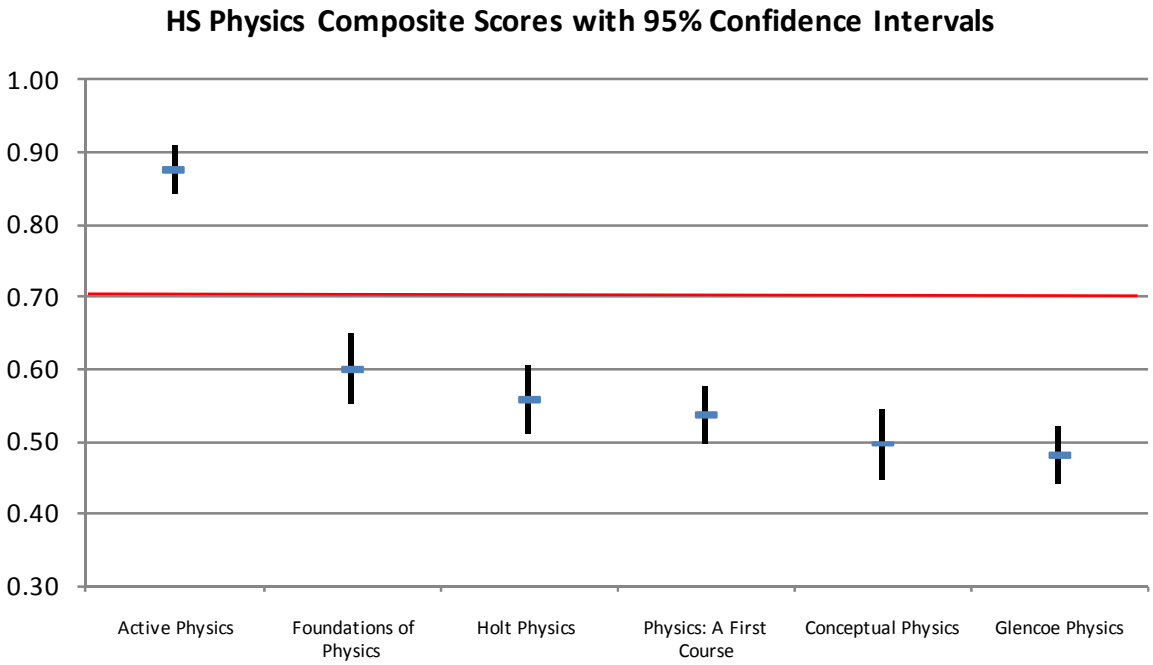
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
EarthComm
Glencoe Earth Science: GEU
Holt Earth Science
McGraw-Hill Earth & Space Science
Pearson Earth Science
Science of Earth Systems
Discovering the Universe
Essential Earth


HS Integrated Science Composite Scores with 95% CI's
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Science: An Inquiry Approach
Coordinated Science
Science and Sustainability
Conceptual Integrated Science


HS Physical Science Composite Scores with 95% CI's
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Active Physical Science
Foundations of Physical Science
Holt Physical Science
Glencoe Physical Science
Glencoe Physical Sci w/ Earth Sci
Holt Physical, Earth & Space
McGraw-Hill Physical Science
Pearson Physical Science
Conceptual Physical Science


HS Physics Composite Scores with 95% Confidence Intervals
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
Active Physics
Foundations of Physics
Holt Physics
Physics: A First Course
Conceptual Physics
Glencoe Physics

1.6 Initial Recommendations

The 2007 Washington State Legislature directed OSPI, in consultation with the SBE, to recommend no more than three basic science curricula at the elementary, middle and high school (by major course within the three domains of earth and space, physical, and life sciences) levels.

The following tables show the initial recommendations from Superintendent Dorn. The SBE has two months to provide comments. At that point, Superintendent Dorn will make final recommendations. It is important to note that the initial recommendations may change based upon SBE feedback.

The recommendations serve as a guide to school districts in the state of Washington regarding which curricula are most aligned with the revised Washington State K-12 Science Standards. Districts are not required to adopt materials within these lists.

Please note that OSPI has recommended the science curricula as per the legislated requirement. It is not the role of OSPI to direct which curricula a school district may or should select. It is not a state requirement for any district to specifically use the recommended curricula. *No one set of instructional materials matches the new standards completely; each one will need some augmentation, even those that are recommended.*

None of the elementary programs reviewed met the composite threshold of 0.70. Thus, OSPI has no initial recommendations at this time for the elementary level.

Middle School Initial Recommendations		
Publisher	**Program Name**	**Composite Score**
Pearson (Prentice Hall)	*Science Explorer*	0.8694
Holt McDougal	*McDougal Littell Science Modules*	0.8147
Delta Education	*Full Option Science System (FOSS)*	0.7813

High School Biology Initial Recommendations (Life Science Domain)		
Publisher	**Program Name**	**Composite Score**
Kendall/Hunt (BSCS)	*Biology: A Human Approach*	0.8981
Kendall/Hunt	*Insights in Biology*	0.7973

High School Chemistry Initial Recommendations (Physical Science Domain)		
Publisher	**Program Name**	**Composite Score**
It's About Time Publishing	*Active Chemistry*	0.8434
Kendall/Hunt	*Chemistry*	0.6854[1]

[1] The 95% confidence level upper bound is 0.7163.

High School Earth/Space Science Initial Recommendations (Earth and Space Science Domain)		
Publisher	**Program Name**	**Composite Score**
It's About Time Publishing	*EarthComm*	0.7992

High School Integrated Science Initial Recommendations (Physical Science Domain)		
Publisher	**Program Name**	**Composite Score**
Kendall/Hunt	*Science: An Inquiry Approach*	0.8023
It's About Time Publishing	*Coordinated Science*[2]	0.7079

High School Physical Science Initial Recommendations (Physical Science Domain)		
Publisher	**Program Name**	**Composite Score**
It's About Time Publishing	*Active Physical Science*	0.7077
CPO Science	*Foundations of Physical Science*	0.6948[3]

High School Physics Initial Recommendations (Physical Science Domain)		
Publisher	**Program Name**	**Composite Score**
It's About Time Publishing	*Active Physics*	0.8764

[2]Coordinated Science is comprised of EarthComm, Active Chemistry and Active Physics. It does not have a life science component. Superintendent Dorn has asked the SBE to comment on whether Coordinated Science should be considered for the final recommendation, given that it does not contain a life science component.

[3] The 95% confidence level upper bound is 0.7264.

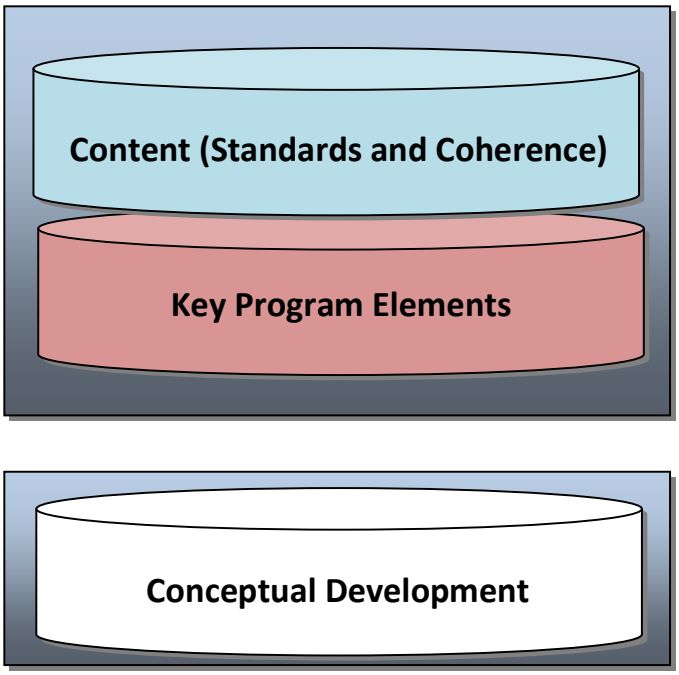
2 Project Process

2.1 Overview

The 2009 Core Science Instructional Materials Review involved high stakes outcomes, particularly the selection of no more than three basic curricula recommendations in the elementary, middle and high school grade spans (K-5, 6-8, and 9-12). Thus, the project processes and controls were designed to be rigorous, transparent, inclusive and reliable. Hundreds of professionals contributed to the success of the project during its multiple phases.

A team of 20 scientists, educators (K-12 and higher education), curriculum specialists, administrators and statisticians formed the Science IMR Advisory Group. They met in March 2009 to advise OSPI on the development of the review instruments.

The IMR Advisory Group proposed a three-level process framework for reviewing science instructional materials. The three processes are evaluations of Content (Standards and Coherence), Key Program Elements, and Conceptual Development.



The first two processes occurred during Review Week.

After the Review Week, top scoring programs were reviewed by a small group for conceptual development quality. They created a narrative evaluation.

The first two processes were addressed during the Core Instructional Materials Review week. Reviewers used two instruments (Content and Key Program Elements) to evaluate the materials.

The third process occurred after the Review Week was complete. In the Conceptual Development process, the top ranked programs[4] in K-5, 6-8 and the high school course domains of Earth and

[4] Top-ranked programs are those that have the highest composite scores from the two instruments, Content (Standards and Coherence) and Key Program Elements.

Space, Physical Science, Physics, Chemistry, Biology and Integrated series were evaluated by a small team of qualified reviewers (Ph.D. university scientists). They provided a narrative evaluation of their findings. See *Section 4 Conceptual Development Review Results* for the narrative evaluations.

There were three steps throughout the entire framework that filtered out materials from further consideration for the final recommendations. Classifying steps include:

- First, submitted materials that did not fall into the category of core science material (for example, an oceanography text or advanced placement materials) did not undergo the initial review.
- Second, only programs that had an average composite sore of greater than 0.7 (on a 1.0 scale) were eligible for consideration for the initial recommendations.
- Third, the composite score of the eligible programs, consisting of both the Content (Standards Alignment and Program Coherence) – (70%) and Key Program Elements (30%) weighted averages provided a ranking of the top programs.

In addition, the top-ranked programs underwent an in-depth Conceptual Development Review. The university scientists reviewing the materials provided a narrative evaluation of the materials, listing their strengths and weaknesses. The Conceptual Development Review represents the professional opinion of the individual reviewer, and is included to provide additional information to districts. Information in the Conceptual Development Review may be considered by OSPI in making the final recommendations.

2.2 Review Instrument Development

This section describes the process by which the review instrument and weights were developed. It also includes the scoring rubric for the Standards Alignment. See *Appendix A.*

Review Instruments for more details on the scales and instruments used by the reviewers.

To develop the review instruments, OSPI engaged the Instructional Materials Advisory Group in two full cycles of development and revision. The IMR Advisory Group and the SBE Science Panel were the two primary groups contributing to the development of the instruments. Their work was research based, and used the following primary sources:

- 2009 Revised Washington State Science Standards
- *National Science Education Standards*, (National Research Council, 1993)
- *How People Learn: Brain, Mind, Experience and School* (Bransford, Brown, Cocking, 2000)
- *Ready, Set , Science: Putting Research to Work in K-8 Classrooms* (Shouse, Schweingruber, 2008)
- *Atlas for Science Literacy* (American Association for the Advancement of Science, Vol. 1, 2001 and Vol.2, 2007)

The IMR Advisory Group examined ten instruments used to review science instructional materials within Washington and across the US. They identified aspects of each instrument that could work well, and those that they recommended OSPI avoid. The group identified and defined other instruments and scales[5] for use in the review.

The outcomes from the review instrument design phase included:

- Two review instruments, Content (Standards Alignment and Program Coherence) and Key Program Elements, which are described below.
- A proposed threshold for final recommendations. The IMR Advisory Group recommended that in order for programs to be considered for the final three recommendations, they must first meet a minimum threshold in content/program coherence. A scaled score of 0.70 was proposed as this threshold with a recommendation that the threshold be adjusted if necessary if a sufficient number of materials failed to reach the threshold.
- Weighting percentages for the scales in Content/Program Coherence and Key Program Elements.

These documents were then reviewed by the SBE Science Panel, CARC and science educational leaders from across the state. Their input was carefully considered and incorporated into the review instruments where deemed appropriate by the IMR Advisory Group.

2.2.1 Content Scales

The Content instrument consists of two scales, a measure of the alignment to the revised Washington State K-12 Science Standards, and Program Coherence, which evaluates sequence, organization, and the degree to which the materials ground learning in a larger framework.

[5] A scale is a set of one or more related items or questions that seek to measure one theme. Instruments (or surveys) are typically made up of one or more scales.

2.2.1.1 Standards Alignment Scale

The Standards Alignment scale measured alignment to the revised Washington K-12 Science Standards, including both the cross-cutting and the domain standards. All standards within the scale had equal weight.

Grades 6-8		Date:	
Program:		Reviewer #:	

(N-not applicable, 1-little or no coverage, 2-important content missing, 3-more than 50% addressed, 4-strongly covered)			
EALR 1: Systems (SYS) - Core Content: *Inputs, Outputs, Boundaries and Flows*			
6-8 SYSA		① ② ③ ④	
6-8 SYSB		① ② ③ ④	
6-8 SYSC		① ② ③ ④	
6-8 SYSD		① ② ③ ④	
6-8 SYSE		① ② ③ ④	
6-8 SYSF		① ② ③ ④	
EALR 2: Inquiry (INQ) – Core Content: *Questioning and Investigating*			
6-8 INQA		① ② ③ ④	
6-8 INQB		① ② ③ ④	
6-8 INQC		① ② ③ ④	
6-8 INQD		① ② ③ ④	
6-8 INQE		① ② ③ ④	
6-8 INQF		① ② ③ ④	
6-8 INQG		① ② ③ ④	
6-8 INQH		① ② ③ ④	
6-8 INQI		① ② ③ ④	
EALR 3: Application (APP) – Core Content: *Science, Technology, and Solving Problems*			
6-8 APPA		① ② ③ ④	
6-8 APPB		① ② ③ ④	
6-8 APPC		① ② ③ ④	

Figure 1. Sample Scoring/Evidence Sheet for Standards Alignment.

The following scoring rubric assisted reviewers in selecting a response on the Standards Alignment Scoring/Evidence Sheet.

Table 13. Standards Alignment Scoring Rubric.

All or most of the content in the standard is missing (1)	A significant amount of the content in the standard is missing (2)	Most but not all of the content is present in the standard (3)	All of the content in the standard is fully present(4)
• All or most of the content in the standard is missing in the program. - It may be completely absent. - It may be briefly mentioned, but it is not developed. - It may contain less sophisticated precursor content that would lead to the content in the standard. • *Most students would not be able to achieve mastery with the core program materials.*	• Some significant aspect of the content is not present. - Some of the content may be completely absent. - Some of the content may be less rigorous. • It would take significant time and knowledge to fill the content gaps in the program. • *Many students would not be able to achieve mastery with the core program materials without some content supplementation.*	• The key content from the standard exists in the program. • The core materials need supplementation to do such things as adding additional opportunities for learning or finding other representations to help students consolidate learning. • *Many students would achieve mastery with the core program material.*	• The content from the standard is fully present. • There are sufficient teaching and learning opportunities to ensure mastery. • *80-100% of students would be able to achieve mastery with the core program materials.*

2.2.1.2 Program Coherence Scale

The Program Coherence scale measures how well the materials present content in an organized and deliberate sequence designed to develop conceptual understanding. It also evaluates how well the materials make explicit the big ideas of science and ground learning in a larger framework. It is a part of the overall Content measurement, along with the Standards Alignment scale.

The following items measure Program Coherence. The scale uses a four point response, with a Likert pattern of *Not Evident, Somewhat Evident, Mostly Evident,* or *Strongly Evident*.

1. Program presents content in an organized and deliberate sequence designed to develop conceptual understanding. Facts and concepts are linked and developed in ways that

facilitate retrieval and application, and engages student thinking about phenomena, experiences, and knowledge.

2. Program meets and makes explicit the big ideas of science.
3. Program is organized into units, modules or other structures, focused on student learning experiences that provide sufficient time to develop deep understanding of a few concepts.
4. Program provides opportunities for students to apply understanding to new situations, to relate material to real-world experiences and situations, and to draw connections between personal and classroom experiences.
5. Program promotes interdisciplinary and cross-curricular connections.
6. Program contains little or no extraneous material outside of expected grade level standards.[6]

2.2.2 Key Program Elements Scales

The IMR Advisory Group developed the following four scales to be used to measure important factors outside of standards alignment and program coherence.

Scale	Description
Assessment	Formative and summative assessments that use a variety of strategies are available within the materials. They promote student thinking about their ideas and prior conceptions, and promote student metacognition. They measure student knowledge and understanding of the science content. They help inform teachers about instruction.
Equity and Accessibility	The materials are free from bias (e.g. race, culture, age, gender and disabilities) and provide accommodations for individual and cultural differences, different learning styles and language proficiency.
Facilitating Instruction	Tools that support teacher's instructional practice are included. Teacher work is explicitly outlined. The materials provide background information on both content and the instructional approaches used within the materials. The materials have an instructional approach that is research based[7]. Directions for use of the various student support materials are included.
Student Learning	Instructional materials promote authentic, relevant and engaging learning experiences for students that mirror the

[6] This item uses a reverse score. Generally a value of "Strongly Evident" on other questions is considered good. On this item, a "Not Evident" is considered good. The data was re-coded on this item before final analysis.

[7] The revised Washington K-12 Science Standards were based on key research, including How People Learn, Ready Set Science, AAAS, National Science Standards, among others. See page 12-13 in the revised Washington K-12 Science Standards document for a complete list of commonly accepted research bases.

	work of scientists and real-world applications. Student learning goals are clearly defined within the unit and lesson. Students engage in a variety of inquiry experiences (e.g. observations, field studies, models, open-ended explorations, and/or conducting controlled scientific investigations). Students learn and apply problem solving skills. Students communicate learning in multiple ways (e.g., charts, graphs, tables, technology, presentation, etc.).

2.2.2.1 Assessment

1. Assessments cause students to surface, express, clarify, and justify their ideas and prior conceptions.
2. The materials provide teachers with specific tools to score and analyze assessments, as well as teacher support on how to use assessments to provide feedback to students and to make instructional decisions.
3. The material causes students to reflect and monitor their own understanding.
4. Assessment items align with big ideas, and specific ideas that support understanding of the big ideas are assessed.
5. Materials include assessment tasks that require the application of familiar ideas through novel tasks at the same level of sophistication as the familiar tasks.
6. Teachers are encouraged to regularly assess student thinking using a variety of assessment strategies.

2.2.2.2 Equity and Accessibility

1. The program provides methods and accommodations for differentiating instruction based on individual & cultural differences, disabilities, gifted / talented students, ELL, disadvantaged students.
2. Materials accommodate a variety of learning styles.
3. Materials accommodate different levels of language proficiency, and are available in a variety of languages.
4. Materials contain racial/ethnic/gender/disability balance in reference to individuals, groups, and in illustrations.
5. Differing racial/ethnic group references in the materials reflect like qualities such as leadership, imagination, and the ability to perform similar work.

6. Male and female references in the materials reflect like qualities such as leadership, imagination, and the ability to perform similar work.

2.2.2.3 Facilitating Instruction

1. Program provides background information for teachers, including an instructional model; content, process, & instructional method background; commonly held student ideas; and cognitive prompts.
2. Program is based on current learning research in "*How People Learn*".
3. Program provides methods for supporting diverse learners.
4. Program includes background information and suggested teaching strategies for the abilities of inquiry.
5. Program provides a variety of resource materials, such as CDs / DVDs, websites and other multi-media, and guides instructors in how to integrate these materials into the classroom.
6. Program guides the use of lab materials & equipment.

2.2.2.4 Student Learning

1. The program promotes authentic learning experiences that mirror the work of scientists and real-world applications.
2. The program utilizes a variety of relevant and engaging materials and strategies to involve students in learning.
3. Student learning goals are clearly defined within the unit and lesson. Students monitor their progress in achieving learning goals.
4. Students engage in a variety of inquiry experiences (e.g. observations, field studies, models, open-ended explorations, and/or conducting controlled scientific investigations).
5. Students communicate learning in multiple ways (e.g. charts, graphs, tables, technology, presentation, etc.).
6. Students use evidence to generate explanations and support conclusions.

2.2.3 Scale Weights

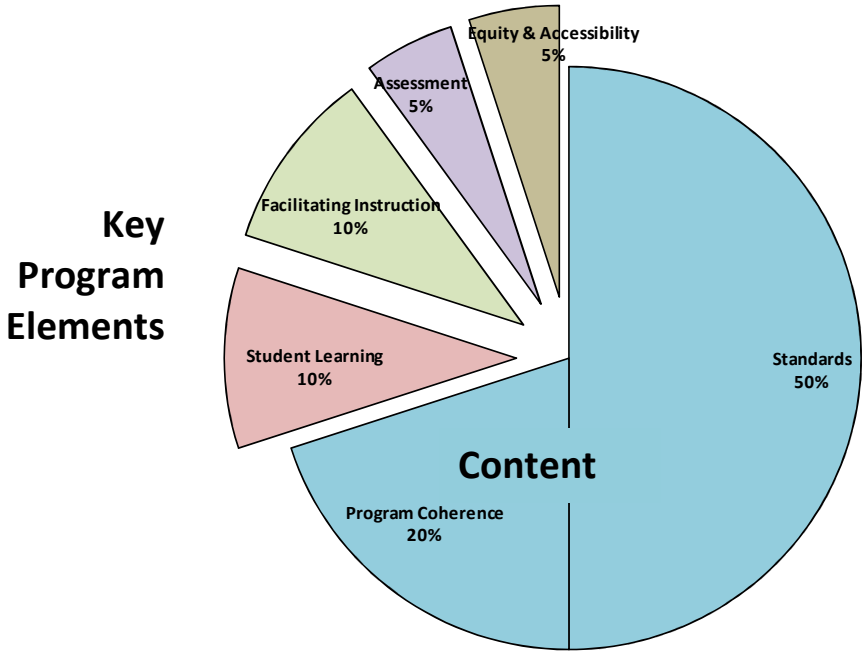


Figure 2. Scale weights for two review instruments, Content and Key Program Elements.

The Content Instrument (70%) consists of two scales, Program Coherence at 20% and Standards Alignment at 50% of the total weight. The Key Program Elements Instrument has four scales: Student Learning (10%), Facilitating Instruction (10%), Assessment (5%) and Equity & Accessibility (5%). See pages 22-26 for a description of the scales.

2.3 Reviewer Selection

OSPI sent out a broad invitation to science educators, curriculum specialists, science coordinators, district administrators, university scientists, parent groups and others to apply for a reviewer position. Each applicant filled out a comprehensive application, which was scored by two evaluators. Over 100 qualified applications were received. OSPI selected 75 of the top applicants by score to participate in the review, ensuring in the selection process that the reviewers represented a broad range of stakeholder groups, including educators, parents, scientists, and advocacy groups like LASER and MESA. See *Appendix C.* for a list of participating reviewers.

2.4 Publisher Involvement

Publishers were invited to attend a pre-meeting with OSPI and project staff to discuss the legislative requirements, proposed process, and evaluation criteria. Publishers were able to ask questions at this meeting and subsequently via email. OSPI produced and posted on the web a Frequently Asked Questions document addressing their questions.

As part of the review process, publishers were asked to provide a self-evaluation of how their instructional materials align to revised Washington State K-12 Science Standards, a program

overview and a research summary. Reviewers used all three documents to help with their independent evaluation of the instructional materials.

2.5 Review Week Process

Sixty-nine reviewers participated during the Review Week, held in Vancouver, WA, May 11-15, 2009. The reviewers received 1.5 days of training, incorporating the science standards, *How People Learn*, research bases, instrument use, and a sample group review. The first review was done independently by two reviewers, who then compared their scores, discussed variances, and optionally, adjusted their scores based upon a better understanding of the scoring guidelines.

Reviewers were grouped into grade ranges based upon their experience and expertise. They were randomly assigned programs to review within their grade band. Reviewers evaluated 10-15 programs each.

Reviewers worked independently and avoided commenting to others on the material they were reviewing. Reviewers received daily variance reports, which highlighted score differences of 2 or more. They had the opportunity to discuss the individual item variances among the reviewers of a particular program, and optionally adjust their score. In most instances where a variance existed, a reviewer missed evidence that a standard was addressed, or the reviewer had a misconception of how to evaluate a particular standard. The daily variance checks served to identify individual instances where a reviewer missed evidence found in the materials, and also helped establish norms for interpreting standards and the scoring rubric.

OSPI used a formal library system and checkout protocol to help manage materials. A reviewer requested a set of materials from their randomly assigned list, identifying the publisher, program and grade level. Library staff delivered the set of materials to the reviewer. Before starting each review, the reviewer checked the inventory of materials to ensure that all subcomponents were present in the bin.

After confirming the inventory, the reviewer read the Program Overview, Research Summary and familiarized themselves with the program organization and materials set. The reviewers spent 4.5 hours on average reviewing each program. They filled out the review instruments and a general comments form. Once complete, they turned in their materials and instruments to the library and requested another set of materials from their list.

Each program had 4 or 5 independent reads. The subsequent analysis used an average rating for each item, based upon all the program reads.

2.6 Data Analysis Process

During review week, the 69 reviewers reviewed 85 individual products (program-grade range) from 20 publishing houses. There were a total of 402 individual readings, with over 29,000 total data elements collected.

A team of data entry specialists entered data in near real-time. After the data was entered, the lead analyst performed a validation check, randomly comparing 11% of the paper forms with the electronic data (4,497 item checks). Six errors were found, a rate of 0.13%. The errors identified in the validation check were corrected. Subsequent analysis showed that the error rate was insignificant and no more correction checks were performed. The estimated data entry error rate was well below a threshold which would impact the final results.

Next, the data was cleaned. Some middle and high school courses had data collected outside their expected course area. For example, an earth science text had some data elements in the life science standards. (Some publishers noted that their course texts also covered alternate material in other subjects, and reviewers checked the quality of that coverage.) This data was considered ancillary to the core analysis and was dropped. The program titles were edited for final graphics production.

There was one reverse-score item on the Program Coherence scale, which was adjusted for consistent data analysis. This item, "Program contains little or no extraneous material outside of expected grade level standards", uses a reverse score. Generally a value of "Strongly Evident" on other questions is considered good. On this item, a "Not Evident" is considered good. The data was re-coded on this item before final analysis.

Two statisticians worked independently on exploratory data analysis and initial statistical analysis. They compared their results to ensure accuracy. A more detailed description of the statistical analysis can be found in *Section 5. Data Analysis Approach.*

2.7 Conceptual Development Review

The final review process was a detailed review of a few Big Ideas across multiple grade levels or units to see how the instructional material developed, supported and synthesized students' deep conceptual understanding of scientific inquiry, applications, systems and the domains of science. A few highly skilled reviewers (Ph.D. university scientists), knowledgeable about current learning research and thinking in the scientific community, evaluated the programs using a summary of the AAAS curricular review tool as a suggested guideline, and provided a narrative evaluation of the top-ranked products. They listed the strengths and weaknesses of each reviewed product, plus their general comments. Their comments can be found in *Section 4. Conceptual Development Review Results.*

We expected to use a content threshold of 0.7 as one of two filters for forwarding programs to the Conceptual Development Review. The other filter was the top three programs by composite score, plus ties. Products would have to meet both filters to progress. However, in most instances, products in the recommendations categories did not reach the content threshold level, so we had to use an alternate rule, which was that we forwarded the top three programs by composite score, plus ties. In middle school, a few additional individual course books were also included, based upon their high composite score, but the final recommendations for middle school will use the composite score for the entire series, not individual texts.

The content threshold score was calculated using an average based on the scale weights, as shown below. In total, the two content scales accounted for 70% of the final composite score, with the Standards accounting for 50% and Program Coherence 20%.

$$Content\ Threshold = \frac{5(Standards)}{7} + \frac{2(Program\ Coherence)}{7}$$

Elementary Content Threshold				
Publisher	**Program**	**Standards Alignment**	**Program Coherence**	**Threshold**
Carolina Curriculum	**STC**[8]	0.51	0.75	0.58
Chicago Ed Pub Co, LLC	**Science Companion**	0.59	0.79	0.65
Delta Education	**FOSS (K-5)**	0.50	0.71	0.56
Houghton Mifflin Harcourt	Experience Science	0.41	0.41	0.41
MacMillan	**Science: A Closer Look**	0.59	0.64	0.60
Pearson (Scott Foresman)	**Science - Diamond Edition**	0.55	0.63	0.58
Elementary Total		*0.53*	*0.66*	*0.56*

Middle School Content Threshold				
Publisher	**Program**	**Standards Alignment**	**Program Coherence**	**Threshold**
Carolina Curriculum	STC Earth/Life/Physical Series	0.47	0.75	0.55
Delta Education	**FOSS (6-8)**	0.71	0.87	0.75
Glencoe	Glencoe Blue/Green/Red	0.37	0.44	0.39
Glencoe	Glencoe Earth/Life/Physical	0.54	0.53	0.54
Holt McDougal	Holt Science & Technology	0.47	0.50	0.48
Its About Time	IAT: Earth/Life/Physical Series	0.68	0.76	0.70
Kendall/Hunt (BSCS)	KH: Investigating Series	0.38	0.62	0.45
LAB-AIDS Inc.	LA: Issues Series	0.64	0.83	0.69
McDougal Littell	**ML: Science Modules**	0.79	0.84	0.80
Pearson (Prentice Hall)	**Science Explorer**	0.88	0.81	0.86
Pearson (Scott Foresman)	Science - Diamond Edition	0.47	0.54	0.49
Science Curriculum Inc.	SCI: Introductory Physical Science	0.29	0.53	0.36
Middle School Total		*0.57*	*0.70*	*0.61*

[8] Bolded items represent programs that were forwarded to the Conceptual Development Review Process.

High School Content Threshold					
Course	**Publisher**	**Program**	**Standards Alignment**	**Program Coherence**	**Threshold**
Biology	Agile Mind	**Agile Mind Biology**	0.63	0.70	0.65
	Bedford, Freeman & Worth	What is Life? A Guide to Biology	0.49	0.59	0.52
	Glencoe	**Glencoe Biology**	0.68	0.54	0.64
	Holt McDougal	Holt Biology	0.54	0.51	0.53
	Kendall/Hunt	**Insights in Biology**	0.77	0.89	0.81
	Kendall/Hunt (BSCS)	**Biology: A Human Approach**	0.88	0.89	0.88
	McGraw-Hill/Wright	McGraw-Hill Life Science	0.47	0.54	0.49
	Pearson (Prentice Hall)	**Pearson Biology**	0.62	0.67	0.63
Biology Total			*0.64*	*0.68*	*0.65*
Chemistry	Bedford, Freeman & Worth	**Chemistry in the Community**	0.54	0.62	0.57
	Bedford, Freeman & Worth	Investigating Chemistry	0.38	0.42	0.39
	Glencoe	**Chemistry: C&A**	0.53	0.62	0.55
	Glencoe	**Chemistry: Matter and Change**	0.59	0.54	0.58
	Holt McDougal	Holt Modern Chemistry	0.56	0.47	0.54
	Holt McDougal	World of Chemistry	0.54	0.44	0.51
	Its About Time	**Active Chemistry**	0.77	0.92	0.81
	Kendall/Hunt	**Kendall/Hunt Chemistry**	0.68	0.76	0.70
	Pearson (Prentice Hall)	Pearson Chemistry	0.42	0.47	0.43
Chemistry Total			*0.57*	*0.60*	*0.57*
Earth Science	Bedford, Freeman & Worth	Discovering the Universe	0.14	0.44	0.23
	Bedford, Freeman & Worth	Essential Earth	0.18	0.24	0.20
	Delmar Cengage Learning	Science of Earth Systems	0.28	0.29	0.28
	Glencoe	**Glencoe Earth Science: GEU**	0.51	0.57	0.53
	Holt McDougal	**Holt Earth Science**	0.47	0.60	0.50
	Its About Time	**EarthComm**	0.79	0.79	0.79
	McGraw-Hill/Wright	McGraw-Hill Earth & Space Science	0.47	0.47	0.47
	Pearson (Prentice Hall)	Pearson Earth Science	0.30	0.31	0.30
Earth Science Total			*0.39*	*0.46*	*0.41*
Integrated	Its About Time	**Coordinated Science**	0.55	0.86	0.64
	Kendall/Hunt (BSCS)	**Science: An Inquiry Approach**	0.74	0.86	0.77
	LAB-AIDS Inc.	**Science and Sustainability**	0.42	0.74	0.51
	Pearson (Prentice Hall)	Conceptual Integrated Science	0.48	0.40	0.46
Integrated Total			*0.53*	*0.72*	*0.59*

High School Content Threshold					
Course	**Publisher**	**Program**	**Standards Alignment**	**Program Coherence**	**Threshold**
Physical Science	CPO Science	**Foundations of Physical Science**	0.73	0.71	0.73
	Glencoe	Glencoe Physical Sci w/ Earth Sci	0.51	0.47	0.50
	Glencoe	Glencoe Physical Science	0.52	0.51	0.52
	Holt McDougal	**Holt Physical Science**	0.61	0.58	0.60
	Holt McDougal	Holt Physical, Earth & Space	0.51	0.43	0.49
	Its About Time	**Active Physical Science**	0.65	0.75	0.68
	McGraw-Hill/Wright	McGraw-Hill Physical Science	0.47	0.50	0.48
	Pearson (Prentice Hall)	Conceptual Physical Science	0.40	0.40	0.40
	Pearson (Prentice Hall)	Pearson Physical Science	0.51	0.33	0.46
Physical Science Total			0.55	0.52	0.54
Physics	CPO Science	**Foundations of Physics**	0.59	0.69	0.62
	CPO Science	**Physics: A First Course**	0.62	0.49	0.58
	Glencoe	Glencoe Physics	0.55	0.42	0.51
	Holt McDougal	**Holt Physics**	0.65	0.40	0.58
	Its About Time	**Active Physics**	0.83	0.89	0.85
	Pearson (Prentice Hall)	**Conceptual Physics**	0.51	0.54	0.52
Physics Total			*0.63*	*0.57*	*0.61*

2.8 Next Steps

OSPI delivered initial recommendations to the SBE on June 30, 2009. The SBE has two months to review and comment on the initial recommendations. The SBE Science Panel will convene to discuss the initial recommendations and provide input to the SBE.

By September 1, 2009, the SBE will present their comments to OSPI. Superintendent Dorn will carefully consider their input and make his final recommendations after September 1.

OSPI will publish a report with final recommendations in September 2009.