TR 2008 - 07

Ohio Achievement Tests
Summer 2006 Standard Setting

Setting Standards in Grades 5 and 8 Science, Grades 5 and 8 Social Studies, and Grade 7 Writing

Technical Report

American Institutes for Research

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OHIO ACHIEVEMENT TESTS

SUMMER 2006 STANDARD SETTING

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TECHNICAL REPORT

SEPTEMBER 29, 2006

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Executive Summary

On August 7 - 9, 2006, the American Institutes for Research (AIR), under contract to the Ohio Department of Education (ODE), convened a panel of Ohioans to recommend performance standards on the Ohio Science Achievement Tests at grades 5 and 8, the Social Studies Achievement Tests at grades 5 and 8, and the Writing Achievement Test at grade 7. Items for these tests were field-tested in March 2006, with operational testing scheduled to begin in May 2007. In the absence of operational test data, panelists recommended performance standards for all five of these tests based on pseudo-operational forms that met achievement test specifications, but had not been administered. Impact data for these test forms was estimated based on student performance in field test administrations of these items. Performance standard recommendations resulting from these standard setting procedures will be presented to the Ohio Board of Education for adoption in October 2006. Previously, when performance standards were recommended on the basis of field test data, the recommended performance standards were considered provisional and were re-evaluated in the context of the first operational assessment of those grades and subject areas. Time constraints for reporting in spring 2007 do not allow for the possibility of re-evaluation following the May test administration. It is noteworthy, however, that panelists participating in the confirmation of performance standards from the 2005 workshop were uniformly satisfied with the quality of the performance standards they recommended in the light of the 2006 operational test results.

Using the Bookmark procedure (Mitzel, Lewis, Patz & Green, 2001), the standard setting panels reviewed each of the tests and the corresponding Ohio Content Standards, and then recommended Basic, Proficient, Accelerated and Advanced cut scores. In arriving at each cut score, panelists considered group agreement and impact on student proficiency classifications. This technical report describes the process and outcomes of the standard setting workshop.

The Bookmark Standard Setting Process

The Bookmark Standard Setting process, as described in the Standard Setting Plan submitted to ODE and reviewed by the Technical Advisory Committee, was followed at a workshop in Columbus, Ohio on August 7 - 9. Five panels were convened, one each for Grade 5 Science, Grade 8 Science, Grade 5 Social Studies, Grade 8 Social Studies, and Grade 7 Writing. AIR staff provided training and led the participants through two rounds of bookmark placement to first set the Proficient bookmark and then the Basic, Advanced and Accelerated bookmarks. Analysis of the participant readiness evaluations shows unanimous agreement that the participants understood the task and were prepared to set the bookmarks at each round.

Goals of the Standard Setting Panel

The goals of the meeting, as stated to the panelists, were to

- recommend cut scores on the Science, Social Studies, and Grade 7 Writing Achievement Tests that correspond to the Performance Level Descriptors for Basic, Proficient, Accelerated and Advanced levels of performance;
- consider the agreement and impact data to guide judgments about item difficulty and placement of the bookmarks; and

- recommend to ODE the appropriate placement of Basic, Proficient, Accelerated and Advanced performance levels for each of the tests.

Panel Composition

A total of 106 panelists participated in recommending performance standards across the five tests, with 18 panelists setting cut scores for Grade 5 Science, 22 panelists setting cut scores for Grade 8 Science, 22 panelists setting cut scores for Grade 5 Social Studies, 20 panelists setting cut scores for Grade 8 Social Studies, and 24 panelists setting cut scores for Grade 7 Writing. The overall composition of the panels followed specifications provided by ODE. The composition of the panels is presented in Tables 1 through 5. A complete roster of standard setting panelists is provided in Appendix B and panel composition summaries are provided in Appendix C.

Table 1. Grade 5 Science Panel

Table 1	Table 2	Table 3	Table 4
Grade 5 Science Teacher	Grade 5/6 Science Teacher	Grade 4-6 Gifted Teacher	School Improvement Academic Coach
Grade 5/6 Science Teacher	Grade 3 Science Teacher	Grade 5 Science Teacher	Grade 3 Science Teacher
Grade 4 Science Teacher	Grade 4/5 Science Facilitator	Grade 4 Science Teacher	Grade 5 Science Teacher
Curriculum Coordinator for Math and Science	Grade 5/6 Science Teacher	Grade 5 Science Teacher	Grade 5 Science Teacher
	Grade 4 Science Teacher	School Board Member	

Table 2. Grade 8 Science Panel

Table 1	Table 2	Table 3	Table 4
Grade 6 Science Teacher	Grade 7 Science Teacher	Grade 7 Science Teacher	Math/Science/Technology Education, Ohio State University
Grade 8 Science Teacher	Grade 7/8 Science Teacher	Grade 8 Science Teacher	Grade 8 Science Teacher
Grade 6 Science Teacher	Grade 6 Science Teacher	Grade 6 Science Teacher	Grade 6 Science Teacher
Grade 7/8 Science Teacher	Grade 7/8 Science Teacher	Grade 8 Science Teacher	Grade 8 Science Teacher
Special Education Teacher	Grade 8 Science Teacher	Grade 8 Science Teacher	Board Member
	Grade 8 Science Teacher	Grade 6/7 Science Teacher	

Table 3. Grade 5 Social Studies Panel

Table 1	Table 2	Table 3	Table 4
Grade 4/5 Social Studies Teacher	Grade 5 Social Studies Teacher	Grade 4 Social Studies Teacher	Grade 3 Social Studies Teacher
Principal	Parent	Grade 5 Social Studies Teacher	Grade 5 Social Studies Teacher
Grade 3 Social Studies	Grade 3 Social Studies Teacher	Grade 5 Social Studies Teacher	Grade 5 Social Studies Teacher
K-5 Gifted and Talented Teacher	Grade 5 Social Studies Teacher	Grade 4 Social Studies Teacher	Grade 5 Social Studies Teacher
Grade 5 Social Studies Teacher	Elementary Special Education Teacher	ESL Teacher	Instructor, Dept. of Teacher Education, Ohio University
Grade 4 Social Studies Teacher	Grade 4 Social Studies Teacher		

Table 4. Grade 8 Social Studies Panel

Table 1	Table 2	Table 3	Table 4
Grade 8 Social Studies Teacher	Grade 8 Social Studies Teacher	Grade 8 Social Studies Teacher	Director of Curriculum
Grade 8 Social Studies Teacher	Principal	Grade 7/8 Social Studies Teacher	Professor-College Of Education, Wright St. Univ.
Grade 6 Social Studies Teacher	Grade 6 Social Studies Teacher	Grade 8 Social Studies Teacher	Grade 7 Social Studies Teacher
Grade 7 Social Studies Teacher	Grade 7/8 Social Studies Teacher	Grade 8 Social Studies Teacher	Grade 8 Social Studies Teacher
Grade 8 Social Studies Teacher	Grade 8 Social Studies Teacher		Grade 8 Social Studies Teacher
	Grade 7/8 Social Studies Teacher		

Table 5. Grade 7 Writing Panel

Table 1	Table 2	Table 3	Table 4
Grade 6 Writing Teacher	Grade 7 Writing Teacher	Director of Curriculum and Development	Grade 8 Writing Teacher
Coordinator of School Improvement	Grade 7/8 Writing Teacher	Principal	PR Specialist
Grade 6 Writing Teacher	Grade 6/7 Writing Teacher	Grade 6 Writing Teacher	Grade 6 Writing Teacher
Grade 7 Writing Teacher	Grade 7 Writing Teacher	Grade 7 Writing Teacher	Grade 7 Writing Teacher
Grade 8 Writing Teacher	Middle School ESL	7-12th Grade Teacher	Grade 7 Writing Teacher
Asst. Professor of Education, Ohio Northern University	Grade 7 Writing Teacher	GATE Language Arts Teacher	Coordinator of National Supt. Academy

Basic, Proficient, Accelerated and Advanced Cut Scores Set by Panelists

Panelists placed their bookmarks with respect to a response probability (RP) judgment – the likelihood, for example, that a just barely proficient student is likely to respond successfully to an item. The selection of a response probability has implications both for how panelists construe a just barely proficient student and the consequences of placing a bookmark in a given location in the ordered item book. To set performance standards for the Science, Social Studies, and grade 7 Writing Tests, the Ohio TAC recommended that ODE be guided by consideration of test difficulty when deciding on an appropriate RP level rather than just consistency with previous standard setting workshops. Following this recommendation, and guided by the moderate difficulty of the Social Studies and grade 8 Science assessments, ODE adopted an RP50 criterion for judging items for Social Studies and Science, at both grades 5 and 8, as well as grade 7 writing.

The bookmark pages and associated cut scores and estimated overall impact of the standards recommended by the panels are presented in Appendix L.

For each major demographic group, the percentage of students estimated to score at each of the recommended performance levels is presented in Appendix M and reproduced in Tables 6 through 8. Tables 9 through 11 present the estimated percentage of students meeting or exceeding the recommended performance levels. These data represent results estimated from field test administrations of the Science and Social Studies Tests in grades 5 and 8, and Writing in grade 7.

Table 6. Estimated Percentage of Students at Each Performance Level – Science

			Estimated Percentage of Students at Each Performance Level Science									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Limited**		10.04	10.75	9.62	5.56	27.52	21.45	12.61	17.27	4.94	4.75
	Basic	15/48	35.36	34.42	36.78	31.75	51.75	41.01	37.33	41.25	27.98	34.74
	Proficient	27/48	21.03	20.80	21.24	23.15	12.56	20.78	19.03	18.38	22.25	23.80
	Accelerated	32/48	26.55	26.29	26.17	31.12	7.09	16.32	24.59	19.15	33.51	29.81
	Advanced	40/48	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Limited**		9.48	10.57	8.31	5.73	23.23	17.27	6.88	15.49	4.46	5.91
	Basic	11/48	29.96	28.88	31.11	24.81	49.56	36.73	33.32	40.26	19.91	26.43
	Proficient	20/48	35.08	32.63	37.15	38.52	21.60	30.55	37.88	30.03	37.15	40.40
	Accelerated	30/48	15.30	15.99	14.77	18.42	4.02	9.98	14.68	9.44	21.28	17.05
	Advanced	36/48	10.18	11.93	8.67	12.53	1.59	5.47	7.24	4.79	17.21	10.22

Table 7. Estimated Percentage of Students at Each Performance Level – Social Studies

			Estimated Percentage of Students at Each Performance Level Social Studies									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Limited**		9.71	10.43	9.09	6.60	23.24	18.09	9.92	15.97	4.52	6.41
	Basic	13/48	44.85	43.90	45.36	41.51	55.60	56.97	50.16	52.11	36.61	43.66
	Proficient	25/48	20.93	20.72	21.25	22.93	12.96	14.05	21.82	16.98	24.31	22.71
	Accelerated	30/48	18.39	18.60	18.31	21.39	7.16	9.23	15.61	11.70	25.09	20.57
	Advanced	37/48	6.12	6.36	5.99	7.57	1.04	1.66	2.49	3.23	9.48	6.64
Grade 8	**Limited**		16.35	17.18	15.11	12.06	33.62	19.28	14.54	24.67	8.70	11.93
	Basic	14/48	42.43	40.75	44.55	40.66	48.94	57.80	44.72	47.09	35.32	44.03
	Proficient	25/48	23.25	23.46	23.09	26.04	12.23	16.26	23.09	18.09	27.89	25.88
	Accelerated	32/48	9.10	9.35	8.79	10.61	3.23	4.44	8.92	5.73	13.16	9.57
	Advanced	36/48	8.87	9.26	8.47	10.63	1.98	2.21	8.73	4.41	14.93	8.60

Table 8. Estimated Percentage of Students at Each Performance Level – Writing

			Estimated Percentage of Students at Each Performance Level Writing									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 7	**Limited**		1.73	2.53	0.87	1.05	4.25	1.41	1.49	2.60	0.97	0.98
	Basic	9/41	22.73	28.82	16.07	18.32	37.66	30.70	23.24	30.85	13.46	20.56
	Proficient	20/41	43.00	44.07	41.91	43.22	41.57	46.12	42.10	43.65	40.24	45.39
	Accelerated	28/41	29.96	23.25	37.20	34.21	15.79	20.64	31.25	21.63	40.67	30.77
	Advanced	36/41	2.58	1.34	3.95	3.20	0.73	1.12	1.93	1.26	4.65	2.30

Table 9. Estimated Percentage of Students At or Above Each Performance Level – Science

		Estimated Percentage of Students At or Above Each Performance Level Science									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Basic**	89.96	89.25	90.38	94.44	72.48	78.55	87.39	82.73	95.06	95.25
	Proficient	54.60	54.83	53.60	62.69	20.73	37.54	50.06	41.48	67.08	60.51
	Accelerated	33.57	34.03	32.36	39.54	8.17	16.76	31.03	23.11	44.82	36.71
	Advanced	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Basic**	90.52	89.43	91.69	94.27	76.77	82.73	93.12	84.51	95.54	94.09
	Proficient	60.57	60.55	60.59	69.46	27.21	46.00	59.80	44.25	75.63	67.67
	Accelerated	25.49	27.92	23.44	30.95	5.61	15.45	21.92	14.23	38.48	27.27
	Advanced	10.18	11.93	8.67	12.53	1.59	5.47	7.24	4.79	17.21	10.22

Table 10. Estimated Percentage of Students At or Above Each Performance Level – Social Studies

		Estimated Percentage of Students At or Above Each Performance Level Social Studies									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Basic**	89.96	89.25	90.38	94.44	72.48	78.55	87.39	82.73	95.06	95.25
	Proficient	54.60	54.83	53.60	62.69	20.73	37.54	50.06	41.48	67.08	60.51
	Accelerated	33.57	34.03	32.36	39.54	8.17	16.76	31.03	23.11	44.82	36.71
	Advanced	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Basic**	83.65	82.82	84.89	87.94	66.38	80.72	85.46	75.33	91.30	88.07
	Proficient	41.22	42.07	40.34	47.28	17.45	22.91	40.74	28.24	55.98	44.05
	Accelerated	17.97	18.61	17.25	21.24	5.21	6.65	17.65	10.15	28.09	18.17
	Advanced	8.87	9.26	8.47	10.63	1.98	2.21	8.73	4.41	14.93	8.60

Table 11. Estimated Percentage of Students At or Above Each Performance Level – Writing

		Estimated Percentage of Students At or Above Each Performance Level Writing									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 7	**Basic**	98.27	97.47	99.13	98.95	95.75	98.59	98.51	97.40	99.03	99.02
	Proficient	75.54	68.66	83.06	80.63	58.09	67.89	75.27	66.55	85.57	78.46
	Accelerated	32.54	24.59	41.15	37.41	16.51	21.77	33.17	22.90	45.33	33.07
	Advanced	2.58	1.34	3.95	3.20	0.73	1.12	1.93	1.26	4.65	2.30

Introduction

On August 7 - 9, 2006, the American Institutes for Research (AIR), under contract to the Ohio Department of Education (ODE), convened a panel of Ohioans to recommend performance standards on the Ohio Science Achievement Tests at grades 5 and 8, the Social Studies Achievement Tests at grades 5 and 8, and the Writing Achievement Test at grade 7. Items for these tests were field-tested in March 2006, with operational testing scheduled to begin in May 2007. In the absence of operational test data, panelists recommended performance standards for all five of these tests based on pseudo-operational forms that met achievement test specifications, but had not been administered. Impact data for these test forms was estimated based on student performance in field test administrations of these items. Performance standard recommendations resulting from these standard setting procedures will be presented to the Ohio Board of Education for adoption in October 2006. Previously, when performance standards were recommended on the basis of field test data, the recommended performance standards were considered provisional and were re-evaluated in the context of the first operational assessment of those grades and subject areas. Time constraints for reporting in spring 2007 do not allow for the possibility of re-evaluation following the May test administration. It is noteworthy, however, that panelists participating in the confirmation of performance standards from the 2005 workshop were uniformly satisfied with the quality of the performance standards they recommended in the light of the 2006 operational test results.

Using the Bookmark procedure (Mitzel, Lewis, Patz & Green, 2001), the standard setting panels reviewed each of the tests and the corresponding Ohio Content Standards, and then recommended Basic, Proficient, Accelerated and Advanced cut scores. In arriving at each cut score, panelists considered group agreement and impact on student proficiency classifications. This technical report describes the process and outcomes of the standard setting workshop.

Goals of the Standard Setting Panel

The goals of the meeting, as stated to the panelists, were to

- recommend cut scores that correspond to the Performance Level Descriptors for Basic, Proficient, Accelerated and Advanced levels of performance;
- consider the agreement and impact data to guide judgments about item difficulty and placement of the bookmarks; and
- recommend to ODE the appropriate placement of Basic, Proficient, Accelerated and Advanced performance levels for the test.

Overview of the Standard Setting Workshop

Bookmark Standard Setting Process

AIR used the Bookmark method (Mitzel et al., 2001) to set performance standards on the Ohio Science Achievement Tests at grades 5 and 8, the Social Studies Achievement Tests at grades 5 and 8, and the Writing Achievement Test at grade 7. This method has been used successfully by AIR and other test contractors to set standards in more than 20 states. To follow the standard Bookmark procedure, several activities were required for the workshop:

- Define Performance Level Descriptors
- Specify panel composition targets and recruit panelists
- Train panelists to participate in the Bookmark process
- Review a representative set of test items
- Place bookmarks in ordered item booklets
- Review agreement and impact data
- Recommend a final cut score for each performance level
- Evaluate the workshop.

Performance Level Descriptors

Performance Level Descriptors (PLDs) are key elements in standard setting processes. PLDs define the content area knowledge, skills and processes that examinees at a performance level are expected to possess. The descriptions of Limited, Basic, Proficient, Accelerated and Advanced performance that the Ohio Department of Education developed are the public statement about what and how much Ohio educators want students to know and be able to do. In the Bookmark standard setting for the Ohio Achievement Test, panelists based their judgments on the PLDs presented in Appendix A when they placed their bookmarks.

Panelists place bookmarks with respect to a response probability (RP) judgment – the likelihood, for example, that a just barely proficient student is likely to respond successfully to an item. The selection of a response probability has implications both for how panelists construe a just barely proficient student and the consequences of placing a bookmark in a given location in the ordered item book. To set performance standards for the Science, Social Studies, and grade 7 Writing tests, the Ohio TAC recommended that ODE be guided by consideration of test difficulty when deciding on an appropriate RP level rather than just consistency with previous standard setting workshops. Following this recommendation, and guided by the moderate difficulty of the Social Studies and grade 8 Science assessments, ODE adopted an RP50 criterion for judging items for Social Studies and Science, at both grades 5 and 8, as well as grade 7 Writing.

Standard Setting Panel

The recruiting plan for obtaining panelists for the standard setting workshops was intended to result in representative groups of panelists that would render informed recommendations to the State Superintendent of Public Instruction on the placement of the cut-scores for the grades and subjects noted above. Diverse groups of panelists bring a wide range of perspectives and

experience to the standard setting effort, ensuring that the recommendations that are forwarded to the Superintendent will be thoughtful and representative of broad educational constituencies.

With the direction, assistance, and approval of the Ohio Department of Education, the American Institutes for Research recruited a set of panelists for the standard setting workshops. The background characteristics of the panelists were quite similar to the characteristics of the panelists who participated in earlier standard setting workshops for Ohio assessments.

Twenty panelists were targeted to participate on each of the science and social studies panels, and twenty-five panelists to participate on the writing panel. A total of 106 panelists participated in recommending performance standards across the five tests, with 18 panelists setting cut scores for Grade 5 Science, 22 panelists setting cut scores for Grade 8 Science, 22 panelists setting cut scores for Grade 5 Social Studies, 20 panelists setting cut scores for Grade 8 Social Studies, and 24 panelists setting cut scores for Grade 7 Writing.

Within each of the subject area and grade level panels, participants were initially assigned to one of four to five tables so that each table contained five panelists representing teachers, other educators and community representatives, according to the recruitment design discussed above. Following the large group training on the first day of standard setting, for some panels it was necessary to consolidate panelists into four tables to account for absentee panelists.

Appendix B lists the individuals participating in each of the panels. Appendix C presents the target and actualized characteristics of the group of panelists selected for participation in the standard setting workshops. Both educators and non-educators served as participants. The educators included classroom teachers, special education teachers, ESL teachers, curriculum specialists, building and district administrators, local school board members, and staff from higher education. The non-educators included parents and business and community representatives.

In recruiting panelists, we sought representation of males and females as found in the teacher population in Ohio. The same principle was applied to the geographical representation of panelists, with members recruited from the northwest, northeast, central, southeast, and southwest sections of Ohio. In addition, we sought proportional representation of African American, Hispanic, Asian, and white members; members from urban, suburban and rural school systems; and members from school systems in high-, moderate- and low-income communities. As illustrated in Appendix B, although AIR worked to recruit an ethnically diverse group of participants, ethnic diversity in the final composition of standard setting panels was limited.

Training

Training is an essential element of a standard setting workshop. Training consisted of a review and discussion of the Ohio Academic Content Standards, the test specifications, and the PLDs for each performance standard. A general overview of the standard setting workshop and the Bookmark method was provided to all panelists as part of a large group training conducted by Dr. Williams. Panel specific training was provided by the workshop leaders, Dr. Doran (Grade 5 Social Studies), Dr. Ferrara (Grade 8 Social Studies), Dr. Ahadi (Grade 5 Science), Dr. Williams (Grade 8 Science), and Dr. Mueller (Grade 7 Writing). Participants reviewed the scoring procedures, scaling procedures and other details of the testing process that were necessary for recommending performance standards. They learned about the role of response probabilities in placing their bookmarks. As noted previously, all panelists applied an RP50 criterion for placing bookmarks in their ordered item books.

Panelists internalized the concept of students who are "just barely Proficient" (and Basic, Accelerated and Advanced) and the bookmark placement task: place the bookmark on the page where you would expect one-half of students who are just barely Proficient (and Basic, Accelerated and Advanced) to respond successfully. The training was organized into two parts: a) a general overview of standard setting and training on the Bookmark procedure and b) a specific orientation to Ohio content standards, test items, scoring criteria and PLDs. The session began with a review of the purpose and agenda. The workshop leaders led the training of the panelists on using the Bookmark method, the Ohio content standards and the test materials. One hour before the start of the workshops each day, the workshop leaders met the table leaders to review their role as small-group leaders and facilitators. All three training sessions are discussed below.

Training for Panelists

The workshop leaders presented an overview of the standard setting process, focusing specifically on the Bookmark method. A critical part of the training for panelists was to understand the concept of a response probability (e.g., RP50). The panelists used this criterion in deciding the placement of the bookmark. The bookmark was placed on the page in the ordered item booklet where the panelist thought that students just at the performance standard had a probability of 0.50 of responding successfully. The panelist was to make the judgment that such a minimally qualified student would have a probability greater than 0.50 of answering items below the bookmark, and a probability less than 0.50 of answering items above the bookmark. Because the panelists had varying levels of experience with probabilities, discussion focused on the notion of the probability of a correct response (or response at an item score level) in conceptual terms rather than in psychometric terms.

The panelists received the following instructions for the steps in placing a bookmark:

1. Read each item in the ordered item booklet and identify the knowledge and skills required to respond successfully to the item.

2. Review the PLDs.

3. Use an RP of 50, meaning find the point where a borderline student (e.g., a borderline Basic, Proficient, Accelerated or Advanced student) would have a probability of 0.50 of answering the last item correctly or the last item that 50 out of 100 (minimally reaching the standard) would answer correctly.

4. Practice and internalize the judgmental task. Panelists were instructed to place the bookmark on the page where you would expect one-half of students who are just barely Proficient (or just barely; Basic, Accelerated or Advanced) to respond successfully. This is the page were you would expect less than one-half of barely Proficient students to respond successfully to the item on the subsequent page and more than one-half of these students to respond successfully to the item on the preceding page.

After training participants on placing bookmarks, the workshop leaders spent time training the panelists on how to use an ordered item booklet and an item map. Slides used to train panelists are presented in Appendix D.

Training for Table Leaders

Within each of the subject area and grade level panels, participants were initially assigned to one of four to five tables so that each table contained five panelists representing teachers, other educators and community representatives, according to the recruitment design discussed above. AIR worked with ODE staff to identify candidate table leaders prior to the workshop. AIR convened all Table Leaders on the Sunday afternoon before the start of the workshops to train the table leaders in the Bookmark method and explain their roles and responsibilities. The training began with a description of the table leader's role and responsibilities. In general, the table leader's role was to work with the standard setting staff to facilitate discussion, share insights, provide information to the panelists, report any concerns, collect all data sheets and secure materials and ensure that panelists carry out their roles effectively. The table leaders received instruction on the following tasks:

Lead the review of the ordered item booklet:

- Ensure that the group understands the activity
- Keep the group focused on the same item at the same time
- Keep the group working together
- Ensure that all members are participating
- Notify the group leader of any problems.

Ensure that panelists understand the task of placing bookmarks:

- Discuss understanding of content standards with panelists
- Lead the discussion on understanding PLDs
- Make sure that panelists understand where to place the bookmark (including an understanding of the appropriate response probability criterion).

Facilitate discussion in each round:

- Direct the panelists' attention to the items between the highest and lowest bookmark, using the table of results

- Lead a discussion on what those items are measuring and whether a student who meets the minimum requirements should be able to answer them
- Ensure that panelists understand how to consider agreement and impact information as they place their bookmarks.

Collect and check all rating forms for completeness and accuracy:

- Collect the group's rating forms
- Check to see that the forms have been filled out correctly by comparing the number on the reporting form with the bookmark in the ordered item booklet
- Give the forms to the large-group leader.

Review and present feedback data to your table:

- Return the forms to the panelists
- Show the table of results, focusing on high and low scores.

Control secure materials:

- Instruct panelists to leave all secure material on the table before any break
- Ask panelists to stack their material in the order provided by the form in their folder, with the ordered item booklet on the top.

Training on Ohio's Academic Content Standards, Test Design and Performance Level Descriptions

AIR content experts were assigned to each of the standard setting panels to provide training on Ohio's Academic Content Standards, test specifications and PLDs. Panelists were given materials on the content standards and test specifications and an explanation of how the pool of items was developed from the content standards. Panelists were instructed to use these documents to familiarize themselves with what the content standards are, how the test was designed and what students were specifically expected to know.

Readiness Evaluation of Panelists

Panelists completed a readiness evaluation form following the training and Achievement Test review and before placing the bookmarks in each round. A copy of the readiness form is included in Appendix E.

Reviewing the Ordered Item Booklet and Conducting the Bookmark Process

Ordered item booklets were provided to the panelists, who were asked to make a judgment about "the divide between items that a student at the threshold of a performance level (the minimally qualified student) should master from those items that are not necessary to master" (Mitzel et al., 2001, p. 254). Each panelist placed a bookmark on that page of the ordered item booklet.

In the Ohio Bookmark standard setting, items for the operational form—representative of the range of content and difficulty of the item bank—were rank ordered according to their RP50 level of Rasch difficulty. For constructed-response items, the ordering was based on step level

difficulties calculated with the Masters Partial Credit Model (Masters, 1982). The difficulty estimates were based on analysis of data obtained from analysis of data from the March 2006 independent field tests. The ordered item book maps are presented in Appendix F.

Placing the Bookmarks for the Proficient Cut Scores

Round 1

Panelists began the standard setting process by placing bookmarks for the proficient cut score. In round 1, the panelists were tasked to place the bookmark on the page where they would expect one-half of students who are just barely Proficient to respond successfully and to record the page number of the bookmark on the rating form (see Appendix G). Workshop leaders asked panelists to explain in their own words what they thought the tasks entailed. Table leaders also ensured that each panelist understood the task and had no questions about any of the materials. Table leaders instructed their table members to place the bookmarks. After the table leaders checked the accuracy of the rating forms against the bookmarks in the ordered item booklet, they gave the forms to an AIR staff member.

Between rounds 1 and 2 and in preparation for round 2, two AIR psychometricians independently entered the data from each form into an electronic spreadsheet. A research assistant from AIR reviewed the entries for any keying errors and compared the resulting output from both psychometricians. Next, the AIR group created feedback forms for each table and the room. Each table form contained summary statistics showing the median, lowest and highest cut scores for that panelist table. Each room form contained summary statistics showing the median, lowest and highest cut scores for that panel. In addition, impact data for the cut scores (see Appendix H) were displayed on the projected screen for panelists' tables to reference and discuss.

Round 2

Round 2 began with a discussion led by table leaders on two types of information:

- feedback on agreement data, that is, the individual panelist cut scores by table,
- impact data estimated from the field test.

Table leaders first provided feedback to their table on individual panelist recommended proficiency cut scores. Table level discussions focused on the lowest and highest recommended proficiency cut scores and the table's median score. Panelists were also provided median table scores for each table within the panel. Following table level discussions of individual panelist placements, the discussion moved to the panel level to discuss differences across tables.

In addition, panelists were provided with impact data in the form of a lookup table that indicating, for each page in the Ordered-Item Booklet, the percentage of students who would meet or exceed any given performance standard were the bookmark placed on that page. Because performance standards were being set on test forms that had not been operationally administered, we projected impact data from student responses on the field test administration (i.e., an estimate of percentages based on how students would have performed had they taken a future operational test form instead of the field test in March 2006). Projected impact was presented to panelists for

the overall student population, as well as by gender and major ethnic groups. Impact data sheets presented in Appendix H are similar to those provided to panelists, except that the panelists' did not view impact data based on urban, suburban, and rural categorizations. Panelists were provided printed copies of the impact data which they could refer to at will throughout the remaining steps of the standard setting procedure.

The panelists then reviewed the items between the low and high bookmarks for proficiency at their table, discussing the standards, the PLDs and the impact data, which were projected on a screen at the front of the room.

After completing these discussions, panelists again placed their bookmark. Before taking a break, panelists submitted their forms to the table leader, who checked them for accuracy and then submitted all forms to an AIR technical staff member. As in Round 1, two AIR psychometricians independently entered the data from each form into an electronic spreadsheet. A research assistant from AIR reviewed the entries for any keying errors and compared the resulting output from both psychometricians.

Placing the Bookmarks for the Basic, Advanced, and Accelerated Cut Scores

Round 1

After placing bookmarks for the proficient cut score, we asked panelists to place bookmarks for the basic, advanced, and accelerated cut scores, in that order. In round 1, we asked the panelists to place the bookmark on the page where they would expect one-half of students who are just barely at the level (Basic, Advanced, Accelerated) to respond successfully and to record the page number of the bookmark on the rating form. Workshop leaders asked panelists to explain in their own words what they thought the tasks entailed. Table leaders also ensured that each panelist understood the task and had no questions about any of the materials. Table leaders instructed their table members to place the bookmarks. After the table leaders checked the accuracy of the rating forms against the bookmarks in the ordered item booklet, they gave the forms to an AIR staff member.

Between rounds 1 and 2 and in preparation for round 2, two AIR psychometricians independently entered the data from each form into an electronic spreadsheet. A research assistant from AIR reviewed the entries for any keying errors and compared the resulting output from both psychometricians. Next, the AIR group created feedback forms for each table and the room. Each table form contained summary statistics showing the median, lowest and highest cut scores for that panelist table. Each room form contained summary statistics showing the median, lowest and highest cut scores for that panel. In addition, impact data for the cut scores were displayed on the projected screen for panelists' tables to reference and discuss.

Round 2

Round 2 began with a discussion led by table leaders on two types of information:

- feedback on agreement data, that is, the individual panelist cut scores by table, as illustrated above
- impact data estimated from the field test.

Table leaders provided feedback to their table on individual panelist recommended cut scores. The discussion focused on the lowest and highest recommended cut scores and the table's median score. The panelists then reviewed the items between the low and high bookmarks for each level at their table, discussing the standards, the PLDs and the impact data, which were projected on a screen at the front of the room.

After completing these discussions, panelists again placed their bookmarks. Before taking a break, panelists submitted their forms to the table leader, who checked them for accuracy and then submitted all forms to an AIR technical staff member. Two AIR technical staff members independently entered the data from each form into the Excel spreadsheet, and a third staff member from AIR again reviewed the entries for any keying errors.

Moderation Session

On Wednesday morning, following the completion of panel-level standard setting activities, table leaders from each of the panels met to review recommended cut scores for both across grade (vertical) articulation and across subject (horizontal) articulation. Science and social studies table leaders were provided with feedback on the final recommendations for each of the science and social studies panels. In addition, table leaders were presented with the estimated percentage of students meeting each performance standard across grade levels within each subject and they also discussed, in the large-group context, the percentage of students meeting each performance standards across subjects within each grade. Writing table leaders were provided with feedback about articulation with grade 4 writing performance standards, as well as grade 7 reading and mathematics standards. This session was originally designed to allow table leaders to possibly moderate recommended cut scores in the event that across grade or across subject performance standards were not meaningfully articulated. Since the performance standards recommended by each of the panels appeared to be meaningfully articulated with other tests in the Ohio Achievement Test system, the moderation session was devoted to simply reviewing outcomes of the standard setting activities rather than having table leaders confer within their panels to consider moderating cut scores.

Recommended Performance Standards and Impact Data

For each grade and subject, Appendix I presents the median, low score, and high score by table and room for each round of bookmark placements. Appendix J presents the bookmark placements for each subject, grade, and performance level following the moderation round.

As panelists discuss their reasons for placing bookmarks and impact data, variability across tables often decreases over the rounds of decision making. The figures in Appendix K illustrate variability in median table bookmark placements for the four performance levels over the two rounds. These figures illustrate how variability in bookmark decisions changed from the first to the second round. In general, there was considerable consistency in the placement of cut scores across rounds. There was, however, considerable convergence across rounds for the proficient cut score across most of the panels.

The ultimate outcomes of the standard setting activity are the final recommended cut scores. The final recommended cut scores for each subject, grade, and performance level are presented in Appendix L, along with the estimated overall impact each performance standard would have on Ohio public school students. Appendix M presents the impact of the final recommended cut scores both for the overall population, and as disaggregated by gender, ethnicity, and whether students attend districts serving urban, suburban, or rural populations.

Figure 1 and Figure 2 on the following pages illustrate the overall impact of the final recommended cut scores with respect to vertical articulation of the performance standards across grade for Science and Social Studies, respectively. As the figures indicate, the percentage of students at or above each of the performance standards is fairly consistent across the grade levels in which standards were set. The performance standards for accelerated in science are not, however, quite as well articulated across the span from grade 5 to grade 8, with proportionately fewer students achieving at the accelerated level at grade 8. Figure 3 and Figure 4 present the estimated impact of the final recommended cut scores with respect to across subject articulation in grade 5 and grade 8, respectively, for the two subjects in which performance standards were recommended. In both cases, the cut score placements result in proportionately fewer students achieving each performance level in Social Studies than in Science. Based on large-group discussion during the moderation session, this did not appear to be inconsistent with teacher expectations regarding student performance in these subjects.

Figure 1. Percentage of Students At or Above Each Recommended Cut Score – Science.

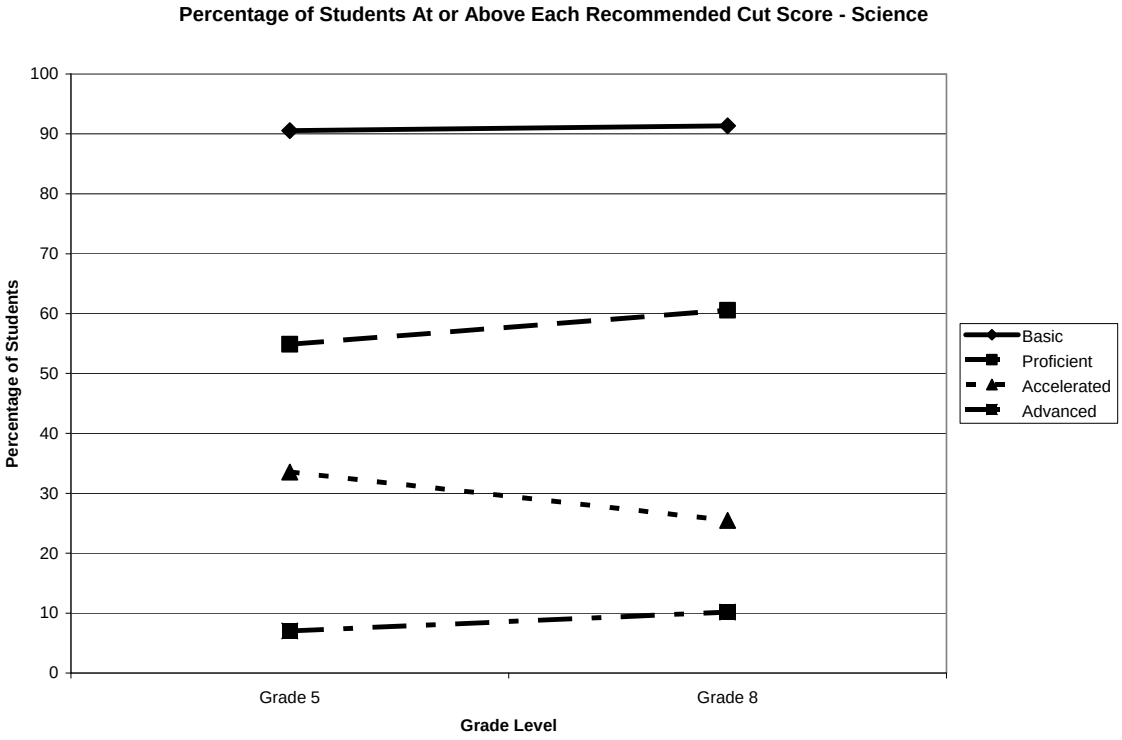


Figure 2. Percentage of Students At or Above Each Recommended Cut Score – Social Studies.

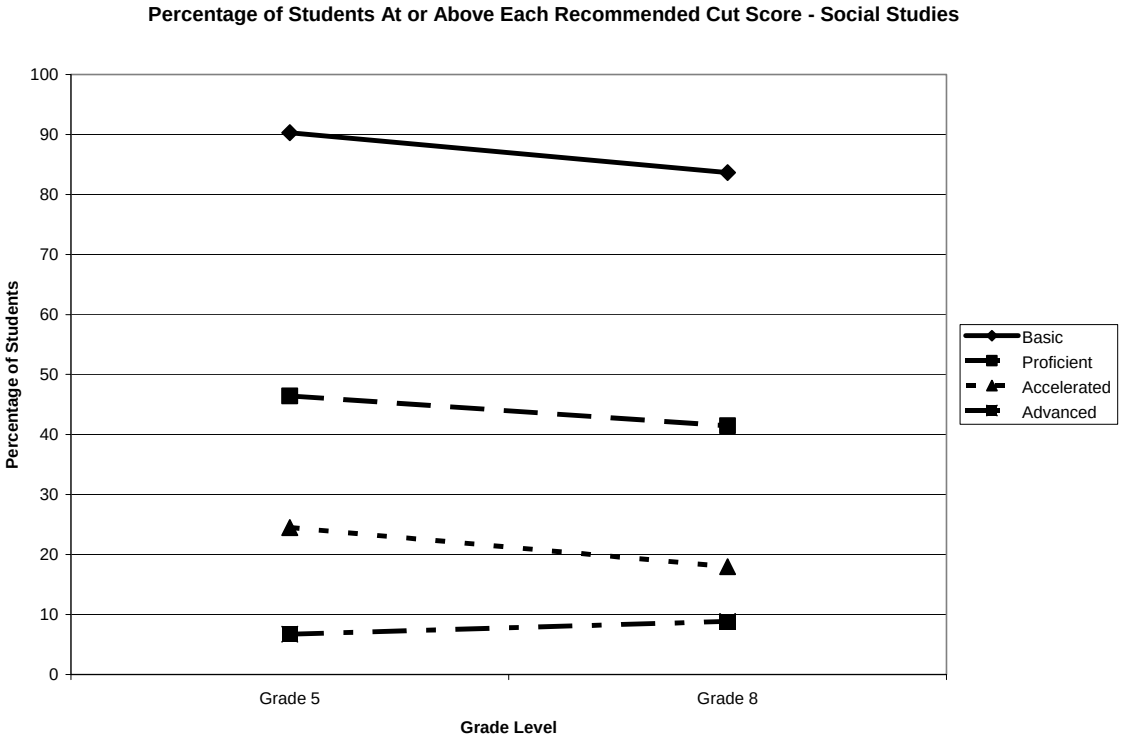


Figure 3. Percentage of Students At or Above Each Recommended Cut Score – Grade 5.

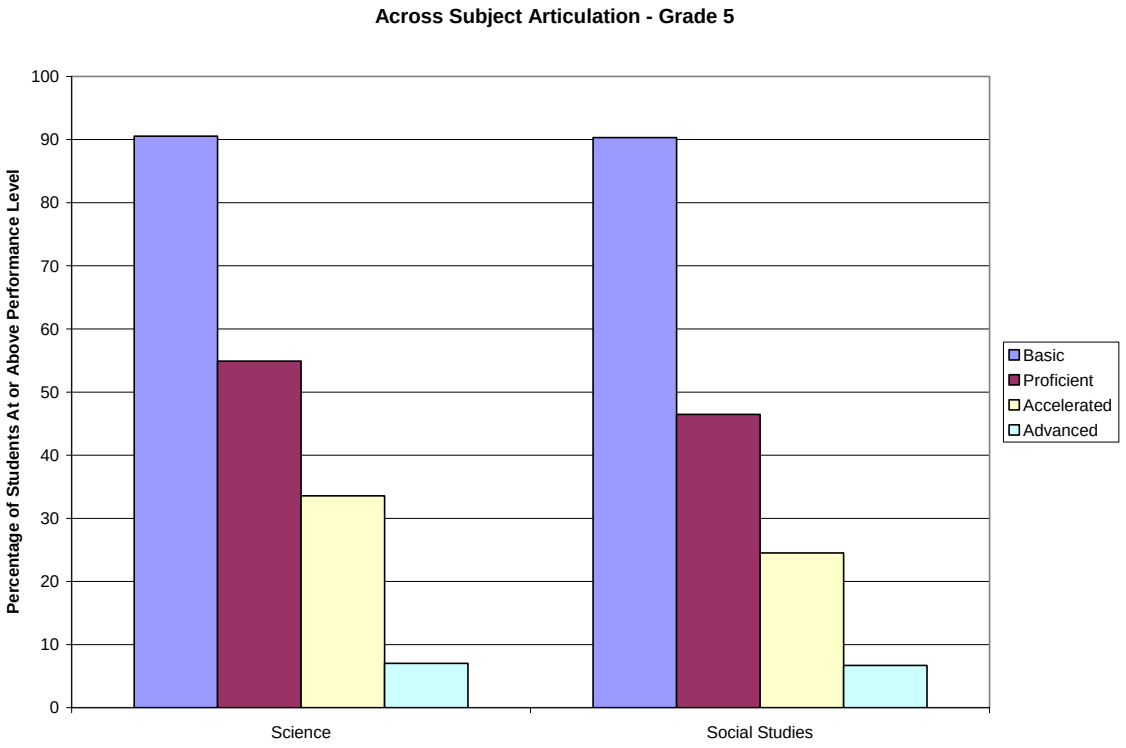
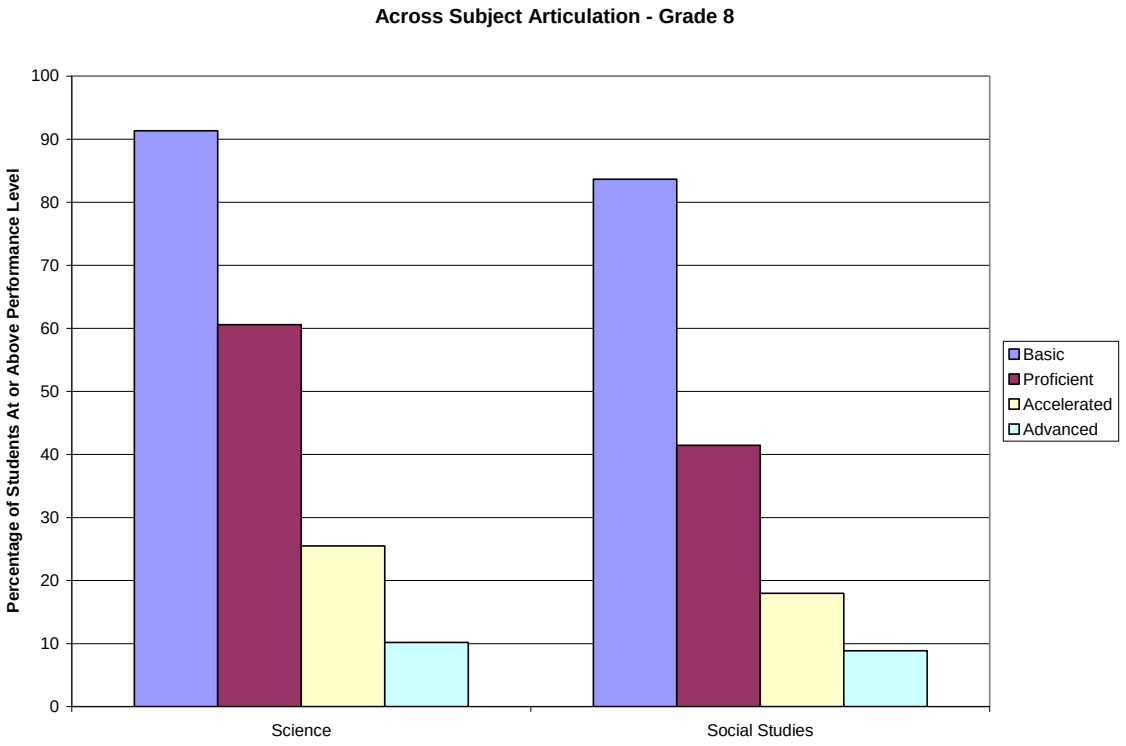


Figure 4. Percentage of Students At or Above Each Recommended Cut Score – Grade 8.



Scaled Scores and the Ohio Rounding Rule

Once panelists identify the pages in the ordered item booklet for each performance standard, several steps are followed to transform raw scores to the Ohio Achievement Test reporting scale. The Ohio Achievement Test scaled scores represent a linear transformation of the Rasch ability estimates (theta scores), with the proficient cut score or performance standard set at a scaled score of 400. To transform student scores from the theta metric to the Ohio Achievement Test scale, we first identify the theta value associated with the bookmark page defining the proficiency performance standard (CutScore[theta]). To determine the scaled scores associated with the other theta values, the following formula is implemented:

$$\text{Scale Score} = 400+(30*(\{\text{theta} - \text{CutScore[theta]}\} / \text{SD[theta]}) \qquad (1)$$

where 400 is the scaled score representing the proficiency standard cut score on the Ohio Achievement Tests, and 30 is the standard deviation of the Ohio Achievement Test scale. The "theta" represents any level of student ability on the operational form or ordered item booklet. The CutScore[theta] represents the theta that the panelists determined for the Proficient Level cut score from the ordered item booklet. The SD[theta] represents the standard deviation of all the thetas, or logit values. Cut scores for the Basic, Accelerated, and Advanced performance standards can then be located on the scale by finding the theta value associated with each page in the ordered item book corresponding to the relevant performance standard.

For score reporting, if the exact theta value corresponding to a performance standard does not appear in the operational form, then the Ohio Department of Education implements a rounding rule to determine the placement of the cut scores on the operational form. To implement the Ohio rounding rule, we first identify the two closest theta values (above and below the performance standard theta) and select the one nearest to the standard set by panelists. If the theta nearest to the performance standard is below the standard (or smaller in value), then that theta is rounded up to the theta associated with the performance standard. If the nearest operational test theta is greater than the theta associated with the standard set by the panelists, then that theta is selected as the operational test cut score.

Evaluation of the Standard Setting Workshop

Panelists were provided the opportunity to give evaluative feedback concerning the process and outcomes of the standard setting workshop through discussion, feedback cards and a standardized evaluation form. The standardized evaluation form included both closed- and open-ended response items. A copy of the evaluation form is presented in Appendix O.

Results for the six closed-items are summarized in Table 9. Panelists could indicate "Yes," "No," or not applicable ("NA") to each of the items. To analyze the results, "No" responses were coded as 0, "Yes" responses were coded as 1, and "NA" responses were coded as missing. Some respondents placed marks between the "Yes" and "No" responses. These responses were coded as .5.

Table 9 presents the mean ratings for each item by panel and across all standard setting panels. As the results in Table 9 indicate, panelists were uniformly positive in their ratings of all evaluation components, with one exception; participants in the grade 5 Science panel rated the presentations as less clear than did participants in the other panels, and they also indicated that the panel was not provided with sufficient time to complete a thorough review of the material presented. As indicated in their comments, summarized below, grade 5 Science panelists felt that insufficient time was allocated for the round 1 proficiency standard and that they felt rushed. Some panelists suggested that less time be devoted to large group training to allow more time for panel level deliberation.

Table 12. Summary of Panelists' Meeting Evaluation Ratings.

	Science		**Social Studies**		**Writing**	
Item	**Grade 5**	**Grade 8**	**Grade 5**	**Grade 8**	**Grade 7**	**Overall**
The meeting was well organized.	0.90	1.00	0.90	0.92	0.75	0.89
The presentations made by ODE and AIR were clear and helpful.	0.71	1.00	0.95	0.97	0.90	0.91
ODE and AIR staff knew the material.	1.00	1.00	0.95	1.00	1.00	0.99
The committee was allowed to make recommendations and decisions.	1.00	1.00	1.00	0.97	1.00	0.99
The committee was given enough time to complete a thorough review of the material presented.	0.46	0.87	0.83	0.89	0.95	0.82
The meeting facilities were appropriate.	1.00	1.00	1.00	1.00	1.00	1.00

Note. Number of panelists providing evaluations: Grades 5 Science (N=15), Grades 8 Science (N=15), Grades 5 Social Studies (N=21), Grades 8 Social Studies (N=18), Grade 7 Writing (N=21), Overall (N=90).

Space for providing comments was included below each of the restricted-response items so that participants could expand on their ratings. In addition, two additional open-ended items were included on the evaluation form, asking participants to indicate the most positive aspects of the

meeting and to provide suggestions for future meetings. Participant comments were organized by panel and are summarized below.

Grade 5 Science Panel

The Grade 5 Science panel agreed that the meeting was organized in a sufficient manner, though a few panelists commented that the group did not stick to the agenda. The group was not in agreement concerning the ODE and AIR presentations. Many marked that the presentations were clear and helpful, but there was some disagreement. One panelist was "glad to see specific info repeated and continually reinforced," while another commented that "most of the time, the speaker appeared to contradict his previous statement." The panel agreed that the ODE and AIR staff mastered the material presented. A panelist stated that the staff was "very knowledgeable facilitated good discussion and challenged teachers' thinking." In addition, the panelists felt that the committee was allowed to make the appropriate recommendations. The panel seemed to agree that the time allotted for the Round 1 Proficient was insufficient and they felt rushed. The panel also agreed that the facilities were excellent, particularly the food. The committee agreed that the experience was positive and that they gained new experience and knowledge to bring back to their districts and classrooms. The panelists suggested that the training could be condensed to allow for more time in the individual rooms. In addition, several panelists recommended a more stringent adherence to the schedule.

Grade 8 Science Panel

The Grade 8 Science panel was in full agreement that the meeting was well organized. In addition, the panel found that the presentations were well done. The standard setters agreed that the ODE and AIR staff was knowledgeable, so much so that one panelist described them as "exceptional." For the most part, the committee agreed that the committee was allowed to make recommendations. AIR and ODE staff members were "very open to our opinions," one panelist noted. However, another panelist felt "pressure to change our round 1 decision to a higher number." The majority of the panel felt the time limits were appropriate and flexible, though two members would have preferred more time. The committee agreed that the facilities provided were more than adequate. The panel appreciated the AIR staff, and pointed to working with AIR as one of the most positive aspects of the Standard Setting process. Also, more than one teacher mentioned using the Performance Level Descriptors in their classroom. The panel suggested shortening the morning session, and some members would have preferred less talking by the AIR staff. A panelist mentioned that "sometimes the amount by AIR staff was too extensive and swayed the opinion of the group."

Grade 5 Social Studies Panel

The Grade 5 Social Studies panel felt that the meetings were well organized, though sometimes the timeframe written in the agenda was not always followed. Generally, the panel thought that the presentations were helpful. One panelist did mention that the repetitious nature of the presentations was good, while two found it extraneous. The panelists agreed that AIR and ODE displayed mastery of the material presented. In addition, the committee felt that they were allowed to make recommendations and decisions. For the most part, the group agreed that there was enough time to indicate their proposed cut scores, though one panelist felt that "so much

time was spent on 'how' to do the task that the task itself came an hour past the ending time and people were exhausted and felt rushed to finish." The committee did agree that the meeting facilities were well done. The panelists felt the highlights of the meeting included the networking opportunities and that they developed a greater understanding of the standard setting process. One panelist mentioned that the "AIR staff was very knowledgeable and personable." Another standard setter stated that the highlight of the standard setting was being provided with the "clearest explanation of standards I've ever seen." The panel suggested better time management for the first day of the meetings.

Grade 8 Social Studies Panel

The Grade 8 Social Studies panel generally felt that the meeting was well organized, though a panel member expressed that it was unclear whether they were to attend the meeting Wednesday morning. In addition, the panel, for the most part, believed that the ODE and AIR presentations were beneficial, though two panelists mentioned that the presentations were "too repetitive." Also, two panelists commented that there were times when ODE representatives were not present to answer questions. The entire panel felt that AIR and ODE knew the material without question. Most of the panel agreed that they were allowed to make recommendations, though one member felt "like I had been coerced into making inappropriate recommendations." Generally, the panel felt it was given plenty of time to make recommendations for the cut scores, but felt "rushed" to make the Round 1 Proficient cut towards the end of Monday. The entire panel found the facilities and food to be of good quality. The panel noted two major positive aspects of the meeting: the importance of the Performance Level Descriptors and the collaborative nature of the bookmarking process. One standard setter mentioned that they "picked up some ideas for approaching my teaching" from the performance level descriptors. Another commented that the "community feelings of shared goals and passion for educational achievement" was the most positive aspect of the meeting. Overall, the panel suggested shortening the Monday morning presentation, which would allow the panelists to begin the bookmarking process earlier. One panelist mentioned that the Monday morning session was "too long a lecture."

Grade 7 Writing Panel

The Grade 7 Writing panelists stated that the meeting was well organized, though there was room for improvement on Monday. They would have preferred less explanation though. As one panelist put it, "too much time was taken up by explaining and re-explaining what we were going to and then what we had done." Many of the panelists mentioned that the presentations were repetitive. Another panelist suggested receiving the ordered item booklet earlier in the day because, "like our students, we will learn better by modeling and examples." The panelists agreed that the AIR and ODE staff knew the material and numerous standard setters mentioned how informative and nice the staff was. The panel agreed that they were able to make the recommendations necessary. The committee felt they were almost given too much time to make the recommended cut scores, though one panelist did feel rushed. In addition, they found the facilities and food to be more than sufficient. Almost all of the panelists mentioned the collaborative work as a positive aspect of the meeting. A panelists stated that the "professional dialogue was valuable." The panelists suggested better time management and were confused that they were not needed to be at the meeting Wednesday morning.

Conclusion

This report described the process by which panels of Ohio educators and stakeholders recommended performance standards on the Ohio Science Achievement Tests at grades 5 and 8, the Social Studies Achievement Tests at grades 5 and 8, and the Writing Achievement Test at grade 7 and the outcomes of their deliberations. Panelists recommended performance standards based on pseudo-operational test forms that, although meeting achievement test specifications, had never been administered to Ohio students. Impact data for these pseudo-operational test forms was estimated from student performance in field test administrations of these items. Due to time constraints for reporting test results in spring 2007, recommended performance standards for these non-operational forms are considered final and there is no plan to reconsider the performance standards in light of spring 2007 operational test data.

A total of 106 panelists participated in recommending performance standards across the three subject areas, with 18 panelists setting cut scores for grade 5 science, 22 panelists setting cut scores in grade 8 science, 22 panelists setting cut scores for grade 5 social studies, 20 panelists setting cut scores in grade 8 social studies, and 24 panelists setting cut scores for grade 7 writing. The overall composition of the panels followed specifications provided by ODE and represented teachers, administrators and stakeholders representing the geographic diversity of the state and representing the gender and ethnic diversity of the profession.

Overall, standard setting for the Ohio Achievement Tests proceeded according to plan. All processes were strictly followed, and panelists reported that they understood the tasks and felt comfortable in their roles on the standard setting panel. By the end of the standard setting workshop, panelists provided final recommended cut scores for the Basic, Proficient, Accelerated and Advanced performance levels.

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APPENDIX A

Performance Level Descriptors

Table A1. Grade 5 Science Performance Level Descriptors

Science	Ohio Grade 5 Science Assessment Performance Level Descriptors May 2006
Limited	Students demonstrate skills and understanding below Basic level performance for Grade 5 Science. Although these students may be able to identify and use some simple scientific vocabulary appropriate for Grade 5, they are unable to identify accurate statements about previously learned, scientifically valid facts, processes, concepts or relationships. Students are unable to provide or identify valid descriptions of models, organisms, physical materials, and systems or accurately express understanding of scientific processes, concepts or relationships as defined by the content standards for Grade 5 Science.
Basic	Given rich context or investigative scenarios appropriate for Grade 5, students performing at the Basic level inconsistently identify accurate scientific facts, concepts, and terms appropriate for the grade level. Some of these concepts include: • differences between plants and animals; • plant and animal life cycles; • relationships in simple food chains; • the characteristics, cycles, patterns of Earth and its place in the solar system; • some processes that shape Earth's surface; • ways to conserve Earth's resources; • aspects of Earth's weather; • characteristics of matter; • characteristics of simple chemical and physical changes; and • forces that affect objects and motion. Students performing at the basic level inconsistently recognize or provide accurate descriptions of basic models and provide explanations that are logical but explanations lack supportive data. Students show a rudimentary understanding of valid Grade 5 scientific knowledge, concepts, processes and relationships underlying natural phenomena in life, physical and Earth and space sciences and demonstrate some familiarity with technological applications. Students perform analyses that are partially accurate, recognize regular patterns and trends, and demonstrate an elementary understanding of scientific investigation processes. Student discussions, predictions and solutions often are based upon oversimplification, incorrect science, or unrelated information/data.

Table A1. Grade 5 Science Performance Level Descriptors (continued)

Science	Ohio Grade 5 Science Assessment Performance Level Descriptors May 2006
Proficient	Students demonstrate understanding of Grade 5 scientific concepts, knowledge, reasoning and relationships underlying natural phenomena, structures, cycles, systems, and processes in living, physical, Earth and space sciences. Some of these concepts include: • relating plant and animal structures to the appropriate survival function; • energy flow through a three trophic level food web; • sorting plants/animals by common external structures; • how day and night are caused by Earth's rotation; • changes in Earth cycles and patterns; • how wind, water and ice shape and reshape Earth's surface; • renewable and non-renewable resources; • how water can exist in different forms; • characteristic properties of matter; • characteristics of simple chemical and physical changes; • forms of energy and ways that energy can change form; • observable properties of light, sound, thermal and electric energy; and • ways that thermal energy may be transferred from one object to another. They demonstrate understanding of physical and conceptual models and recognize some inputs and outputs, causes and effects, and interactions and relationships within a system. Given Grade 5 appropriate rich context or investigative scenarios, students analyze and communicate their thinking about scientific information; make valid, accurate and logical conclusions based upon information/data; distinguish between observation and inference; and identify patterns. Students demonstrate the ability to plan, implement and critique meaningful scientific investigations; make logical predictions and formulate questions based upon scientific knowledge; select or identify appropriate tools and safety considerations; and propose a solution to a simple technological design problem appropriate for Grade 5. Students typically accurately apply science to Grade 5 appropriate individual and societal problems and identify consequences using scientific information/data.

Table A1. Grade 5 Science Performance Level Descriptors (continued)

Science	Ohio Grade 5 Science Assessment Performance Level Descriptors May 2006
Accelerated	Students demonstrate substantial scientific knowledge and reasoning abilities in the study of Grade 5 appropriate natural phenomena in life, physical and Earth and space sciences. This scientific knowledge includes concepts such as: • relationship of specific plant structures to specific functions; • energy flow through the interdependent relationships between members of food chains, food webs, and food pyramids; • Earth's position and motion within the solar system and Earth's relationship to other objects in the solar system; • evidence of weathering and of erosion as a means of reshaping Earth's surface; • properties of soil and processes of soil formation; • classification of matter by specific physical properties; • how thermal energy is transferred from one object to another by conduction; and • design of simple closed circuits. Given Grade 5 appropriate rich context or investigative scenarios, students show exceptional skill in the application of previously learned, scientifically valid knowledge and successfully use provided information/data to think and communicate scientifically. Students demonstrate considerable ability to design investigations that answer questions about the natural world and use scientific reasoning to make predictions with clearly formulated questions and methods that generate valid data to arrive at valid conclusions. Students consistently identify and discuss patterns and trends and extend information/data utilizing previously learned scientific knowledge. Students can evaluate technological solutions to given individual and societal problems appropriate for Grade 5 by considering helpful and harmful results and applying appropriate scientific and technological principles.

Table A1. Grade 5 Science Performance Level Descriptors (continued)

Science	Ohio Grade 5 Science Assessment Performance Level Descriptors May 2006
Advanced	Students consistently demonstrate thorough and deep scientific knowledge and reasoning abilities in the study of Grade 5 appropriate natural phenomena in life, physical and Earth and space sciences. This scientific knowledge includes concepts such as: • specific relationships between producers, consumers, and decomposers within an ecosystem; • Earth's relationship to stars and the relationship between apparent star size, distance and position; • how changes in Earth's surface may occur by slow or rapid processes; • ways to conserve Earth's renewable and non-renewable resources; • simple physical and chemical changes; • how contact and non-contact forces affect the motion of an object; • the relationship between changes in temperature and changes in thermal energy; • ways to ensure energy flow through a closed system via circuit analysis; and • how certain human/animal behaviors and human technologies can have positive or negative impacts on the environment. Given Grade 5 appropriate rich context or investigative scenarios, students show superior depth in the application of previously learned, scientifically valid knowledge and outstanding application of provided information/data to think and communicate scientifically in a variety of formats. They recognize relationships within complex systems and use this knowledge to make reasonable predictions. Students demonstrate superior ability to design investigations appropriate for Grade 5 that answer questions about the natural world, using complex scientific reasoning skills to make predictions and formulate questions and methods that generate data to arrive at valid conclusions. Students successfully evaluate technological solutions to given individual and societal problems appropriate for Grade 5 by considering helpful and harmful results and applying appropriate scientific and technological principles. Students accurately identify patterns, can extensively discuss patterns and trends, and correctly extend information/data via interpolation or extrapolation.

Table A2. Grade 8 Science Performance Level Descriptors

Science	Ohio Grade 8 Science Assessment Performance Level Descriptors May 2006
Limited	Students demonstrate skills and understanding below Basic level performance for Grade 8 Science. Although these students may be able to identify and use some simple scientific vocabulary appropriate for Grade 8, they are unable to identify accurate statements about previously learned, scientifically valid facts, processes, concepts or relationships. Students are unable to provide or identify valid descriptions of models, organisms, physical materials, and systems or accurately express understanding of scientific processes, concepts or relationships as defined within the content standards for Grade 8 Science.
Basic	Given appropriate rich context or investigative scenarios appropriate for Grade 8, students performing at the Basic level inconsistently identify accurate scientific facts, concepts, and terms appropriate for the grade level. Some of these concepts include: • cycles within the universe; • interactions of matter and energy within the lithosphere; • how rocks are composed of minerals; • processes that cause the continuous change in Earth's surface; • levels of organization of living systems; • asexual and sexual reproduction; • energy within most ecosystems originates with the sun; • causes of extinction; • properties of matter that depend on the behavior of the small particles that compose matter; and • examples of kinetic and potential energy. Students inconsistently recognize or provide accurate descriptions of basic models and provide explanations that are logical but explanations lack supportive data. Students show a rudimentary understanding of valid scientific knowledge, concepts, processes and relationships underlying natural phenomena in life, physical, and Earth and space sciences and demonstrate some familiarity with technological applications. Students perform analyses that are partially accurate, recognize regular patterns and trends, and demonstrate an elementary understanding of scientific investigation processes. Student discussions, predictions and solutions often are based upon oversimplification, incorrect science, or unrelated information/data.

Table A2. Grade 8 Science Performance Level Descriptors (continued)

Science	Ohio Grade 8 Science Assessment Performance Level Descriptors May 2006
Proficient	Students demonstrate understanding of Grade 8 scientific concepts, knowledge, reasoning and relationships underlying natural phenomena, structures, cycles, systems, and processes in living, physical, Earth and space sciences. Some of these concepts include: • movement of matter and energy in Earth cycles and patterns; • conservation of natural resources; • rock cycle; • benefits and detriments of asexual and sexual reproduction; • properties of light, sound, thermal and electric energy; • properties of matter; • characteristics of simple physical and chemical changes; • simple relationships between populations and how overpopulation can affect other populations and the environment; • equal volumes of materials usually have different masses; • determining a change in position requires a point of reference; • nonrenewable energy sources originate from the sun and may take millions of years to be replenished; • differences between potential and kinetic energy; • the use of products and systems can have desirable and undesirable consequences; and • how to design a product or problem solution when given one constraint. They demonstrate understanding of physical and conceptual models and recognize some inputs and outputs, causes and effects, and interactions and relationships within a system. Given Grade 8 appropriate rich context or investigative scenarios, students analyze and communicate their thinking about scientific information; make valid, accurate and logical conclusions based upon information/data; distinguish between observation and inference; and identify patterns. Students demonstrate the ability to plan, implement and critique meaningful scientific investigations; make logical predictions and formulate questions based upon scientific knowledge; select or identify appropriate tools and safety considerations; and propose a solution to a simple technological design problem appropriate for Grade 8. Students typically accurately apply science to Grade 8 appropriate individual and societal problems and identify consequences using scientific information/data.

Table A2. Grade 8 Science Performance Level Descriptors (continued)

Science	Ohio Grade 8 Science Assessment Performance Level Descriptors May 2006
Accelerated	Students demonstrate substantial scientific knowledge and reasoning abilities in the study of natural phenomena in life, physical and Earth and space sciences. Some of these concepts include: • the importance of gravitational force in determining the motions of objects in the universe; • interstellar distances are measured in light years; • Earth's biogeochemical cycles and transfer of energy between the hydrosphere, the atmosphere and the lithosphere; • distinct characteristics of sedimentary, igneous and metamorphic rocks; • the use of models to analyze the surface, interior, and size of Earth; • functions of specialized cells, tissues, organs, and organ system of multicellular organisms (excluding humans); • how sexual reproduction increases genetic variety and how asexual reproduction allows genetic continuity; • how biotic and abiotic resources influence the number and type of organisms in an ecosystem; • causes of diversity (inter-species and intra-species); • the unchanging nature of substances during physical changes; • results of more than one force acting on an object; • management and conservation of renewable and nonrenewable energy resources; • how waves transfer energy; • energy transformation in a simple closed system; • the limitations of science and technology; • designs of solutions/products when given two constraints; and • relationships between independent and dependent variables. Given Grade 8 appropriate rich context or investigative scenarios, students show exceptional skill in the application of previously learned, scientifically valid knowledge and successfully use provided information/data to think and communicate scientifically. Students demonstrate considerable ability to design investigations that answer questions about the natural world and use scientific reasoning to make predictions with clearly formulated questions and methods that generate valid data to arrive at valid conclusions. Students consistently identify and discuss patterns and trends and extend information/data utilizing previously learned scientific knowledge. Students can evaluate technological solutions to given individual and societal problems appropriate for Grade 8 by considering needs and constraints and applying appropriate scientific and technological principles.

Table A2. Grade 8 Science Performance Level Descriptors (continued)

Science	Ohio Grade 8 Science Assessment Performance Level Descriptors May 2006
Advanced	Students consistently demonstrate thorough and deep scientific knowledge and reasoning abilities in the study of Grade 8 appropriate natural phenomena in life, physical and Earth and space sciences. Some of these concepts include: • the motions, orbits, and composition of asteroids and meteoroids compared to that of Earth; • interpretations and predictions from simple H-R diagrams; • use of station model and weather map data to interpret and predict local, regional, and national weather; • classification of minerals by their characteristic properties and assess minerals commonly involved in the rock cycle; • how internal and external destructive and constructive processes shape Earth's surface; • how the variety of body plans and internal structures relate to multicellular organisms (excluding humans); • ways in which sexual and asexual reproduction impact populations in the short term and over time; • ways that natural events and human activity can affect the transfer of energy within ecosystems; • use of the fossil record to explain changes in populations and suggest possible causes of extinction; • changes in speed and direction of an object when the object is subjected to an unbalanced force; • how electric energy can be produced from a variety of sources; • how vibrations in materials produce waves; • how the development and the use of technology may be influenced by constraints and unavoidable factors; and • evaluation of the overall effectiveness of the design for a product/solution. Given Grade 8 appropriate rich context or investigative scenarios, students show superior depth in the application of previously learned, scientifically valid knowledge and outstanding application of provided information/data to think and communicate scientifically in a variety of formats. They recognize relationships within complex systems and use this knowledge to make reasonable predictions. Students demonstrate superior ability to design investigations appropriate for Grade 8 that answer questions about the natural world, using complex scientific reasoning skills to make predictions and formulate questions and methods that generate data to arrive at valid conclusions. Students successfully evaluate technological solutions to given

	individual and societal problems appropriate for Grade 8 by considering needs and constraints and applying appropriate scientific and technological principles. Students accurately identify patterns, can extensively discuss patterns and trends, and correctly extend information/data via interpolation or extrapolation.

Table A3. Grade 5 Social Studies Performance Level Descriptors

Social Studies	Ohio Grade 5 Social Studies Assessment Performance Level Descriptors May 2006
Limited	Students demonstrate skills and understandings below the performance required to reach the Basic level.
Basic	Students demonstrate familiarity with units of time and can construct timelines with few errors. They can identify cultural groups and practices in North America and identify their reasons for coming to North America. Students can identify map elements to locate some of the physical and human features of North America. They can identify ways people have affected the environment. Students define the economic concepts of opportunity cost and competition. They recognize the responsibilities of the three branches of government and can identify some of the documents that provide their framework. Students recognize the rights and responsibilities of citizenship.
Proficient	Students construct timelines with events in chronological order, describe cultural groups in North America and explain how the US grew as a nation. They compare practices and products of North American cultural groups that are evident today and explain the reasons for and consequences of their coming to North America. Students use map elements to locate most physical regions and human features of North America and can explain how people have affected the environment. Students can explain the opportunity costs of an action and the importance of competition on the market economy. They can identify responsibilities and importance of the 3 branches of government and give examples of the documents that provide their framework. Students identify the rights and responsibilities of US citizenship and explain how citizens take part in the government for the common good. They obtain information from various sources and use problem-solving skills to make decisions.

Table A3. Grade 5 Social Studies Performance Level Descriptors (continued)

Social Studies	Ohio Grade 5 Social Studies Assessment Performance Level Descriptors May 2006
Accelerated	Students demonstrate complete understanding of units of time, describe cultural patterns in North America and evaluate how new developments led to the growth of the US. They compare and contrast cultural practices and products of North American groups and can explain with some degree of specificity the reasons and consequences of their coming to North America. Students use map elements to locate all 50 states and numerous physical and human features of North America. They can analyze the ways (both positive and negative) that people have affected the environment. Students explain the opportunity costs involved in complex situations and analyze the effect of competition on the market economy. They explain the responsibilities and importance of each of the 3 branches of government and the significance of each of our national documents. Students explain the rights and responsibilities of citizenship and evaluate the ways citizens take part in government to promote the common good. They organize information from various sources, communicate findings and explain them.
Advanced	Students construct detailed timelines, analyze cultural patterns in North America that are evident from the past and analyze how new developments led o the growth of the US. They use significant and plentiful details to evaluate cultural practices and products as well as the consequences of their interactions in North America. Students use map elements to thoroughly describe physical and human features of North America and provide a detailed analysis of human environmental interaction. They evaluate opportunity costs in complex situations and evaluate the effect of various forms of competition on the market economy. Students explain with significant detail the 3 branches of US government and evaluate the documents that provide the structure of our government. They evaluate the rights and responsibilities of citizens and analyze the role of citizens in promoting the common good. Students use various sources to organize information, draw inferences, communicate findings and evaluate the problem solving skills they used to make decisions.

Table A4. Grade 8 Social Studies Performance Level Descriptors

Social Studies	Ohio Grade 8 Social Studies Assessment Performance Level Descriptors May 2006
Limited	Students demonstrate skills and understandings below the performance required to reach the Basic level.
Basic	Students recall significant events and themes in world history including political and social characteristics of civilizations and interactions between civilizations. Students identify the causes and consequences of the American Revolution, ratification of the US Constitution and the American Civil War. Students recognize examples of cultural practices, cultural interactions and diffusion of culture. Students recognize geographical features, environmental influences on human activity, and reasons people, products and ideas move from place to place. Students identify global patterns of trade and some connections between available resources, government policies and the economy. Students describe some of the purposes and structures of governmental systems. Students are familiar with the historical origins of citizens' rights and the relationship between civic participation and civic goals. Students recognize strategies for effective group work and attempt to organize information to support a position.
Proficient	Students consistently interpret and describe significant events and themes in world history including characteristics of and interactions between civilizations. Students explain the causes, consequences and challenges of the American Revolution, ratification of the US Constitution and the American Civil War. Students compare cultural practices, analyze cultural interactions and explain the diffusion of culture. Students identify and describe geographical features, environmental influences on human activity, and the movement of people, products and ideas. Students explain global patterns of trade and the connections between available resources, government policies and the economy. Students explain and compare the purposes and structures of governmental systems. Students understand the historical origins of citizens' rights and show the relationship between civic participation and civic goals. Students describe strategies for effective group work and select and organize information to draw conclusions and support a position.

Table A4. Grade 8 Social Studies Performance Level Descriptors (continued)

Social Studies	Ohio Grade 8 Social Studies Assessment Performance Level Descriptors May 2006
Accelerated	Students consistently analyze significant events, patterns and themes in world history including characteristics of and interactions between civilizations. Students analyze the causes, consequences and challenges of the American Revolution, ratification of the US Constitution and the American Civil War. Students analyze cultural interactions in order to understand commonality and diversity, diffusion of ideas and factors that foster conflict and cooperation. Students explain the significance of geographical features and the effects of movement and human environmental interaction on geographic patterns. Students analyze global patterns of trade and the connections between resources, government policies and the economy. Students analyze the purposes and structures of governmental systems. Students explain the origins and significance of citizens' rights and the relationship between civic participation and civic goals. Students critique strategies for group work. Students organize and analyze information from a variety of sources and perspectives to draw conclusions and support a position.
Advanced	Students consistently analyze the enduring effects of significant events, patterns and themes in world history including characteristics of and interactions between civilizations. Students analyze and evaluate the causes, consequences and challenges of the American Revolution, ratification of the US Constitution and the American Civil War. Students analyze cultural interactions in order to evaluate commonality and diversity, diffusion of ideas and factors that foster conflict and cooperation. Students analyze the significance of geographical features, and the effects of movement and human environmental interaction on geographic patterns. Students analyze global patterns of trade, historic origins of globalization, and the effects of the relationship between resources, government policies and the economy. Students evaluate the purposes, structures and processes of governmental systems. Students analyze the origins and significance of citizens' rights and the relationship between civic participation and civic goals. Students critique strategies for group work. Students synthesize information from a variety of sources and perspectives to draw conclusions and support a position.

Table A5. Grade 7 Writing Performance Level Descriptors

Writing	**Ohio Grade 7 Writing Assessment Performance Level Descriptors May 2006**
Limited	Seventh grade students at the Limited level produce writing that interferes with or impedes readers' understanding. Their writing does not demonstrate the skills identified at the Basic level.
Basic	Seventh grade students at the Basic level produce writing that shows an inconsistent awareness of purpose and audience. Their writing does not present the reader with a generally unified and coherent sequence and structure of ideas. Students use sentence variety, make word choices inconsistently and struggle to understand grammar, punctuation, capitalization and spelling conventions.
Proficient	Seventh grade students at the Proficient level effectively address the audience and purpose. The writing presents the reader with a generally unified and coherent sequence and structure of ideas. The students demonstrate adequate skills at revising and editing writing. The students use sentence variety, make word choices and display an understanding of grammar, capitalization, punctuation and spelling.
Accelerated	Seventh grade students at the Accelerated level effectively address the audience and purpose. The writing presents the reader with a well developed and coherent sequence of ideas. The students organize writing effectively and consistently, use sentence variety, make appropriate word choices and show an understanding of writing conventions.
Advanced	Seventh grade students at the Advanced level directly address and clearly adapt to audience and purpose. The writing engages the reader with a well developed and coherent sequence of ideas. The student's organization, sentence variety, word choices and use of conventions are exceptional.

APPENDIX B

Standard Setting Panelists

Table B1. Grade 5 Science Standard Setting Panelists

Name		Role	District	Invited	Attended
Angie	Cabot	Grade 5 Science Teacher	Newcomerstown EVSD	Yes	Yes
Julie	Coffman	Grade 3 Science Teacher	Fort Frye Local	Yes	Yes
Kathryn	Colasanti	Curr. Coord. For Math and Science	SouthWestern City SD	Yes	Yes
Debbie	Deidrick	Grade 5 Science Teacher	Akron City SD	Yes	Yes
Karen	Edwards	Grade 5/6 Science Teacher	Indian Creek LSD	Yes	Yes
Kristi	Graves	Grade 5 Science Teacher	Bellevue City SD	Yes	Yes
Michele	Hamilton	Grade 3 Science Teacher	Southwest Licking Local SD	Yes	Yes
Vilma	Helms	School Board Member	Jefferson Township Local SD	Yes	Yes
Karlyn	Holt	Grade 4 Science Teacher	Pandora-Gilboa LSD	Yes	Yes
Megan	Johnson	School Improvement Acad. Coach	Dayton City SD	Yes	Yes
Paul	Jones	Grade 5/6 Science Teacher	North Central LSD	Yes	Yes
John	Jordan	Grade 5 Science Teacher	Toledo City SD	Yes	Yes
Rebekah	McBee	Grade 4 Science Teacher	Southern LSD (Perry Co.)	Yes	Yes
Luann	McHarg	Grade 4/5 Science Facilitator	Xenia City SD	Yes	Yes
Marsha	Peters	Grade 4-6 Gifted Science Teacher	Hamilton City SD	Yes	Yes
Caroline	Poole	Grade 5/6 Science Teacher	Maple Heights City SD	Yes	Yes
Diane	Tobul	Grade 5 Science Teacher	Painesville City SD	Yes	Yes
Stephanie	Bland	Principal	Columbus City SD	Yes	No
Angie	Botkin	Parent	Fairborn City SD	Yes	No
David	Caulley	Grade 5 Science Teacher	Northwest LSD (Scioto)	Yes	No
Cathy	Constance	Science Supervisor	Youngstown City SD	Yes	No
Traci	Hough	Grade 4 Science Teacher	Cambridge City SD	Yes	No

Table B2. Grade 8 Science Standard Setting Panelists

Name		Role	District	Invited	Attended
Maureen	Armbruster	Grade 6 Science Teacher	Field Local SD	Yes	Yes
Stacy	Beck	Grade 6/7 Science Teacher	Akron City SD	Yes	Yes
Gwendolyn	Daniels	Grade 7/8 Science Teacher	Gallia County Local	Yes	Yes
Vickie	Diddle	Grade 7/8 Science Teacher	Gallia County Local	Yes	Yes
Lori	Elling	Board Member	Liberty Center Local SD	Yes	Yes
Lee Ann	Favorito	Grade 7 Science Teacher	Paulding EV SD	Yes	Yes
James	Figley	Grade 8 Science Teacher	Wooster City SD	Yes	Yes
Rae	Gambler	Grade 6 Science Teacher	Defiance City SD	Yes	Yes
Beth	Gerber	Grade 8 Science Teacher	Washington CH City SD	Yes	Yes
Steve	Geresy	Grade 7 Science Teacher	Lakota LSD (Butler)	Yes	Yes
David	Haury	Math/Science/Technology Educ., Ohio State University	Ohio State University	Yes	Yes
Anetra	Howard	Grade 6 Science Teacher	Maple Heights City SD	Yes	Yes
Donna	Kill	Grade 7/8 Science Teacher	Cardington-Lincoln Local SD	Yes	Yes
Rae Ann	Mains	Grade 6 Science Teacher	Ironton City Schools	Yes	Yes
Gwen	McLaughlin	Grade 8 Science Teacher	Toledo City SD	Yes	Yes
Larry	Miller	Grade 6 Science Teacher	Shaker Heights City SD	Yes	Yes
Jason	Schrader	Grade 8 Science Teacher	Greenville City SD	Yes	Yes
Marsha	Storts Wike	Grade 8 Science Teacher	Chillicothe City SD	Yes	Yes
Tobbi	Timms	Grade 8 Science Teacher	Vinton County Local SD	Yes	Yes
Marnie	White	Special Education Teacher	Sandusky City SD	Yes	Yes
Marvin	Whitt	Grade 8 Science Teacher	Springfield City SD	Yes	Yes
Steve	York	Grade 8 Science Teacher	Wayne LSD	Yes	Yes
James	Lay	School Improvement Acad. Coach	Dayton City SD	Yes	No
Deanna	Pentello-Less	Grade 8 Science Teacher	Gahanna-Jefferson City SD	Yes	No

Table B3. Grade 5 Social Studies Standard Setting Panelists

Name		Role	District	Invited	Attended
Stacey	Bayliff	ESL Teacher	Olentangy Local SD	Yes	Yes
Pam	Beam	Instructor, Dept. of Teacher Educ., Ohio University	Ohio University	Yes	Yes
John	Beck	Grade 5 Social Studies Teacher	Sylvania City SD	Yes	Yes
Michelle	Buxbaum	Grade 3 Social Studies Teacher	Teays Valley Local SD	Yes	Yes
Sherri	Carpenter	Grade 3 Social Studies Teacher	Switzerland of Ohio	Yes	Yes
Martha	Crone	Grade 3 Social Studies Teacher	Ashland City SD	Yes	Yes
Marcia	Duck	Elem. Special Education Teacher	Marietta City SD	Yes	Yes
Debbie	Ewing	Grade 5 Social Studies Teacher	McComb LSD	Yes	Yes
Marsi	Fenske	Grade 4 Social Studies Teacher	United Local SD	Yes	Yes
Kerry	Jackson	Grade 4 Social Studies Teacher	Upper Arlington SD	Yes	Yes
Judy	Konzman	Grade 5 Social Studies Teacher	Willoughby-Eastlake CSD	Yes	Yes
Kim	Kozbial Hess	Grade 4-6 Social Studies Teacher	Toledo City SD	Yes	Yes
Ann	Kroger	Grade 4 Social Studies Teacher	Cincinnati City SD	Yes	Yes
Cheryl	Kuhlman	Grade 5 Social Studies Teacher	Miller City-New Cleveland LSD	Yes	Yes
Mary Jane	McHugh	Grade 5 Social Studies Teacher	Springfield City SD	Yes	Yes
Shela	Oberlin	Parent	Akron City SD	Yes	Yes
Sharon	Riley			Yes	Yes
Robert	Rohrer	Grade 5 Social Studies Teacher	Huber Heights City SD	Yes	Yes
Maria	Sanchez	Principal	Lorain City SD	Yes	Yes
Marlene	Wilson	Grade 5 Social Studies Teacher	East Cleveland city SD	Yes	Yes
Ann	Wise	Grade 5 Social Studies Teacher	Fostoria City SD	Yes	Yes
Sharon	Yochum	K-5 Gifted and Talented Teacher	Hillsboro City SD	Yes	Yes
Sandy	Warner	Director Of Curriculum	Springboro Community City SD	Yes	No

Table B4. Grade 8 Social Studies Standard Setting Panelists

Name		Role	District/Organization	Invited	Attended
Mona	Al-Hayani	Grade 8 Amer. Studies Teacher	Toledo City SD	Yes	Yes
Wendy	Armstrong	Grade 7 Social Studies Teacher	Cloverleaf LSD	Yes	Yes
Erik	Belcher	Grade 7/8 Social Studies Teacher	Allen East LSD	Yes	Yes
Belinda	Dixon	Grade 7/8 Social Studies Teacher	Wellston City SD	Yes	Yes
Lisa	Giblin	Grade 8 Social Studies Teacher	Winton Woods City SD	Yes	Yes
Victor	Harris	Grade 8 Social Studies Teacher	Sycamore Community City SD	Yes	Yes
Ron	Helms	Professor-Coll. Of Education, Wright St. Univ.	Wright State University	Yes	Yes
Michele	Lester	Grade 6 Social Studies Teacher	Ripley-Union-Lewis-Huntington LSD	Yes	Yes
Mary Kathleen	Lorenz	Grade 8 Social Studies Teacher	Mt. Healthy City SD	Yes	Yes
Gail	Martino	Director of Curriculum	Louisville City SD	Yes	Yes
Becky	McKinnell	Grade 8 Social Studies Teacher	Mansfield City SD	Yes	Yes
JoAnn	McNew	Grade 8 Social Studies Teacher	Plain Local SD	Yes	Yes
Dina	Metzler	Grade 7 Social Studies Teacher	Logan-Hocking LSD	Yes	Yes
Lori	Miller	Grade 8 Social Studies Teacher	Caldwell Ex. Vill. SD	Yes	Yes
Shawn	Neil	Grade 8 Social Studies Teacher	Johnstown-Monroe LSD	Yes	Yes
Kristi	Patrick	Grade 7/8 Social Studies Teacher	Jackson City SD	Yes	Yes
Thomas	Shafer	Principal	Evergreen LSD	Yes	Yes
Susan	Sobolewski	Grade 8 Social Studies Teacher	Chardon LSD	Yes	Yes
Brenda	Sowers	Grade 8 Social Studies Teacher	Columbus City SD	Yes	Yes
Sabrina	Worthy	Grade 6 Social Studies Teacher	East Cleveland City SD	Yes	Yes
Bradley	Pat	5-8 Social Studies Supervisor	Youngstown City SD	Yes	No
Gaye	Harris-Miles	Attorney		Yes	No

Table B5. Grade 7 Writing Standard Setting Panelists

Name		Role	District	Invited	Attended
Amy	Ameter	Grade 7 Language Arts Teacher	Columbus City SD	Yes	Yes
Diane	Baugher	Coord. Of National Supt. Academy, Ohio State Univ.	Ohio State University	Yes	Yes
Dave	Bickham	PR Specialist-Medical Center		Yes	Yes
Debra	Collins	Grade 8 Language Arts Teacher	AdamsCo./Ohio Valley Local SD	Yes	Yes
Yvette	Curry	Grade 6 Language Arts Teacher	Akron City SD	Yes	Yes
Bart	Doseck	Grade 7/8 Language Arts Teacher	Russia Local SD	Yes	Yes
Janee'	Dozier	Grade 7 Language Arts Teacher	Euclid City SD	Yes	Yes
Terri	Eldridge	Grade 7 Language Arts Teacher	Huntington Local SD	Yes	Yes
Diana	Garver	Asst. Professor of Educ., Ohio Northern University	Ohio Northern University	Yes	Yes
Gary	Giblin	Middle School ESL	Winton Woods City SD	Yes	Yes
Ashlie	Gora	Grade 7 English Teacher	Toledo City SD	Yes	Yes
Rebecca	Hupp	Grade 7 Language Arts Teacher	Milford EV SD	Yes	Yes
Gary	Keller	Principal	Bowling Green City SD	Yes	Yes
Linda	Kelley	GATE Language Arts Teacher	Bexley City SD	Yes	Yes
Pam	Lear	Coord. of School Improvement	Maysville LSD	Yes	Yes
Rena	Meyers	Grade 8 Language Arts Teacher	Wilmington City SD	Yes	Yes
Jenniffer	Pertuset	Grade 7 Language Arts Teacher	Washington-Nile LSD	Yes	Yes
Carrie	Richards	Grade 7 Language Arts Teacher	Delaware City SD	Yes	Yes
Elizabeth	Shank	Grade 7-12 English Teacher	Cincinnati City SD	Yes	Yes
Andy	Slack	Grade 6 Special Educ. Teacher	Tiffin City SD	Yes	Yes
Vincent	Suber	Grade 6 Language Arts Teacher	Copley-Fairlawn City SD	Yes	Yes
Lynn	Swaney	Grade 6 Language Arts Teacher	Pleasant Local SD	Yes	Yes
Doris	Weals	Grade 6/7 language Arts Teacher	Galion Local SD	Yes	Yes
Cynthia	Winner	Dir. of Curriculum/Instruction	Nelsonville-York City SD	Yes	Yes
Theus	Cassel	Grade 6 Language Arts Teacher	Warrensville Hts. City SD	Yes	No
Sharon	McDowell	Grade 7/8 Language Arts Teacher	Berea City Schools	Yes	No
Kristen	Segna	Grade 7 Language Arts Teacher	Reynoldsburg City SD	Yes	No
Joe	Speyer	Grade 8 Language Arts Teacher	North Union LSD	Yes	No

APPENDIX C

Characteristics of Standard Setting Panelists

Table C1. Role Composition of Grade 5 Science Panel

Subgroup	Target Number	Actual Number
Classroom teachers		
Grade 3	3	2
Grade 4	4	3
Grade 5	9	8
Total	**16**	**13**
Other educators		
Superintendent/Administrator	1-2	1
School board member	0-1	1
Curriculum supervisor	0-1	2
Higher education	0-1	0
Total	**4**	**4**
Community representatives		
Parents of school-age children	2	1
Business leaders	0-1	0
Community leaders	0-1	0
Total	**3**	**1**
Panel total	**23**	**18**

Table C2. Demographic Composition of Grade 5 Science Panel

Subgroup	Number
Ethnicity	
African American	2
Asian/Pacific Islander	1
Hispanic	0
White	15
Gender	
Female	16
Male	2
Region	
Central	3
Northeast	5
Northwest	4
Southeast	2
Southwest	4

Table C3. Role Composition of Grade 8 Science Panel

Subgroup	Target Number	Actual Number
Classroom teachers		
Grade 6	3	5
Grade 7	4	5
Grade 8	9	9
Total	**16**	**19**
Other educators		
Superintendent/Administrator	1-2	0
School board member	0-1	1
Curriculum supervisor	0-1	1
Higher education	0-1	1
Total	**4**	**3**
Community representatives		
Parents of school-age children	2	0
Business leaders	0-1	0
Community leaders	0-1	0
Total	**3**	**0**
Panel total	**23**	**22**

Table C4. Demographic Composition of Grade 8 Science Panel

Subgroup	Number
Ethnicity	
African American	3
Asian/Pacific Islander	0
Hispanic	0
White	19
Gender	
Female	15
Male	7
Region	
Central	4
Northeast	5
Northwest	5
Southeast	4
Southwest	4

Table C5. Role Composition of Grade 5 Social Studies Panel

Subgroup	Target Number	Actual Number
Classroom teachers		
Grade 3	3	4
Grade 4	4	5
Grade 5	9	10
Total	**16**	**19**
Other educators		
Superintendent/Administrator	1-2	1
School board member	0-1	0
Curriculum supervisor	0-1	0
Higher education	0-1	1
Total	**4**	**2**
Community representatives		
Parents of school-age children	2	1
Business leaders	0-1	0
Community leaders	0-1	0
Total	**3**	**1**
Panel total	**23**	**22**

Table C6. Demographic Composition of Grade 5 Social Studies Panel

Subgroup	Number
Ethnicity	
African American	1
Asian/Pacific Islander	0
Hispanic	2
White	19
Gender	
Female	20
Male	2
Region	
Central	4
Northeast	7
Northwest	5
Southeast	3
Southwest	3

Table C7. Role Composition of Grade 8 Social Studies Panel

Subgroup	Target Number	Actual Number
Classroom teachers		
Grade 6	3	2
Grade 7	4	5
Grade 8	9	10
Total	**16**	**17**
Other educators		
Superintendent/Administrator	1-2	1
School board member	0-1	0
Curriculum supervisor	0-1	1
Higher education	0-1	1
Total	**4**	**3**
Community representatives		
Parents of school-age children	2	0
Business leaders	0-1	0
Community leaders	0-1	0
Total	**3**	**0**
Panel total	**23**	**20**

Table C8. Demographic Composition of Grade 8 Social Studies Panel

Subgroup	Number
Ethnicity	
African American	1
Asian/Pacific Islander	0
Hispanic	0
White	19
Gender	
Female	15
Male	5
Region	
Central	3
Northeast	5
Northwest	3
Southeast	4
Southwest	5

Table C9. Role Composition of Grade 7 Writing Panel

Subgroup	Target Number	Actual Number
Classroom teachers		
Grade 6	5	5
Grade 7	10	11
Grade 8	4	2
Total	**19**	**18**
Other educators		
Superintendent/Administrator	2	3
School board member	1	0
Curriculum supervisor	1	1
Higher education	1	1
Total	**5**	**5**
Community representatives		
Parents of school-age children	2	0
Business leaders	1	1
Community leaders	1	0
Total	**4**	**1**
Panel total	**28**	**24**

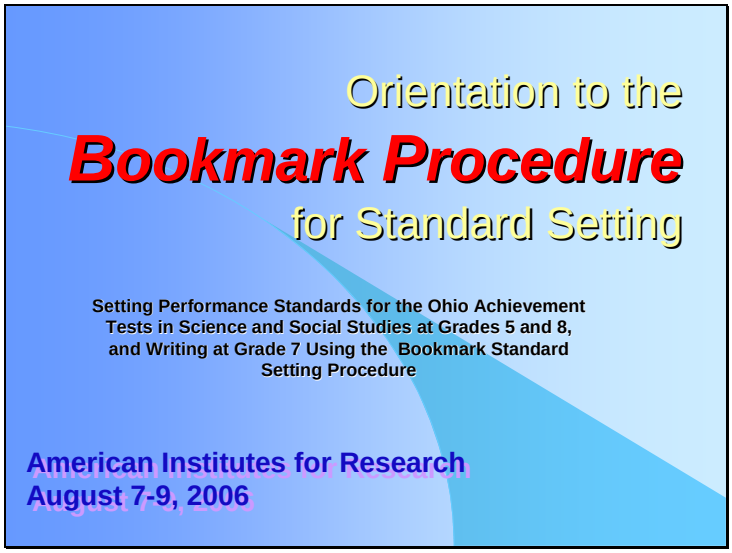
Table C10. Demographic Composition of Grade 7 Writing Panel

Subgroup	Number
Ethnicity	
African American	3
Asian/Pacific Islander	0
Hispanic	0
White	21
Gender	
Female	18
Male	6
Region	
Central	5
Northeast	3
Northwest	6
Southeast	5
Southwest	5

APPENDIX D

Training Slides

Slide 1



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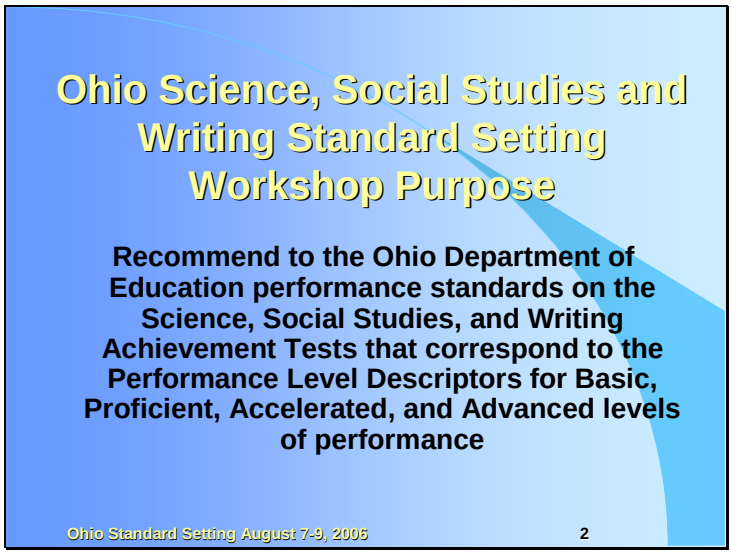

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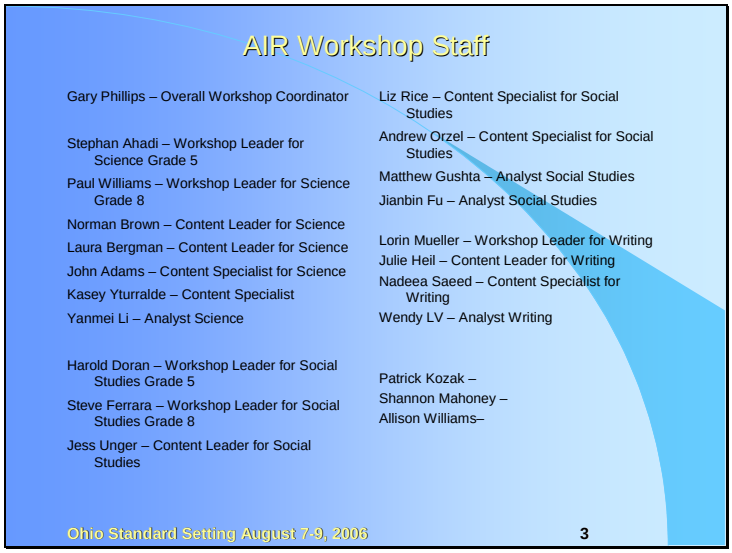

Slide 4

Slide 5

Security and Confidentiality

- All test items are secure and covered by the Ohio Department of Education security policies and regulations
- Please DO NOT:
  - remove any secure material from the meeting room
  - discuss the placement of your cut score or items among yourselves outside the sessions
  - discuss secure materials with non-participants
  - discuss the placement of the standard (cut scores) after this workshop
- OK to discuss the Bookmark process

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Slide 6

Standard Setting Folder Contents

Left Side
- Biographical Data Form
- Non-disclosure form
- Reimbursement form
- Consultant Order form
- Honorarium memo
- Security Reminder

Right Side
- Meeting agenda customized for your grades and subject
- Performance Level Descriptors
- Ohio Academic Content Standards and Benchmarks (Content Supplement)
- Standard Setting Readiness Form
- Workshop Evaluation Form

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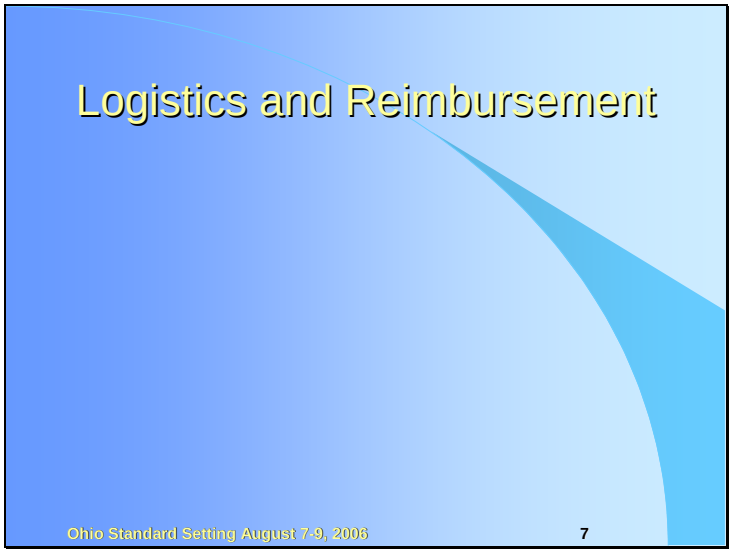
Slide 7



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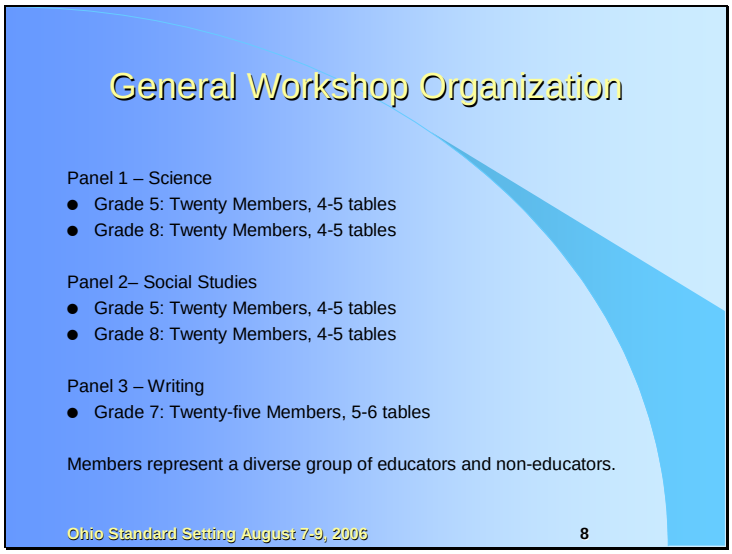

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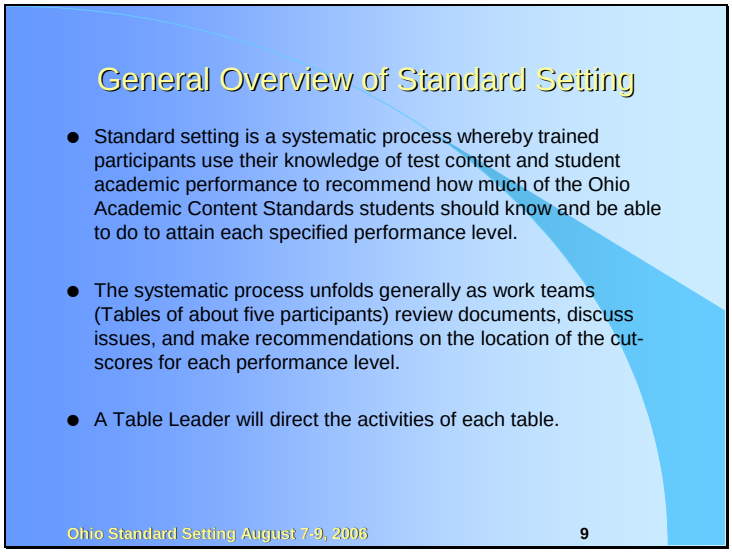

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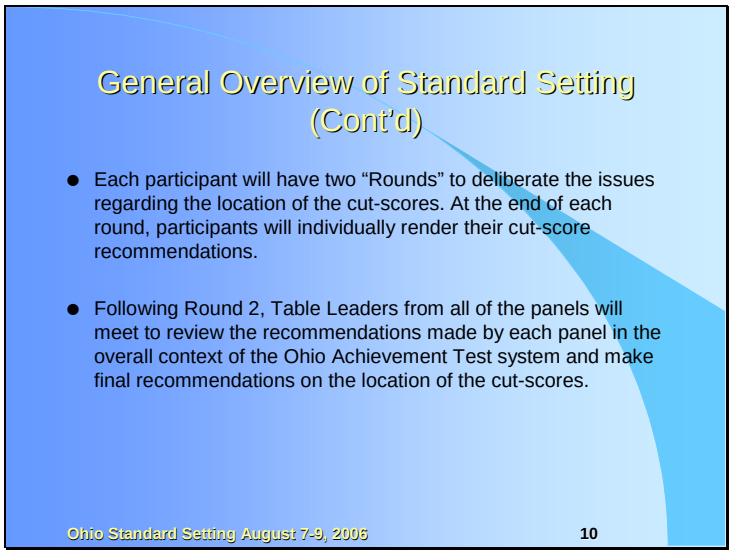

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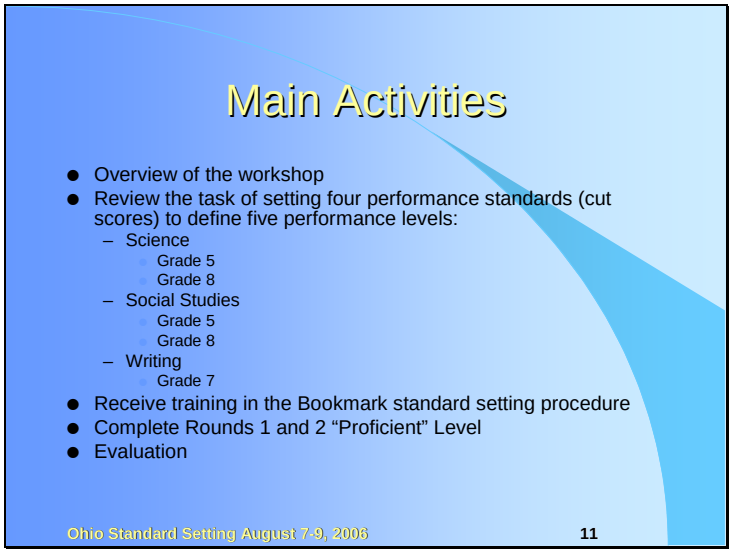

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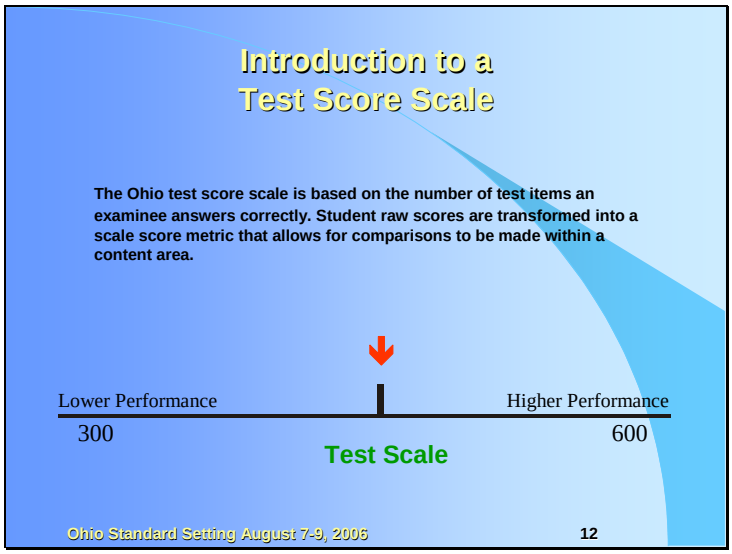

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What Do We Mean by "Standards"?

- Ohio Academic Content Standards: Specify the content that would be learned by students – given implementation of the Ohio Academic Content Standards and an opportunity to learn. These are the Ohio Benchmarks, Standards, and Indicators.
  - What students would need to know and be able to do
- Performance Levels: Are regions on the test score scale that represent what students would need to know and be able to do relative to the Academic Content Standards at various, predetermined, levels of achievement (such as Below Basic, Basic, Proficient, Accelerated, and Advanced). The Performance Levels are described and defined by the *Performance Level Descriptors*.
  - What students would need to know and be able to do within each Performance Level.
- Performance Standards: Locations (points) on the score scale that demarcate the Performance Levels. These are the cut-scores (cut-points) that separate the Performance Levels.
  - How much, how well

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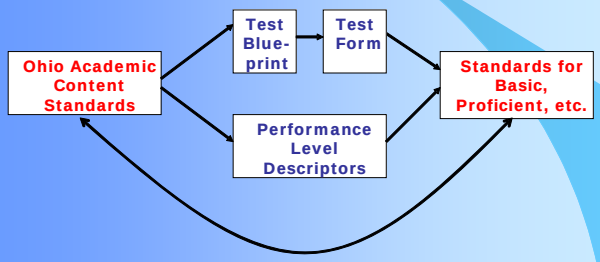
Translating Content Standards to Performance Standards



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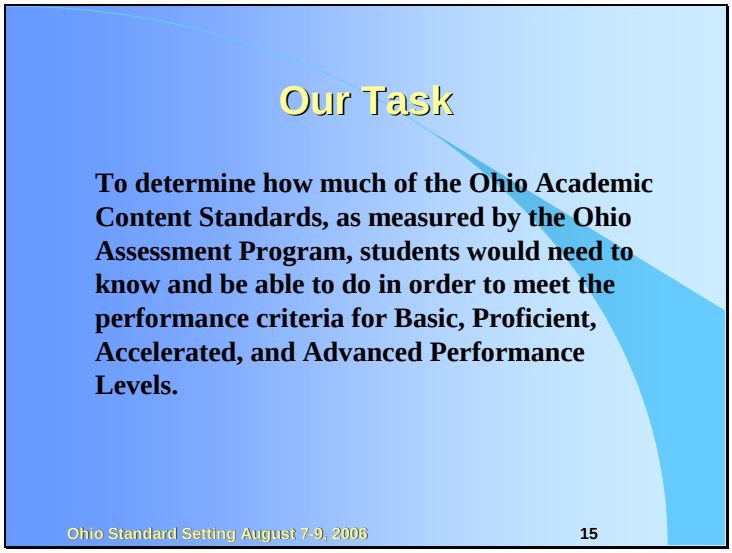

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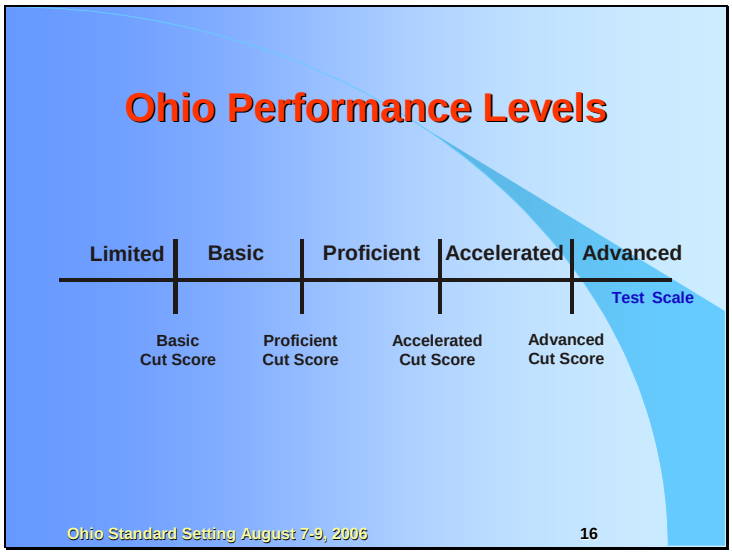

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Performance Level Descriptors (PLDs)

- The PLDs summarize what a student would need to know and be able to do within each performance level.
- PLDs describe a range of content-based behaviors expected of students within each performance level.
- PLDs are the link between the Ohio Academic Content Standards and reporting test performance.
- PLDs are the ultimate content-referenced criteria to which student performance is compared for setting cut-scores.
- Grade 5 Science PLD follows.

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Grade 5 Science PLD

Limited	Students demonstrate skills and understanding below Basic level performance for Grade 5 Science. Although these students may be able to identify and use some simple scientific vocabulary appropriate for Grade 5, they are unable to identify accurate statements about previously learned, scientifically valid facts, processes, concepts or relationships. Students are unable to provide or identify valid descriptions of models, organisms, physical materials, and systems or accurately express understanding of scientific processes, concepts or relationships as defined by the content standards for Grade 5 Science.
Basic	Given rich context or investigative scenarios appropriate for Grade 5, students performing at the Basic level inconsistently identify accurate scientific facts, concepts, and terms appropriate for the grade level. Some of these concepts include: •differences between plants and animals; •plant and animal life cycles; •relationships in simple food chains; •the characteristics, cycles, patterns of Earth and its place in the solar system; •some processes that shape Earth's surface; •ways to conserve Earth's resources; •aspects of Earth's weather; •characteristics of matter; •characteristics of simple chemical and physical changes; and •forces that affect objects and motion. Students performing at the basic level inconsistently recognize or provide accurate descriptions of basic models and provide explanations that are logical but explanations lack supportive data. Students show a rudimentary understanding of valid Grade 5 scientific knowledge, concepts, processes and relationships underlying natural phenomena in life, physical and Earth and space sciences and demonstrate some familiarity with technological applications. Students perform analyses that are partially accurate, recognize regular patterns and trends, and demonstrate an elementary understanding of scientific investigation processes. Student discussions, predictions and solutions often are based upon oversimplification, incorrect science, or unrelated information/data.

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Grade 5 Science PLD

Proficient	Students demonstrate understanding of Grade 5 scientific concepts, knowledge, reasoning and relationships underlying natural phenomena, structures, cycles, systems, and processes in living, physical, Earth and space sciences. Some of these concepts include: •relating plant and animal structures to the appropriate survival function; •energy flow through a three tropic level food web; •sorting plants/animals by common external structures; •how day and night are caused by Earth's rotation; •changes in Earth cycles and patterns; •how wind, water and ice shape and reshape Earth's surface; •renewable and non-renewable resources; •how water can exist in different forms; •characteristic properties of matter; •characteristics of simple chemical and physical changes; •forms of energy and ways that energy can change form; •observable properties of light, sound, thermal and electric energy; and •ways that thermal energy may be transferred from one object to another. They demonstrate understanding of physical and conceptual models and recognize some inputs and outputs, causes and effects, and interactions and relationships within a system. Given Grade 5 appropriate rich context or investigative scenarios, students analyze and communicate their thinking about scientific information; make valid, accurate and logical conclusions based upon information/data; distinguish between observation and inference; and identify patterns. Students demonstrate the ability to plan, implement and critique meaningful scientific investigations; make logical predictions and formulate questions based upon scientific knowledge; select or identify appropriate tools and safety considerations; and propose a solution to a simple technological design problem appropriate for Grade 5. Students typically accurately apply science to Grade 5 appropriate individual and societal problems and identify consequences using scientific information/data.

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Grade 5 Science PLD

Accelerated	Students demonstrate substantial scientific knowledge and reasoning abilities in the study of Grade 5 appropriate natural phenomena in life, physical and Earth and space sciences. This scientific knowledge includes concepts such as: •relationship of specific plant structures to specific functions; •energy flow through the interdependent relationships between members of food chains, food webs, and food pyramids; •Earth's position and motion within the solar system and Earth's relationship to other objects in the solar system; •evidence of weathering and of erosion as a means of reshaping Earth's surface.; •properties of soil and processes of soil formation; •classification of matter by specific physical properties; •how thermal energy is transferred from one object to another by conduction; and •design of simple closed circuits. Given Grade 5 appropriate rich context or investigative scenarios, students show exceptional skill in the application of previously learned, scientifically valid knowledge and successfully use provided information/data to think and communicate scientifically. Students demonstrate considerable ability to design investigations that answer questions about the natural world and use scientific reasoning to make predictions with clearly formulated questions and methods that generate valid data to arrive at valid conclusions. Students consistently identify and discuss patterns and trends and extend information/data utilizing previously learned scientific knowledge. Students can evaluate technological solutions to given individual and societal problems appropriate for Grade 5 by considering helpful and harmful results and applying appropriate scientific and technological principles.

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Grade 5 Science PLD

Advanced	Students consistently demonstrate thorough and deep scientific knowledge and reasoning abilities in the study of Grade 5 appropriate natural phenomena in life, physical and Earth and space sciences. This scientific knowledge includes concepts such as: •specific relationships between producers, consumers, and decomposers within an ecosystem; •Earth's relationship to stars and the relationship between apparent star size, distance and position; •how changes in Earth's surface may occur by slow or rapid processes; •ways to conserve Earth's renewable and non-renewable resources.; •simple physical and chemical changes; •how contact and non-contact forces affect the motion of an object; •the relationship between changes in temperature and changes in thermal energy; •ways to ensure energy flow through a closed system via circuit analysis; and •how certain human/animal behaviors and human technologies can have positive or negative impacts on the environment. Given Grade 5 appropriate rich context or investigative scenarios, students show superior depth in the application of previously learned, scientifically valid knowledge and outstanding application of provided information/data to think and communicate scientifically in a variety of formats. They recognize relationships within complex systems and use this knowledge to make reasonable predictions. Students demonstrate superior ability to design investigations appropriate for Grade 5 that answer questions about the natural world, using complex scientific reasoning skills to make predictions and formulate questions and methods that generate data to arrive at valid conclusions. Students successfully evaluate technological solutions to given individual and societal problems appropriate for Grade 5 by considering helpful and harmful results and applying appropriate scientific and technological principles. Students accurately identify patterns, can extensively discuss patterns and trends, and correctly extend information/data via interpolation or extrapolation.

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The Bookmark Method

- **Research-based procedure**
- **Used in over 20 states and districts**
- **Previously used in Ohio for Grades 3-8 Reading and Mathematics, Grade 4 Writing, and K-2 Diagnostics**

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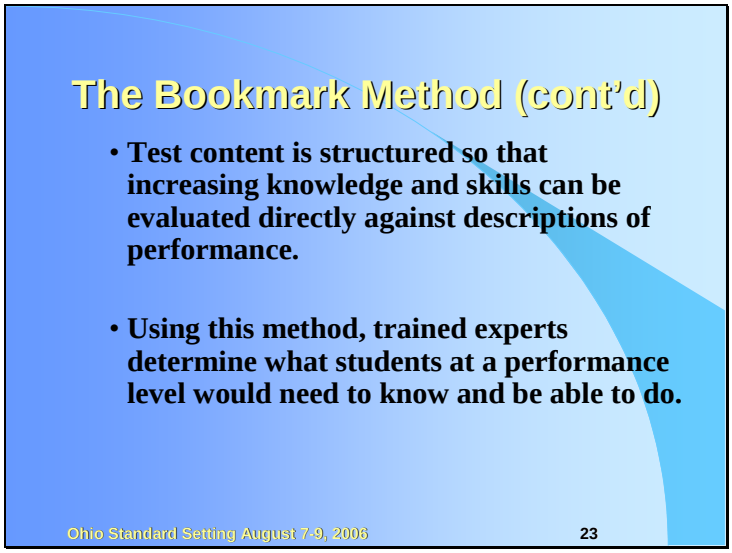

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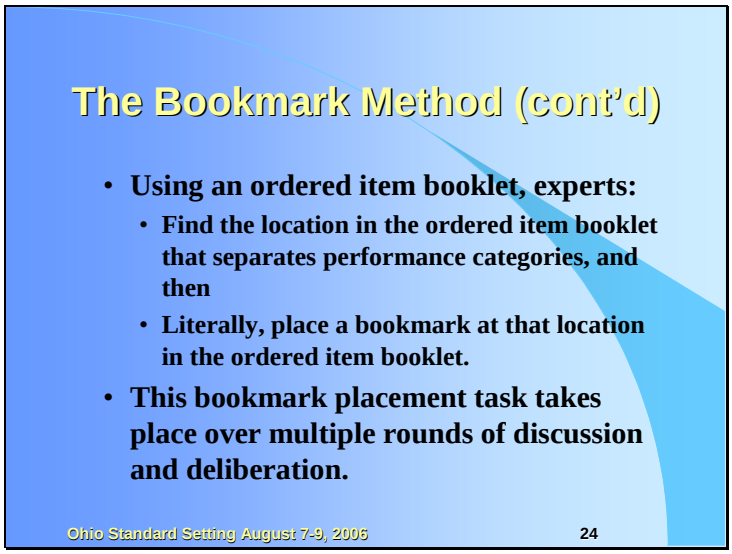

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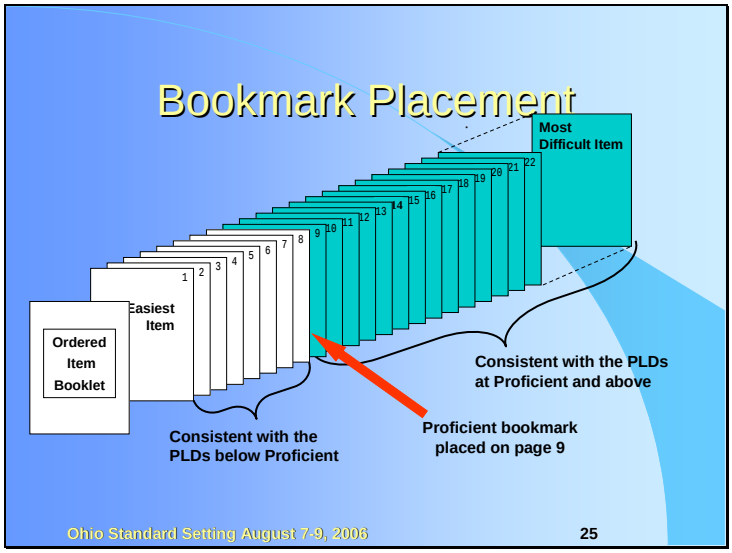

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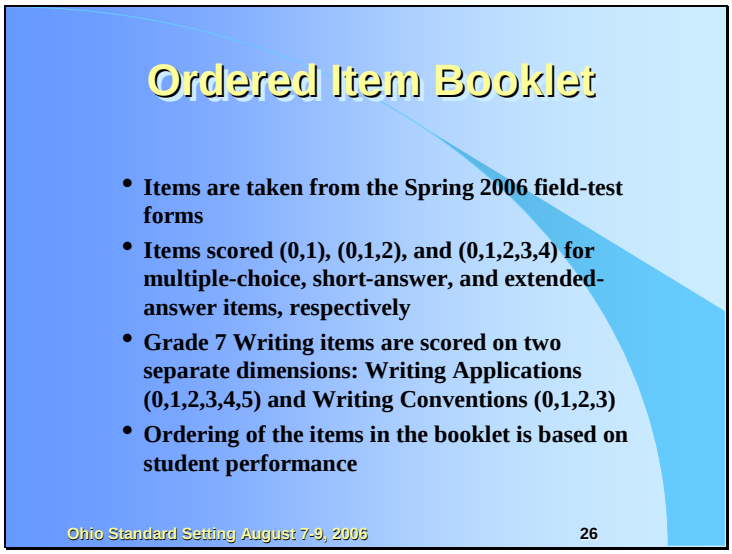

Slide 27

Ordered Item Booklet (cont'd)

- **1 item per page (or 2-3 pages)**
- **Easiest item first**
- **Hardest item last**
- **Constructed response items appear multiple times in the ordered item booklet, once for each score point**

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Studying the Ordered Item Booklet

- **Consider each item, answer two questions:**
  - **What would a student need to know and be able to do to correctly respond to this item?**
  - **Why is this item more difficult than the previous item(s)?**
- **Consider the knowledge and skills a student would need to be able to demonstrate in order to answer each item correctly or each score point**

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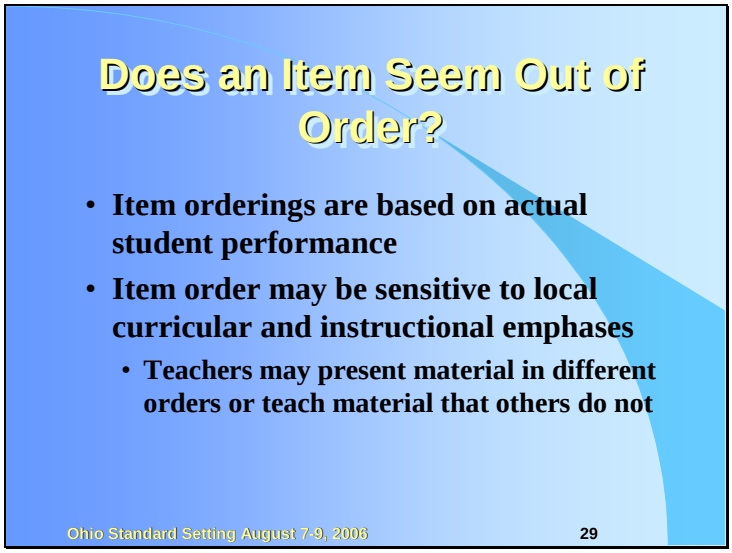

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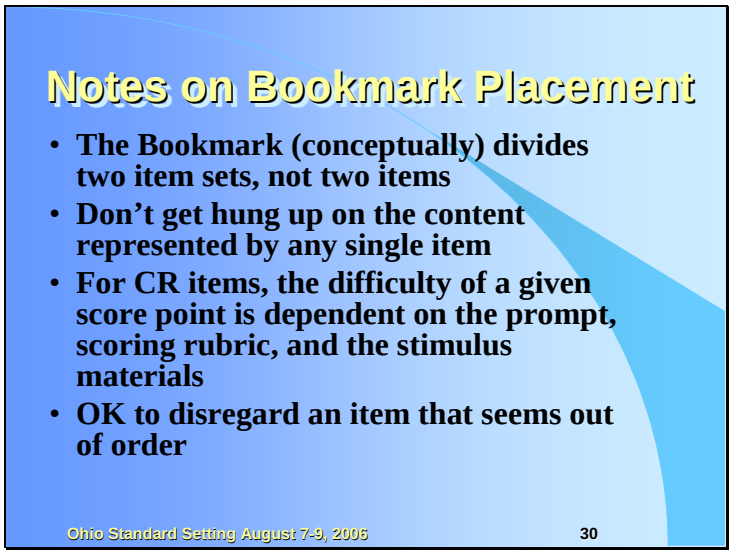

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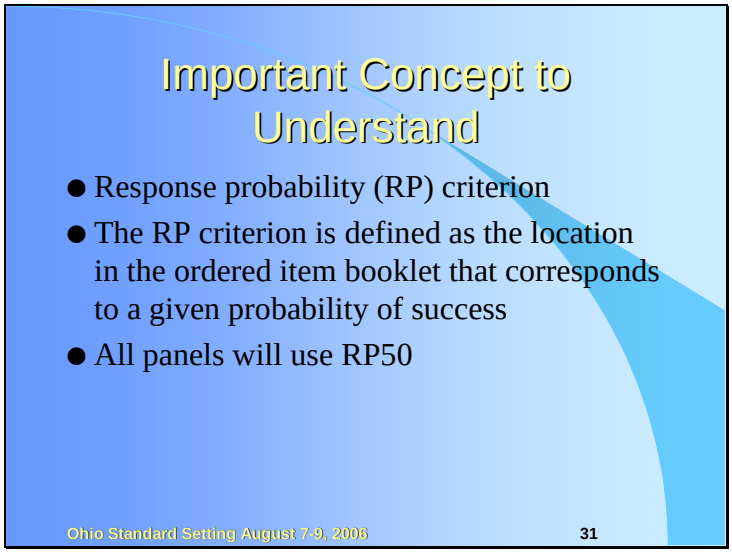

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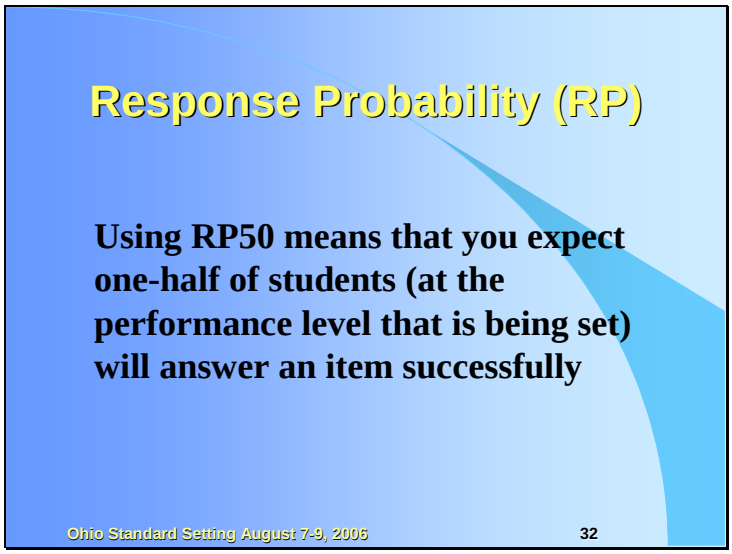

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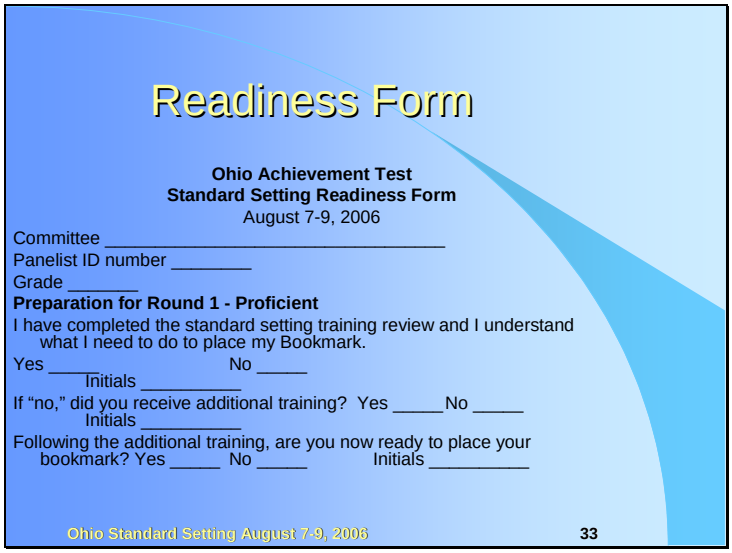

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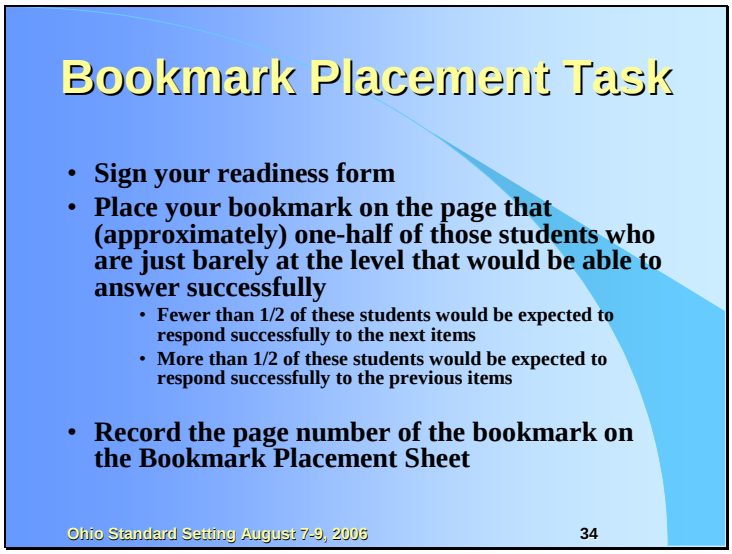

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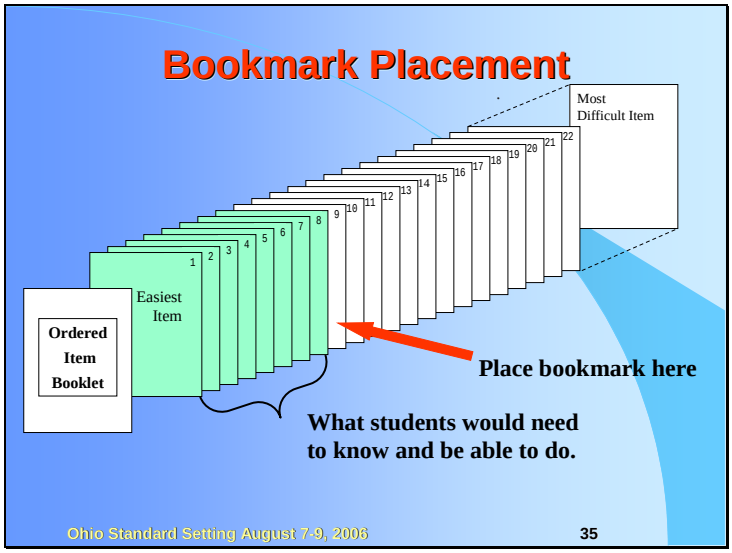

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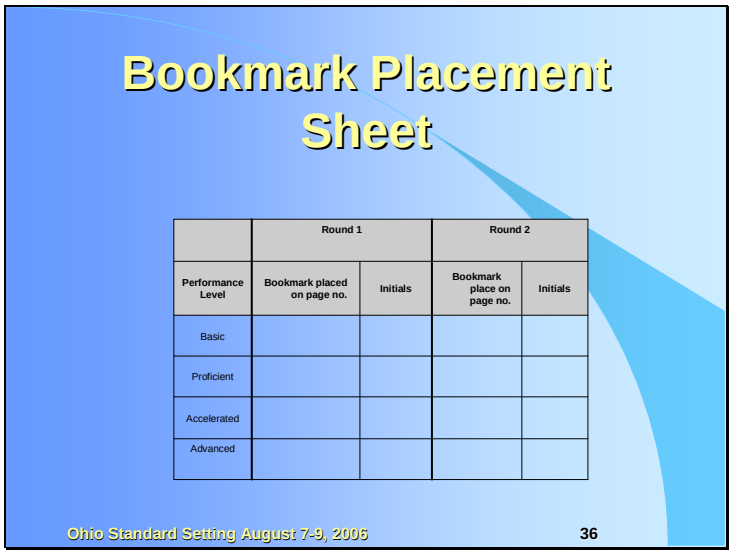

	Round 1		Round 2	
Performance Level	Bookmark placed on page no.	Initials	Bookmark place on page no.	Initials
Basic				
Proficient				
Accelerated				
Advanced				

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What You ARE Doing

The Bookmark Placement Task is one where you place a bookmark that represents what students would need to know and be able to do as they are just entering a performance level.

You ARE placing a bookmark based on your understanding of the content described by the PLD and the content represented by the test items.

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What You Are NOT Doing

While the bookmark is placed at a specific point (physically "on" a test item) in the Ordered Item Booklet, that point does NOT represent the number of test questions a student must answer correctly to attain a given cut-score.

You MUST NOT fall into "percentage correct" thinking. If you place a bookmark on the 20th of 60 items for a particular performance standard, it does not mean that a student must get 33% of the items correct to reach the performance standard for which you placed the bookmark.

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Our Task - Reprise

- Determine how much of the Ohio Academic Content Standards, as measured by the Grades 5 and 8 Science, Grades 5 and 8 Social Studies, and Grade 7 Writing Achievement Tests, students would need to know and be able to do in order to meet the performance criteria at each level
- Avoid percentage correct thinking--Think content!
- Think page numbers in the Ordered Item Booklet, not test scores!

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The Bookmark Method (cont'd)

- Expect training to take a reasonable amount of time.
- Expect to have to look at some training concepts from more than one perspective.
- Expect parts of the training to be repetitive – they are intended to be so.

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The Bookmark Method (cont'd)

- Expect to spend time closely reviewing the test content, the description of achievement levels, and the items.
- Expect that, as the rounds move forward, there will be more "down" time between rounds.

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In all rounds, consider…

- **Ohio Academic Content Standards:** specify the content that should be learned by students – given implementation of the Standards and an opportunity to learn.
- **Performance Level Descriptors:** specify the level of performance required for students to meet Basic, Proficient, Accelerated, and Advanced.
- **Avoid percentage correct thinking:** Cut points are being set primarily based on content, not as a percentage score on a test.

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Avoid Percentage Correct Thinking

- You are working with an ordered item booklet, ***not an operational test form*.**
- When placing your bookmark, **DO NOT** think in terms of percentage or letter grade scales. The performance level cut points do not correspond to percentage scores or letter grades.
- The page upon which you place your bookmark is NOT the same as the number (percentage) of items a student would answer correctly on a test

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You Are the Experts!

- **Two questions:**
  - **What content/processes does each item require?**
  - **What makes each item harder than the previous one(s)?**

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APPENDIX E

Readiness Forms

Ohio Achievement Test
Standard Setting Anchor Grade Readiness Form
August 2006

Committee _____

Panelist ID number _____

Grade _____

Preparation for Round 1 - Proficient

I have completed the standard setting training review and I understand what I need to do to place my Bookmark.

Yes _____ No _____ Initials _____

If "no," did you receive additional training? Yes _____ No _____ Initials _____

Following the additional training,
are you now ready to place your bookmark? Yes _____ No _____ Initials _____

Preparation for Round 2 - Proficient

I have discussed the results from Round 1, including my placement of the Bookmark and the data and related information, and I understand what I need to do to place my Bookmark.

Yes _____ No _____ Initials _____

If "no," did you receive additional training? Yes _____ No _____ Initials _____

Following the additional training,
are you now ready to place your bookmark? Yes _____ No _____ Initials _____

Preparation for Round 1 – Basic, Advanced, and Accelerated

I have completed the standard setting training review and I understand what I need to do to place my Bookmarks.

Yes _____ No _____ Initials _____

If "no," did you receive additional training? Yes _____ No _____ Initials _____

Following the additional training,
are you now ready to place your bookmarks? Yes _____ No _____ Initials _____

Preparation for Round 2 – Basic, Advanced, and Accelerated

I have discussed the results from Round 1, including my placement of the Bookmark and the data and related information, and I understand what I need to do to place my Bookmark.

Yes _____ No _____ Initials _____

If "no," did you receive additional training? Yes _____ No _____ Initials _____

Following the additional training,
are you now ready to place your bookmark? Yes _____ No _____ Initials _____

Comments:

APPENDIX F

Ordered Item Book Maps

Table F1. Ordered Item Book Map – Grade 5 Science

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
1	14368	5	Science	Ships on a magnetic sea	Science and Technology	B	5	MC	1 of 1
2	13518	5	Science	Bald eagles item 3: eggs	Physical Sciences	D	2	MC	1 of 1
3	14174	5	Science	beautiful fish opinion	Scientific Ways of Knowing	A	1	MC	1 of 1
4	14585	5	Science	Earth supports life	Scientific Inquiry	B	3	EA	1 of 4
5	11595	5	Science	Identify a tool used by a meteorologist	Scientific Inquiry	A	1	SA	1 of 2
6	13239	5	Science	Weathering - ice wedging	Earth and Space Sciences	B	9	MC	1 of 1
7	13904	5	Science	Setting up an investigation	Scientific Ways of Knowing	B	3	MC	1 of 1
8	13307	5	Science	Earth's location in solar system	Earth and Space Sciences	A	2	MC	1 of 1
9	14585	5	Science	Earth supports life	Scientific Inquiry	B	3	EA	2 of 4
10	14488	5	Science	Paper Work: Physical or Chemical Change	Physical Sciences	A	2	MC	1 of 1
11	13578	5	Science	Bald Eagles Item: Eagle's Prey	Life Sciences	C	4	MC	1 of 1
12	14541	5	Science	tree images in a lake	Physical Sciences	F	5	MC	1 of 1
13	11596	5	Science	Identifying different forms of precipitation	Scientific Inquiry	B	3	MC	1 of 1
14	12181	5	Science	Magnet forces	Physical Sciences	C	3	MC	1 of 1
15	13517	5	Science	Bald eagles item 2: bald eagle protection	Life Sciences	C	6	MC	1 of 1
16	13840	5	Science	Advances because of telescope	Science and Technology	A	1	SA	1 of 2
17	14129	5	Science	model day and night	Earth and Space Sciences	A	1	MC	1 of 1
18	14480	5	Science	moisture into the atmosphere	Earth and Space Sciences	D	3	MC	1 of 1
19	11813	5	Science	droplets on the outside of a cold glass	Physical Sciences	B	4	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
20	11429	5	Science	Working circuit	Physical Sciences	E	4	MC	1 of 1
21	11595	5	Science	Identify a tool used by a meteorologist	Scientific Inquiry	A	1	SA	2 of 2
22	11594	5	Science	Student identifies direction cold front is moving.	Earth and Space Sciences	D	5	MC	1 of 1
23	14561	5	Science	pencils with erasers	Science and Technology	B	2	MC	1 of 1
24	14501	5	Science	forces that change direction of motion	Physical Sciences	C	3	MC	1 of 1
25	14585	5	Science	Earth supports life	Scientific Inquiry	B	3	EA	3 of 4
26	13870	5	Science	stream fed lake erosion	Earth and Space Sciences	B	10	MC	1 of 1
27	14646	5	Science	clay shape that floats	Physical Sciences	B	3	MC	1 of 1
28	14539	5	Science	Desert Canyon	Earth and Space Sciences	B	10	EA	1 of 4
29	13857	5	Science	broken cattail stem	Physical Sciences	F	5	MC	1 of 1
30	11745	5	Science	Fossils-Using observations to draw conclusions.	Life Sciences	C	4	SA	1 of 2
31	14601	5	Science	Beaver Dam Changing Land	Life Sciences	C	6	MC	1 of 1
32	11755	5	Science	Student identifies a physical change	Physical Sciences	A	1	MC	1 of 1
33	13516	5	Science	Bald eagle item 1: beaks	Life Sciences	B	2	MC	1 of 1
34	11427	5	Science	Sledding and forces	Physical Sciences	C	3	SA	1 of 2
35	14209	5	Science	Meadow Dam	Life Sciences	C	4	MC	1 of 1
36	11333	5	Science	food web-river	Life Sciences	B	3	MC	1 of 1
37	11506	5	Science	Describing changes in weather conditions	Earth and Space Sciences	D	5	MC	1 of 1
38	14585	5	Science	Earth supports life	Scientific Inquiry	B	3	EA	4 of 4
39	13840	5	Science	Advances because of telescope	Science and Technology	A	1	SA	2 of 2
40	14213	5	Science	Producers	Life Sciences	B	1	MC	1 of 1
41	14477	5	Science	forces that can increase or decrease speed	Scientific Inquiry	C	4	MC	1 of 1
42	14539	5	Science	Desert Canyon	Earth and Space	B	10	EA	2 of 4

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
					Sciences				
43	12162	5	Science	Edible plants - life cycles	Life Sciences	A	1	MC	1 of 1
44	14445	5	Science	formation of a sand bar	Earth and Space Sciences	B	8	MC	1 of 1
45	11745	5	Science	Fossils-Using observations to draw conclusions.	Life Sciences	C	4	SA	2 of 2
46	14539	5	Science	Desert Canyon	Earth and Space Sciences	B	10	EA	3 of 4
47	14539	5	Science	Desert Canyon	Earth and Space Sciences	B	10	EA	4 of 4
48	11427	5	Science	Sledding and forces	Physical Sciences	C	3	SA	2 of 2

Table F2. Ordered Item Book Map – Grade 8 Science

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
1	7844	8	Science	Ecosystem	Life Sciences	C	3	MC	1 of 1
2	6329	8	Science	Question on gravity	Earth and Space Sciences	A	2	MC	1 of 1
3	6357	8	Science	data interpretation	Scientific Inquiry	B	3	MC	1 of 1
4	10748	8	Science	Cockroaches	Life Sciences	D	5	MC	1 of 1
5	6194	8	Science	Windmills and energy transformations	Physical Sciences	D	3	MC	1 of 1
6	6124	8	Science	craters in moon	Earth and Space Sciences	A	4	MC	1 of 1
7	10514	8	Science	interactions between zooplankton and spiny water flea	Life Sciences	C	3	MC	1 of 1
8	6495	8	Science	Aphid and ant relationship	Life Sciences	C	2	MC	1 of 1
9	6108	8	Science	Potential and kinetic energy	Physical Sciences	B	3	MC	1 of 1
10	6358	8	Science	hypothesis	Scientific Ways of Knowing	A	1	EA	1 of 4
11	8832	8	Science	moon phases	Earth and Space Sciences	A	1	MC	1 of 1
12	8049	8	Science	Population increase	Life Sciences	C	6	MC	1 of 1
13	7851	8	Science	Ecosystem energy levels	Life Sciences	C	3	MC	1 of 1
14	8834	8	Science	property of wood	Science and Technology	B	4	MC	1 of 1
15	10411	8	Science	tradeoff between economic and environmental concerns	Science and Technology	A	2	MC	1 of 1
16	8699	8	Science	function of nucleus	Life Sciences	A	1	MC	1 of 1
17	6107	8	Science	Potential and kinetic energy	Physical Sciences	B	3	MC	1 of 1
18	9416	8	Science	predict path of weather system	Earth and Space Sciences	C	7	MC	1 of 1
19	6125	8	Science	light years	Earth and Space Sciences	B	6	MC	1 of 1
20	6339	8	Science	Rocks	Earth and Space Sciences	D	1	MC	1 of 1
21	6365	8	Science	observation	Scientific Inquiry	B	3	MC	1 of 1
22	10823	8	Science	global cooling causes mass	Life Sciences	D	5	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
				extinction					
23	9584	8	Science	Life cycle of stars	Earth and Space Sciences	B	7	MC	1 of 1
24	11291	8	Science	Relative density of materials	Physical Sciences	A	1	EA	1 of 4
25	6358	8	Science	hypothesis	Scientific Ways of Knowing	A	1	EA	2 of 4
26	8867	8	Science	heat conductivity data application	Physical Sciences	A	4	MC	1 of 1
27	10410	8	Science	advantage of asexual reproduction	Life Sciences	B	5	MC	1 of 1
28	8833	8	Science	relative heat conductivities	Physical Sciences	A	4	MC	1 of 1
29	11291	8	Science	Relative density of materials	Physical Sciences	A	1	EA	2 of 4
30	7845	8	Science	Effect of fire on ecosystem	Life Sciences	C	6	SA	1 of 2
31	9812	8	Science	Balloon	Physical Sciences	A	1	MC	1 of 1
32	6328	8	Science	Multiple choice position of earth during summer	Earth and Space Sciences	A	1	MC	1 of 1
33	6054	8	Science	Nuclear	Science and Technology	A	2	SA	1 of 2
34	6462	8	Science	heating metal bars	Scientific Inquiry	A	2	MC	1 of 1
35	6593	8	Science	Control Variables	Scientific Inquiry	A	2	SA	1 of 2
36	6350	8	Science	Earth and solar system short answer	Earth and Space Sciences	A	1	SA	1 of 2
37	6313	8	Science	asexual reproduction	Life Sciences	B	1	MC	1 of 1
38	6106	8	Science	Potential and kinetic energy	Physical Sciences	D	4	MC	1 of 1
39	11291	8	Science	Relative density of materials	Physical Sciences	A	1	EA	3 of 4
40	6278	8	Science	Density	Physical Sciences	A	1	MC	1 of 1
41	10376	8	Science	beach sand source	Earth and Space Sciences	E	13	MC	1 of 1
42	6358	8	Science	hypothesis	Scientific Ways of Knowing	A	1	EA	3 of 4
43	7845	8	Science	Effect of fire on ecosystem	Life Sciences	C	6	SA	2 of 2
44	6593	8	Science	Control Variables	Scientific Inquiry	A	2	SA	2 of 2
45	6350	8	Science	Earth and solar system short answer	Earth and Space Sciences	A	1	SA	2 of 2
46	6358	8	Science	hypothesis	Scientific Ways of	A	1	EA	4 of 4

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
					Knowing				
47	6054	8	Science	Nuclear	Science and Technology	A	2	SA	2 of 2
48	11291	8	Science	Relative density of materials	Physical Sciences	A	1	EA	4 of 4

Table F3. Ordered Item Book Map – Grade 5 Social Studies

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
1	14359	5	Social Studies	Constructing a Timeline	History	A	1	SA	1 of 2
2	13780	5	Social Studies	skate park	Social Studies Skills & Methods	B	4	MC	1 of 1
3	13711	5	Social Studies	freedom of speech	Economics; Government; Citizen Rights & Responsibilities	B	3	MC	1 of 1
4	12791	5	Social Studies	Inventors	History	C	6	MC	1 of 1
5	13916	5	Social Studies	Community Clean Up	Economics; Government; Citizen Rights & Responsibilities	A	1	EA	1 of 4
6	13295	5	Social Studies	Geography-distance	People in Societies & Geography	A	1	MC	1 of 1
7	12467	5	Social Studies	Table of contents	Social Studies Skills & Methods	A	2	MC	1 of 1
8	14238	5	Social Studies	American Indian Tribes in Ohio	Social Studies Skills & Methods	B	5	SA	1 of 2
9	13673	5	Social Studies	yellow phones	Economics; Government; Citizen Rights & Responsibilities	C	7	MC	1 of 1
10	13077	5	Social Studies	Tobacco and Cotton	People in Societies & Geography	B	3	MC	1 of 1
11	11608	5	Social Studies	Railways in Ohio	History	C	6	MC	1 of 1
12	13916	5	Social Studies	Community Clean Up	Economics; Government; Citizen Rights & Responsibilities	A	1	EA	2 of 4
13	13301	5	Social Studies	Immigration to North America	People in Societies & Geography	B	4	MC	1 of 1
14	12705	5	Social Studies	Ohio Labor Market	Social Studies Skills & Methods	B	5	MC	1 of 1
15	13491	5	Social Studies	Coordinates	People in Societies & Geography	A	1	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
16	11487	5	Social Studies	Choosing a Source	Social Studies Skills & Methods	A	3	MC	1 of 1
17	14104	5	Social Studies	smoke alarm	Social Studies Skills & Methods	D	9	MC	1 of 1
18	14028	5	Social Studies	Ohio Constitution	Economics; Government; Citizen Rights & Responsibilities	B	4	MC	1 of 1
19	12051	5	Social Studies	Push and pull factors	People in Societies & Geography	B	3.	EA	1 of 4
20	13908	5	Social Studies	Econ Opp. Cost	Economics; Government; Citizen Rights & Responsibilities	A	1	MC	1 of 1
21	13727	5	Social Studies	U.S. Regions	People in Societies & Geography	B	3	MC	1 of 1
22	12997	5	Social Studies	Development of railroads contributes to the growth of cities	History	C	6	MC	1 of 1
23	12419	5	Social Studies	Declaration of Independence	Economics; Government; Citizen Rights & Responsibilities	B	3	MC	1 of 1
24	14272	5	Social Studies	interstate highways	People in Societies & Geography	D	10	SA	1 of 2
25	12478	5	Social Studies	supreme court	Economics; Government; Citizen Rights & Responsibilities	A	1	MC	1 of 1
26	12051	5	Social Studies	Push and pull factors	People in Societies & Geography	B	3.	EA	2 of 4
27	12943	5	Social Studies	Freedom of movement	Economics; Government; Citizen Rights & Responsibilities	B	3	MC	1 of 1
28	13320	5	Social Studies	geography-sunshine	Social Studies Skills & Methods	C	8	MC	1 of 1
29	11530	5	Social Studies	Ohio festivals	People in Societies & Geography	A	2	MC	1 of 1
30	11609	5	Social Studies	St. Lawrence Seaway	People in Societies & Geography	D	8	MC	1 of 1
31	13953	5	Social	American Indians	People in Societies &	A	1	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
			Studies		Geography				
32	13916	5	Social Studies	Community Clean Up	Economics; Government; Citizen Rights & Responsibilities	A	1	EA	3 of 4
33	13672	5	Social Studies	hamburgers	Economics; Government; Citizen Rights & Responsibilities	C	6	MC	1 of 1
34	13802	5	Social Studies	railway telegraph	History	C	6	MC	1 of 1
35	14238	5	Social Studies	American Indian Tribes in Ohio	Social Studies Skills & Methods	B	5	SA	2 of 2
36	14246	5	Social Studies	Cotton Production	Social Studies Skills & Methods	C	8	SA	1 of 2
37	13872	5	Social Studies	Entrepreneurship	Economics; Government; Citizen Rights & Responsibilities	B	3	MC	1 of 1
38	11515	5	Social Studies	State's names	History	B	4	MC	1 of 1
39	12702	5	Social Studies	Railroad Expansion Item	History	C	6	MC	1 of 1
40	12556	5	Social Studies	history-city name	History	B	4	MC	1 of 1
41	13954	5	Social Studies	Battle of Fallen Timbers	History	B	3	MC	1 of 1
42	13916	5	Social Studies	Community Clean Up	Economics; Government; Citizen Rights & Responsibilities	A	1	EA	4 of 4
43	12051	5	Social Studies	Push and pull factors	People in Societies & Geography	B	3.	EA	3 of 4
44	14195	5	Social Studies	obeying laws	Economics; Government; Citizen Rights & Responsibilities	B	2	MC	1 of 1
45	14246	5	Social Studies	Cotton Production	Social Studies Skills & Methods	C	8	SA	2 of 2
46	12051	5	Social Studies	Push and pull factors	People in Societies & Geography	B	3.	EA	4 of 4
47	14359	5	Social	Constructing a Timeline	History	A	1	SA	2 of 2

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
			Studies						
48	14272	5	Social Studies	interstate highways	People in Societies & Geography	D	10	SA	2 of 2

Table F4. Ordered Item Book Map – Grade 8 Social Studies

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
1	10811	6	Social Studies	Pittsburgh map	People in Societies & Geography	C	5	MC	1 of 1
2	8103	6	Social Studies	Wheat Prices Graph-3S6	Social Studies Skills & Methods	B	4	MC	1 of 1
3	8950	7	Social Studies	Position based on multiple sources	Social Studies Skills & Methods	C	2	SA	1 of 2
4	8598	6	Social Studies	New England fishing	Economics; Government; Citizen Rights & Responsibilities	A	1	MC	1 of 1
5	8080	6	Social Studies	Diplomacy	Economics; Government; Citizen Rights & Responsibilities	A	3	MC	1 of 1
6	8950	7	Social Studies	Position based on multiple sources	Social Studies Skills & Methods	C	2	SA	2 of 2
7	8107	8	Social Studies	Federalist v. Anti-federalist - 3G8	History	F	6	MC	1 of 1
8	8948	6	Social Studies	Supporting a position with evidence	Social Studies Skills & Methods	C	6	MC	1 of 1
9	10812	8	Social Studies	Erie Canal	People in Societies & Geography	D	3	SA	1 of 2
10	8923	8	Social Studies	Different economies of North and South	Economics; Government; Citizen Rights & Responsibilities	A	1	MC	1 of 1
11	8607	8	Social Studies	Freedoms of Speech and Assembly	Economics; Government; Citizen Rights & Responsibilities	B	6	MC	1 of 1
12	7212	6	Social Studies	Civil War letter	Social Studies Skills & Methods	B	2	MC	1 of 1
13	9909	6	Social Studies	Monarchies	Economics; Government; Citizen Rights & Responsibilities	C	4	MC	1 of 1
14	8723	7	Social Studies	Christianity and the Roman Empire	History	B	2	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
15	10521	8	Social Studies	Information about Civil War strategy	Social Studies Skills & Methods	A	1	MC	1 of 1
16	10688	7	Social Studies	Citizenship--Magna Carta	Economics; Government; Citizen Rights & Responsibilities	B	2	MC	1 of 1
17	9928	7	Social Studies	Hammurabi's Code	Social Studies Skills & Methods	B	1	MC	1 of 1
18	8736	8	Social Studies	Leading a group discussion - 4S10	Social Studies Skills & Methods	D	4	SA	1 of 2
19	10425	6	Social Studies	Identify physical features of South America	People in Societies & Geography	B	4	MC	1 of 1
20	10661	6	Social Studies	Aztec religion and Cortes	History	D	5	MC	1 of 1
21	8064	8	Social Studies	party conventions	Economics; Government; Citizen Rights & Responsibilities	A	2	MC	1 of 1
22	7497	6	Social Studies	Hinduism	People in Societies & Geography	A	2	MC	1 of 1
23	9968	8	Social Studies	British Colonial Policies	History	E	3	EA	1 of 4
24	10502	6	Social Studies	Imports/exports and interdependency	Economics; Government; Citizen Rights & Responsibilities	B	4	EA	1 of 4
25	7125	8	Social Studies	Seneca Falls convention	People in Societies & Geography	B	5	MC	1
26	10812	8	Social Studies	Erie Canal	People in Societies & Geography	D	3	SA	2 of 2
27	9968	8	Social Studies	British Colonial Policies	History	E	3	EA	2 of 4
28	10001	7	Social Studies	Spread of Greek Culture	People in Societies & Geography	C	3	MC	1 of 1
29	10427	7	Social Studies	Identify the Aegean Sea	People in Societies & Geography	A	1	MC	1 of 1
30	7598	7	Social Studies	The spread of Islam	History	D	6	MC	1 of 1
31	9703	6	Social	Israel's Irrigation	People in Societies &	C	5	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
			Studies		Geography				
32	7599	6	Social Studies	Pull-factor Migration	People in Societies & Geography	D	8	MC	1 of 1
33	8766	6	Social Studies	Pacific Northwest Region	People in Societies & Geography	B	4	MC	1 of 1
34	8736	8	Social Studies	Leading a group discussion - 4S10	Social Studies Skills & Methods	D	4	SA	2 of 2
35	8612	7	Social Studies	Land Ownership and Feudalism	History	C	3	MC	1 of 1
36	7123	6	Social Studies	Crusaders' motives	People in Societies & Geography	B	3	MC	1 of 1
37	8225	7	Social Studies	Reformation Item	History	C	5	MC	1 of 1
38	10502	6	Social Studies	Imports/exports and interdependency	Economics; Government; Citizen Rights & Responsibilities	B	4	EA	2 of 4
39	9731	8	Social Studies	President Johnson and Reconstruction	History	G	11	MC	1
40	9968	8	Social Studies	British Colonial Policies	History	E	3	EA	3 of 4
41	9131	8	Social Studies	Creation of political parties	Economics; Government; Citizen Rights & Responsibilities	A	2	MC	1 of 1
42	8115	7	Social Studies	Arabic numbers -- 3P7	People in Societies & Geography	C	4	MC	1 of 1
43	8061	8	Social Studies	Committees of Correspondence	Economics; Government; Citizen Rights & Responsibilities	A	1	MC	1 of 1
44	9968	8	Social Studies	British Colonial Policies	History	E	3	EA	4 of 4
45	7837	6	Social Studies	History â€“ Mesopotamia	History	B	4	SA	1 of 2
46	10502	6	Social Studies	Imports/exports and interdependency	Economics; Government; Citizen Rights & Responsibilities	B	4	EA	3 of 4
47	7837	6	Social Studies	History â€“ Mesopotamia	History	B	4	SA	2 of 2

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
48	10502	6	Social Studies	Imports/exports and interdependency	Economics; Government; Citizen Rights & Responsibilities	B	4	EA	4 of 4

Table F5. Ordered Item Book Map – Grade 7 Writing

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
1	14226	7	Writing	Business LetterB	Writing Conventions	C	5	CR3	1 of 3
2	14240	7	Writing	Never Give Up2	Writing Conventions	C	5	CR3	1 of 3
3	14224	7	Writing	BusinessLetterA	Writing Applications	C	3	CR5	1 of 5
4	14239	7	Writing	Never Give Up1	Writing Applications	A	1	CR5	1 of 5
5	14240	7	Writing	Never Give Up2	Writing Conventions	C	5	CR3	2 of 3
6	14239	7	Writing	Never Give Up1	Writing Applications	A	1	CR5	2 of 5
7	14224	7	Writing	BusinessLetterA	Writing Applications	C	3	CR5	2 of 5
8	14226	7	Writing	Business LetterB	Writing Conventions	C	5	CR3	2 of 3
9	7757	7	Writing	Multiple Choice -- Thesaurus Rivalry	Writing Process	E	14	MC	1 of 1
10	9567	7	Writing	Multiple Choice -- Gardening	Writing Conventions	C	6	MC	1 of 1
11	7047	7	Writing	Multiple Choice -- Safe Water	Writing Process	B	4	MC	1 of 1
12	9638	7	Writing	Multiple Choice -- Sam and Ben	Writing Process	D	12	MC	1 of 1
13	10740	7	Writing	Multiple Choice -- Julie	Writing Conventions	C	5	MC	1 of 1
14	9771	7	Writing	Multiple Choice -- Cinnamon	Writing Process	C	5	MC	1 of 1
15	7349	7	Writing	Multiple Choice -- Egypt	Writing Process	C	5	MC	1 of 1
16	6807	7	Writing	Multiple Choice -- Morph	Writing Process	F	15	MC	1 of 1
17	14239	7	Writing	Never Give Up1	Writing Applications	A	1	CR5	3 of 5
18	10725	7	Writing	Multiple Choice -- The Smiths	Writing Conventions	B	2	MC	1 of 1
19	10736	7	Writing	Multiple Choice -- Lunch Break	Writing Conventions	C	5	MC	1 of 1
20	3040	7	Writing	Multiple Choice -- Promoting Peace	Writing Process	D	13	MC	1 of 1

Page Number	ITS ID	Grade	Subject	Description	Standard	Benchmark	Indicator	Item Format	Point Value
21	8632	7	Writing	Multiple Choice -- Writing Tools; Painting	Writing Process	G	16	MC	1 of 1
22	14224	7	Writing	BusinessLetterA	Writing Applications	C	3	CR5	3 of 5
23	9031	7	Writing	combining 6	Writing Process	D	7	MC	1 of 1
24	14226	7	Writing	Business LetterB	Writing Conventions	C	5	CR3	3 of 3
25	7244	7	Writing	mbf 3 of 20	Writing Process	A	3	MC	1 of 1
26	14240	7	Writing	Never Give Up2	Writing Conventions	C	5	CR3	3 of 3
27	14239	7	Writing	Never Give Up1	Writing Applications	A	1	CR5	4 of 5
28	10790	7	Writing	Multiple Choice -- Ohio's Population	Writing Conventions	B	3	MC	1 of 1
29	14224	7	Writing	BusinessLetterA	Writing Applications	C	3	CR5	4 of 5
30	14239	7	Writing	Never Give Up1	Writing Applications	A	1	CR5	5 of 5
31	14224	7	Writing	BusinessLetterA	Writing Applications	C	3	CR5	5 of 5

APPENDIX G

Bookmark Placement Sheet

Table G1. Bookmark Placement Sheet

Standard Setting Workshop
Ohio Achievement Test
August 7-9, 2006

Bookmark Placement Sheet

Sub-panel:_____

Grade:_____

ID#:_____

	Round 1		Round 2	
Performance Level	**Bookmark placed on page no.**	**Initials**	**Bookmark placed on page no.**	**Initials**
Proficient				
Basic				
Advanced				
Accelerated				

APPENDIX H

Impact Feedback Sheets

Table H1. Impact Feedback Sheet – Grade 5 Science

RP50 Impact Data: Estimated Percent of Students at and Above Each Potential Performance Standard in Ordered Item Booklet Science Grade 5 August 2006 Standard Setting							
Ordered Item Booklet Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial
1	98.39	98.30	98.45	99.18	95.20	96.39	98.05
2	98.20	98.10	98.28	99.09	94.62	95.96	97.83
3	97.48	97.32	97.58	98.74	92.39	94.19	96.97
4	97.11	96.93	97.24	98.56	91.28	93.27	96.52
5	92.70	92.16	93.05	96.16	79.18	83.28	90.85
6	92.67	92.13	93.02	96.15	79.10	83.22	90.81
7	91.68	91.07	92.06	95.54	76.60	81.38	89.54
8	91.52	90.90	91.90	95.44	76.21	81.11	89.34
9	90.87	90.21	91.27	95.02	74.65	80.04	88.52
10	90.54	89.86	90.94	94.81	73.86	79.50	88.11
11	90.37	89.69	90.79	94.70	73.47	79.23	87.91
12	89.50	88.78	89.93	94.12	71.44	77.87	86.84
13	87.81	87.02	88.25	92.96	67.64	75.39	84.78
14	87.81	87.02	88.25	92.96	67.64	75.39	84.78
15	85.48	84.66	85.89	91.27	62.74	72.22	82.03
16	83.24	82.42	83.59	89.55	58.31	69.29	79.42
17	78.87	78.17	79.04	86.02	50.46	63.83	74.51
18	78.60	77.90	78.75	85.79	49.98	63.49	74.20
19	74.27	73.76	74.19	82.03	43.16	58.40	69.52
20	73.30	72.83	73.16	81.15	41.70	57.28	68.49
21	73.23	72.77	73.09	81.10	41.60	57.21	68.41
22	69.15	68.88	68.78	77.33	35.97	52.69	64.18
23	68.78	68.53	68.40	76.97	35.51	52.29	63.81
24	68.05	67.82	67.62	76.27	34.59	51.50	63.06
25	67.64	67.43	67.19	75.87	34.08	51.06	62.65
26	64.66	64.57	64.06	72.98	30.53	47.92	59.68
27	61.92	61.94	61.19	70.25	27.52	45.06	57.00
28	60.03	60.11	59.22	68.32	25.64	43.11	55.18
29	54.91	55.13	53.92	63.01	21.00	37.86	50.35
30	54.90	55.13	53.91	63.01	20.99	37.85	50.34
31	54.49	54.72	53.48	62.57	20.64	37.42	49.95
32	53.20	53.46	52.16	61.19	19.66	36.11	48.77
33	47.15	47.51	45.99	54.67	15.36	29.94	43.25
34	46.49	46.85	45.32	53.95	14.92	29.27	42.66
35	43.25	43.64	42.05	50.38	13.00	26.03	39.74

36	40.67	41.09	39.46	47.52	11.59	23.49	37.43
37	37.28	37.71	36.06	43.73	9.86	20.21	34.38
38	36.83	37.27	35.61	43.23	9.66	19.80	33.98
39	33.00	33.46	31.79	38.90	7.94	16.26	30.51
40	31.59	32.06	30.39	37.29	7.37	15.02	29.22
41	28.12	28.63	26.96	33.33	6.04	12.07	26.04
42	28.06	28.57	26.90	33.26	6.02	12.02	25.99
43	24.16	24.70	23.04	28.75	4.72	8.95	22.37
44	24.16	24.70	23.04	28.75	4.72	8.95	22.37
45	14.14	14.81	13.16	16.97	2.23	2.73	12.96
46	6.37	7.08	5.57	7.64	0.98	0.35	5.86
47	2.65	3.19	2.12	3.18	0.44	0.04	2.56
48	2.59	3.13	2.07	3.11	0.43	0.04	2.51

Table H2. Impact Feedback Sheet – Grade 8 Science

RP50 Impact Data: Estimated Percent of Students at and Above Each Potential Performance Standard in Ordered Item Booklet Science Grade 8 August 2006 Standard Setting							
Ordered Item Booklet Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial
1	98.26	97.94	98.60	99.08	95.01	97.21	98.80
2	97.89	97.52	98.28	98.86	94.08	96.44	98.55
3	97.39	96.95	97.85	98.57	92.84	95.39	98.20
4	91.87	90.88	92.93	95.15	79.82	84.99	94.18
5	91.53	90.51	92.62	94.92	79.04	84.42	93.91
6	91.35	90.32	92.46	94.81	78.65	84.13	93.78
7	89.05	87.89	90.30	93.27	73.58	80.50	91.85
8	85.73	84.46	87.11	90.94	66.56	75.71	88.80
9	76.10	74.93	77.38	83.54	48.42	63.60	78.54
10	75.74	74.59	77.01	83.25	47.81	63.18	78.14
11	74.55	73.44	75.76	82.27	45.80	61.76	76.77
12	72.26	71.29	73.33	80.31	42.22	59.08	74.08
13	71.94	70.98	72.99	80.04	41.70	58.69	73.69
14	69.90	69.08	70.80	78.24	38.74	56.34	71.25
15	68.87	68.13	69.68	77.31	37.28	55.16	70.00
16	68.87	68.13	69.68	77.31	37.28	55.16	70.00
17	67.48	66.84	68.17	76.05	35.36	53.57	68.31
18	66.76	66.18	67.38	75.38	34.46	52.76	67.42
19	61.96	61.82	62.12	70.82	28.76	47.50	61.52
20	59.28	59.39	59.16	68.17	25.95	44.67	58.22
21	58.89	59.04	58.73	67.78	25.57	44.26	57.75
22	57.71	57.99	57.44	66.60	24.42	43.05	56.31
23	52.90	53.67	52.16	61.65	20.22	38.24	50.57
24	50.82	51.79	49.90	59.45	18.64	36.25	48.17
25	49.21	50.34	48.14	57.74	17.44	34.71	46.32
26	45.07	46.57	43.69	53.25	14.72	30.93	41.77
27	41.76	43.53	40.17	49.60	12.77	28.02	38.25
28	39.70	41.62	38.02	47.31	11.67	26.29	36.13
29	38.51	40.50	36.76	45.97	11.04	25.29	34.90
30	36.58	38.68	34.75	43.78	10.12	23.74	32.95
31	34.47	36.68	32.57	41.37	9.14	22.07	30.82
32	30.97	33.32	28.99	37.35	7.66	19.41	27.34
33	28.75	31.15	26.72	34.77	6.78	17.77	25.14
34	26.90	29.32	24.86	32.60	6.12	16.45	23.32

35	26.33	28.76	24.29	31.93	5.91	16.05	22.75
36	24.79	27.22	22.74	30.12	5.38	14.97	21.24
37	21.15	23.53	19.13	25.80	4.23	12.49	17.68
38	18.70	21.01	16.74	22.87	3.54	10.87	15.32
39	18.25	20.54	16.30	22.32	3.41	10.57	14.88
40	17.83	20.11	15.90	21.82	3.30	10.30	14.48
41	16.18	18.37	14.31	19.83	2.88	9.23	12.89
42	14.83	16.95	13.02	18.19	2.56	8.37	11.60
43	14.79	16.90	12.98	18.14	2.55	8.34	11.56
44	9.60	11.29	8.14	11.82	1.48	5.11	6.72
45	9.50	11.17	8.04	11.69	1.46	5.04	6.62
46	4.58	5.62	3.66	5.67	0.61	2.08	2.46
47	2.75	3.47	2.11	3.42	0.32	1.09	1.21
48	2.54	3.21	1.94	3.16	0.29	0.99	1.09

Table H3. Impact Feedback Sheet – Grade 5 Social Studies

RP50 Impact Data: Estimated Percent of Students at and Above Each Potential Performance Standard in Ordered Item Booklet Social Studies Grade 5 August 2006 Standard Setting							
Ordered Item Booklet Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial
1	96.57	96.26	96.81	97.75	91.16	92.58	97.26
2	96.12	95.78	96.39	97.45	90.02	91.74	96.78
3	96.03	95.68	96.31	97.40	89.79	91.57	96.68
4	94.53	94.08	94.90	96.40	86.14	88.92	94.99
5	93.00	92.44	93.46	95.34	82.61	86.34	93.23
6	92.14	91.54	92.65	94.74	80.71	84.93	92.24
7	91.42	90.77	91.97	94.21	79.16	83.74	91.40
8	90.97	90.30	91.55	93.89	78.21	83.02	90.88
9	90.69	90.00	91.28	93.69	77.61	82.56	90.55
10	89.25	88.49	89.92	92.62	74.71	80.25	88.88
11	83.36	82.44	84.27	88.01	63.97	70.95	81.99
12	81.03	80.09	81.98	86.08	60.15	67.32	79.24
13	80.42	79.49	81.38	85.58	59.21	66.39	78.52
14	80.42	79.49	81.38	85.58	59.21	66.39	78.52
15	77.37	76.48	78.34	82.97	54.60	61.76	74.93
16	73.25	72.47	74.18	79.35	48.89	55.74	70.13
17	71.28	70.57	72.17	77.58	46.29	52.94	67.84
18	70.44	69.76	71.31	76.80	45.26	51.81	66.88
19	70.19	69.53	71.06	76.58	44.96	51.48	66.60
20	66.14	65.65	66.89	72.80	40.16	46.16	62.02
21	54.40	54.38	54.76	61.23	28.37	32.95	49.26
22	50.93	51.03	51.19	57.66	25.45	29.69	45.63
23	50.43	50.55	50.68	57.14	25.04	29.23	45.11
24	50.10	50.23	50.34	56.80	24.76	28.92	44.77
25	46.45	46.67	46.59	52.96	21.94	25.80	40.98
26	41.09	41.42	41.10	47.23	18.08	21.57	35.44
27	40.52	40.86	40.52	46.62	17.70	21.16	34.85
28	40.03	40.38	40.03	46.09	17.38	20.82	34.34
29	38.10	38.48	38.06	44.00	16.12	19.45	32.34
30	35.26	35.67	35.17	40.89	14.31	17.51	29.38
31	34.79	35.21	34.70	40.38	14.03	17.20	28.89
32	33.58	34.00	33.47	39.05	13.29	16.41	27.62
33	31.59	32.03	31.45	36.85	12.10	15.13	25.54
34	30.71	31.15	30.56	35.88	11.60	14.59	24.61

35	25.83	26.28	25.64	30.44	8.90	11.66	19.49
36	23.84	24.29	23.63	28.20	7.86	10.51	17.42
37	23.31	23.76	23.10	27.60	7.60	10.22	16.87
38	21.45	21.89	21.23	25.49	6.68	9.17	14.96
39	20.73	21.17	20.51	24.68	6.34	8.77	14.23
40	13.97	14.33	13.78	16.90	3.47	5.21	7.88
41	13.68	14.03	13.48	16.55	3.36	5.07	7.63
42	12.57	12.92	12.39	15.26	2.95	4.52	6.71
43	9.76	10.06	9.60	11.94	2.03	3.20	4.62
44	6.71	6.96	6.58	8.28	1.19	1.90	2.81
45	4.23	4.45	4.12	5.27	0.62	0.98	1.63
46	3.63	3.83	3.52	4.53	0.50	0.77	1.37
47	2.13	2.30	2.02	2.68	0.23	0.33	0.77
48	1.81	1.97	1.70	2.28	0.18	0.24	0.64

Table H4. Impact Feedback Sheet – Grade 8 Social Studies

RP50 Impact Data: Estimated Percent of Students at and Above Each Potential Performance Standard in Ordered Item Booklet Social Studies Grade 8 August 2006 Standard Setting							
Ordered Item Booklet Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial
1	97.23	96.90	97.76	98.30	92.85	97.57	98.29
2	96.71	96.32	97.32	97.95	91.66	97.02	97.88
3	96.49	96.08	97.13	97.80	91.16	96.78	97.71
4	89.94	89.11	91.15	92.98	77.68	89.11	91.73
5	88.44	87.59	89.69	91.80	74.88	87.20	90.25
6	85.67	84.81	86.93	89.58	69.89	83.50	87.48
7	83.74	82.91	84.98	88.01	66.54	80.84	85.55
8	83.74	82.91	84.98	88.01	66.54	80.84	85.55
9	83.16	82.34	84.39	87.53	65.58	80.00	84.98
10	80.52	79.74	81.68	85.31	61.23	76.14	82.34
11	78.26	77.54	79.33	83.36	57.71	72.71	80.09
12	77.93	77.22	78.99	83.08	57.21	72.22	79.77
13	76.61	75.94	77.62	81.94	55.18	70.19	78.46
14	76.25	75.59	77.25	81.62	54.67	69.64	78.11
15	70.79	70.32	71.51	76.74	46.94	61.12	72.68
16	70.03	69.59	70.72	76.05	45.91	59.93	71.93
17	69.27	68.86	69.91	75.35	44.88	58.74	71.16
18	67.32	66.99	67.84	73.54	42.41	55.72	69.19
19	64.84	64.63	65.22	71.22	39.34	51.94	66.67
20	62.76	62.65	63.00	69.23	36.91	48.83	64.51
21	58.50	58.61	58.47	65.09	32.24	42.72	60.01
22	56.33	56.56	56.17	62.95	30.03	39.77	57.67
23	55.78	56.04	55.59	62.40	29.50	39.05	57.06
24	46.48	47.16	45.79	52.86	21.33	28.05	46.66
25	43.62	44.40	42.81	49.83	19.17	25.18	43.43
26	39.32	40.20	38.41	45.22	16.21	21.30	38.67
27	37.19	38.10	36.23	42.90	14.83	19.51	36.34
28	35.97	36.88	35.00	41.55	14.10	18.57	35.04
29	35.97	36.88	35.00	41.55	14.10	18.57	35.04
30	35.14	36.05	34.17	40.64	13.60	17.93	34.17
31	31.52	32.43	30.54	36.63	11.55	15.27	30.45
32	30.33	31.23	29.35	35.30	10.90	14.43	29.25
33	28.44	29.31	27.48	33.18	9.94	13.15	27.42
34	26.88	27.74	25.95	31.43	9.15	12.11	25.92

35	23.73	24.52	22.85	27.85	7.66	10.09	22.96
36	22.74	23.50	21.89	26.71	7.23	9.49	22.05
37	21.08	21.81	20.27	24.82	6.50	8.48	20.53
38	17.65	18.29	16.95	20.88	5.09	6.48	17.35
39	16.90	17.51	16.22	20.00	4.80	6.07	16.64
40	16.79	17.39	16.11	19.87	4.75	6.01	16.54
41	15.00	15.56	14.39	17.80	4.07	5.05	14.84
42	13.26	13.76	12.70	15.77	3.44	4.16	13.15
43	12.57	13.05	12.04	14.97	3.20	3.83	12.47
44	8.45	8.83	8.06	10.14	1.85	2.05	8.30
45	7.73	8.09	7.36	9.29	1.64	1.79	7.56
46	5.83	6.15	5.52	7.04	1.11	1.15	5.61
47	3.90	4.16	3.66	4.73	0.64	0.61	3.67
48	1.91	2.06	1.78	2.33	0.24	0.19	1.69

Table H5. Impact Feedback Sheet – Grade 7 Writing

RP50 Impact Data:
Estimated Percent of Students at and Above Each Potential Performance Standard in Ordered Item Booklet
Writing Grade 7 August 2006 Standard Setting

Ordered Item Booklet Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial
1	99.94	99.93	99.97	99.97	99.82	100.00	100.00
2	99.89	99.83	99.96	99.94	99.65	99.99	99.96
3	99.84	99.75	99.93	99.92	99.51	99.97	99.90
4	99.03	98.55	99.54	99.45	97.49	99.43	99.27
5	98.16	97.32	99.07	98.88	95.50	98.45	98.38
6	97.17	95.97	98.48	98.22	93.33	97.22	97.22
7	95.23	93.38	97.25	96.87	89.25	94.76	94.90
8	92.28	89.50	95.32	94.71	83.54	90.98	91.52
9	92.02	89.16	95.14	94.51	83.06	90.63	91.24
10	90.91	87.71	94.40	93.66	81.06	89.15	90.02
11	84.90	80.00	90.24	88.79	71.24	80.81	83.94
12	83.85	78.70	89.49	87.91	69.67	79.34	82.94
13	82.62	77.16	88.59	86.87	67.83	77.60	81.76
14	79.10	72.87	85.90	83.80	62.84	72.70	78.51
15	78.20	71.81	85.18	83.00	61.64	71.49	77.69
16	77.12	70.53	84.32	82.04	60.20	70.03	76.71
17	74.61	67.59	82.28	79.78	56.92	66.68	74.42
18	68.43	60.61	76.98	74.04	49.39	58.89	68.77
19	65.71	57.61	74.55	71.45	46.26	55.62	66.24
20	63.71	55.45	72.72	69.52	44.08	53.31	64.36
21	55.06	46.36	64.52	60.98	35.21	43.84	56.06
22	52.73	43.99	62.23	58.62	33.02	41.44	53.78
23	40.24	31.74	49.46	45.66	22.28	29.05	41.23
24	35.22	27.06	44.07	40.30	18.48	24.29	36.00
25	32.46	24.53	41.06	37.33	16.46	21.70	33.09
26	30.78	23.05	39.17	35.49	15.35	20.19	31.27
27	19.55	13.52	26.12	23.00	8.50	10.75	18.74
28	8.56	5.20	12.24	10.33	3.11	3.69	6.69
29	2.93	1.55	4.46	3.63	0.86	1.25	2.16
30	2.16	1.11	3.32	2.69	0.58	0.99	1.65
31	0.26	0.14	0.41	0.33	0.02	0.25	0.26

APPENDIX I

Bookmark Placements By Table

Table I1. Bookmark Placements by Table – Grade 5 Science – Round 1

	Grade 5 Science – Round 1											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	7	6	9	32.5	27	35	41	39	41	46	44	47
Table 2	9	8	9	14	8	21	37	35	44	46	39	47
Table 3	7	6	7	27	27	43	40	40	44	45	45	47
Table 4	7	6	7	20	19	30	42	39	43	45.5	44	47
Room	7	6	9	27	8	43	40	35	44	46	39	47

Table I2. Bookmark Placements by Table – Grade 5 Science – Round 2

	Grade 5 Science – Round 2											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	14	13	14	29	26	29	40.5	40	41	46	45	46
Table 2	10	10	14	32	32	35	39.5	37	44	46.5	45	47
Table 3	7	7	9	31	28	34	40	40	43	45	45	47
Table 4	11.5	8	15	27.5	24	34	42	40	42	45.5	44	47
Room	10	7	15	30	24	35	40	37	44	46	44	47

Table I3. Bookmark Placements by Table – Grade 8 Science – Round 1

	Grade 8 Science – Round 1											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	6	5	7	24	23	25	38	38	38	44	44	44
Table 2	5.5	5	7	18	15	32	30	27	31	42	41	42
Table 3	6	6	10	23.5	16	26	29.5	28	30	40.5	38	45
Table 4	7	6	8	22	21	24	38	38	39	43	42	44
Room	6	5	10	23	15	32	31	27	39	42.5	38	45

Table I4. Bookmark Placements by Table – Grade 8 Science – Round 2

	Grade 8 Science – Round 2											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	6	6	7	24	22	24	38	38	38	44	44	44
Table 2	6	5	7	17	15	18	32	30	35	42.5	42	44
Table 3	6	6	6	22	21	24	35.5	30	36	43	42	44
Table 4	6	6	7	18	18	24	38	38	38	44	44	44
Room	6	5	7	21	15	24	36	30	38	44	42	44

Table I5. Bookmark Placements by Table – Grade 5 Social Studies – Round 1

	Grade 5 Social Studies – Round 1											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	8	8	10	28	25	29	36	36	39	44	43	44
Table 2	11	10	12	23.5	12	28	33.5	32	36	44	39	45
Table 3	10	5	14	16	12	20	36	33	38	45	43	45
Table 4	10	10	13	23	19	27	33	31	34	40	39	46
Room	10	5	14	23.5	12	29	34.5	31	39	44	39	46

Table I6. Bookmark Placements by Table – Grade 5 Social Studies – Round 2

	Grade 5 Social Studies – Round 2											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	10	8	10	27	23	28	36	36	38	44	43	44
Table 2	11.5	10	12	25	20	26	36	32	38	44	44	44
Table 3	11	9	11	24	19	26	36	33	37	45	45	45
Table 4	10	10	11	23	20	25	34	33	45	45	43	46
Room	10	8	12	25	19	28	36	32	45	44	43	46

Table I7. Bookmark Placements by Table – Grade 8 Social Studies – Round 1

	Grade 8 Social Studies – Round 1											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	15.00	10	18	16.00	10	19	39.00	38	40	44.00	43	45
Table 2	6.00	5	9	34.50	29	36	37.50	34	40	43.50	43	44
Table 3	7.50	5	11	11.00	9	13	38.50	34	40	42.50	40	44
Table 4	5.00	4	11	15.00	12	25	37.00	36	38	44.00	43	45
Room	8.00	4	18	16.00	9	36	38.00	34	40	44.00	40	45

Table I8. Bookmark Placements by Table – Grade 8 Social Studies – Round 2

	Grade 8 Social Studies – Round 2											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	10.00	8	11	26.00	25	39	39.00	38	40	43.00	43	44
Table 2	9.00	9	9	24.00	21	34	38.00	38	38	44.00	44	44
Table 3	6.50	5	8	26.50	20	30	37.50	37	39	43.00	41	44
Table 4	9.00	9	9	24.00	18	40	38.00	37	38	45.00	44	45
Room	9.00	5	11	25.50	18	40	38.00	37	40	44.00	41	45

Table I9. Bookmark Placements by Table – Grade 7 Writing – Round 1

	Grade 7 Writing – Round 1											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	5	4	6	17	16	19	26	23	27	28	26	30
Table 2	4	4	4	19	19	26	23	22	23	30	29	30
Table 3	5	4	8	15	9	19	23	20	26	28	26	30
Table 4	7	6	8	19	9	23	26	25	28	30	30	30
Room	5	4	8	18.5	9	26	24	20	28	30	26	30

Table I10. Bookmark Placements by Table – Grade 7 Writing – Round 2

	Grade 7 Writing – Round 2											
	Basic			Proficient			Accelerated			Advanced		
	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High
Table 1	5	5	5	17	16	17	26	24	27	29	27	30
Table 2	4.5	4	5	17	17	18	23	23	23	30	30	30
Table 3	5	4	10	16	13	18	24	22	26	30	27	30
Table 4	6	5	8	20.5	19	22	26	25	28	29.5	29	30
Room	5	4	10	17	13	22	24.5	22	28	30	27	30

APPENDIX J

Bookmark Placements Following Moderation

APPENDIX K

Table Convergence Across Rounds

Table K1. Table Convergence Across Rounds – Grade 5 Science - Basic

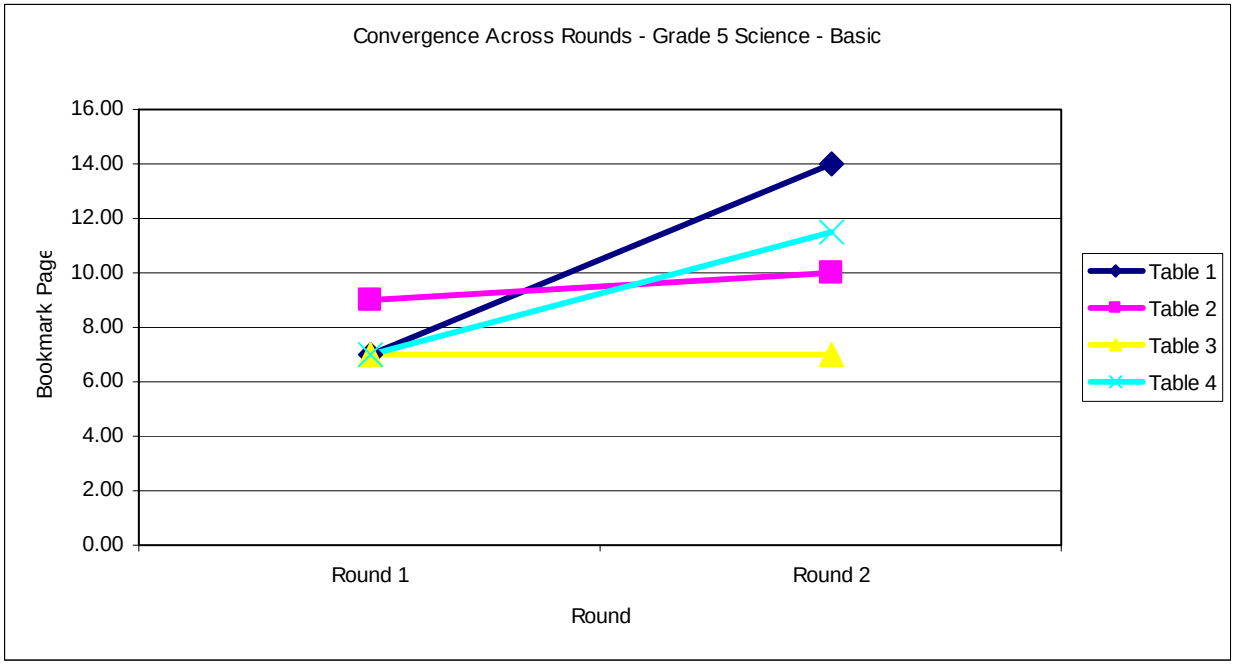


Table K2. Table Convergence Across Rounds – Grade 5 Science - Proficient

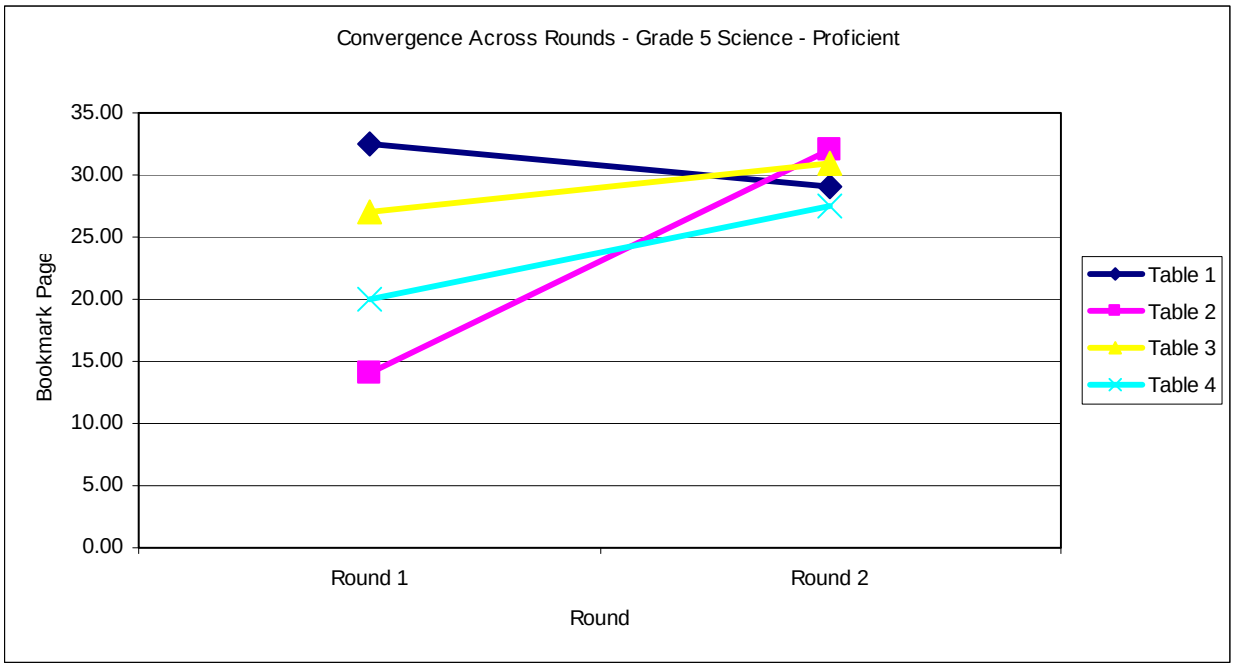


Table K3. Table Convergence Across Rounds – Grade 5 Science - Accelerated

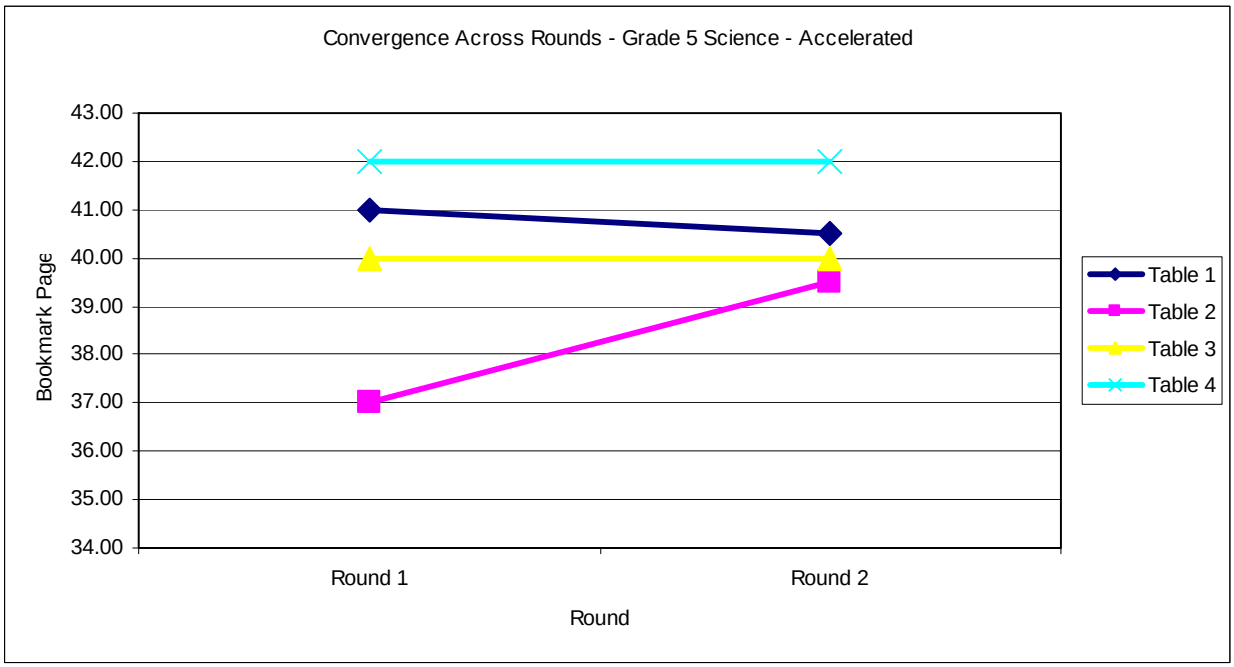


Table K4. Table Convergence Across Rounds – Grade 5 Science - Advanced

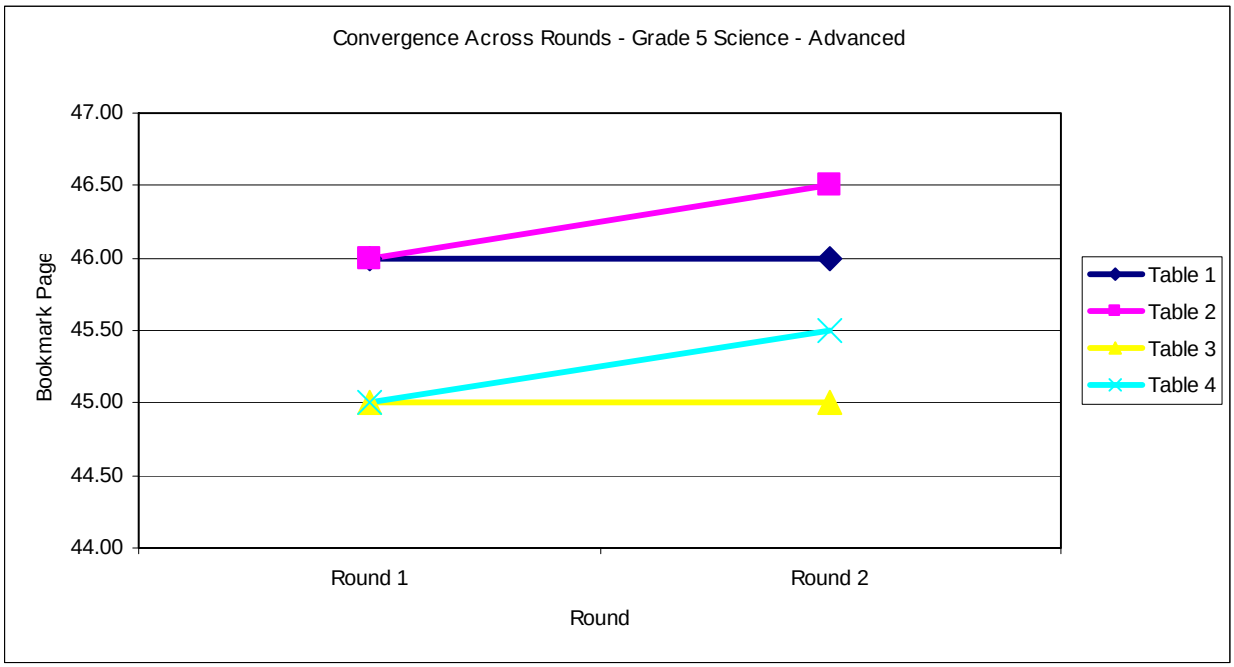


Table K5. Table Convergence Across Rounds – Grade 8 Science – Basic

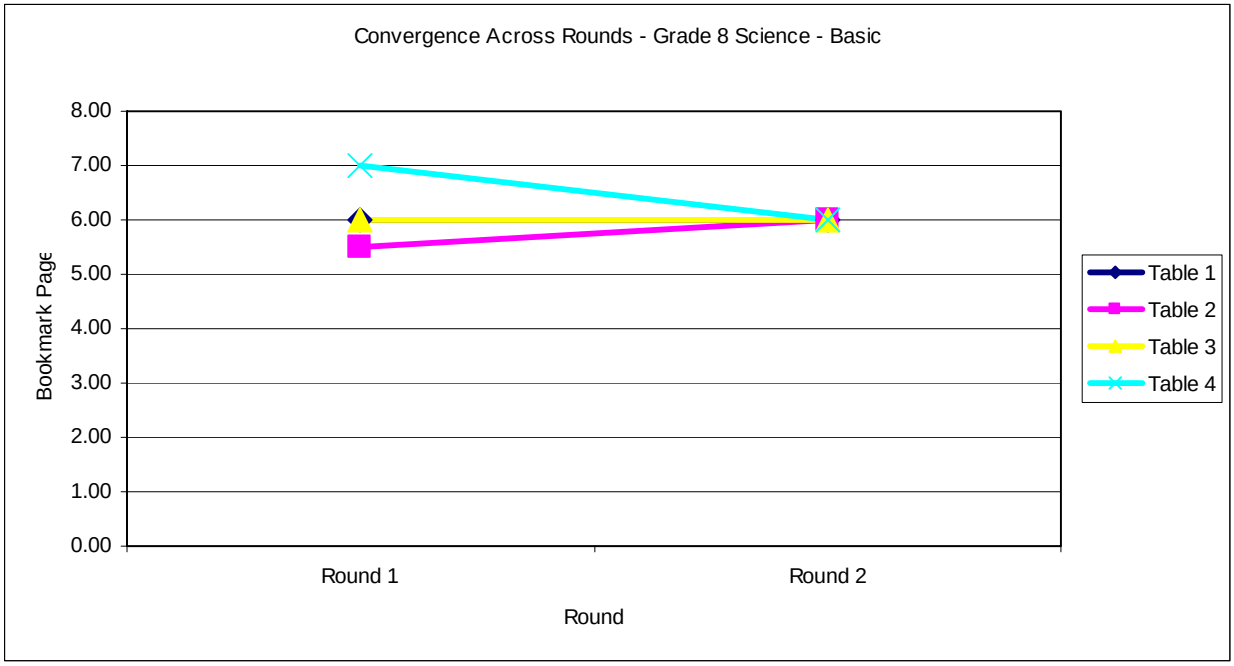


Table K6. Table Convergence Across Rounds – Grade 8 Science – Proficient

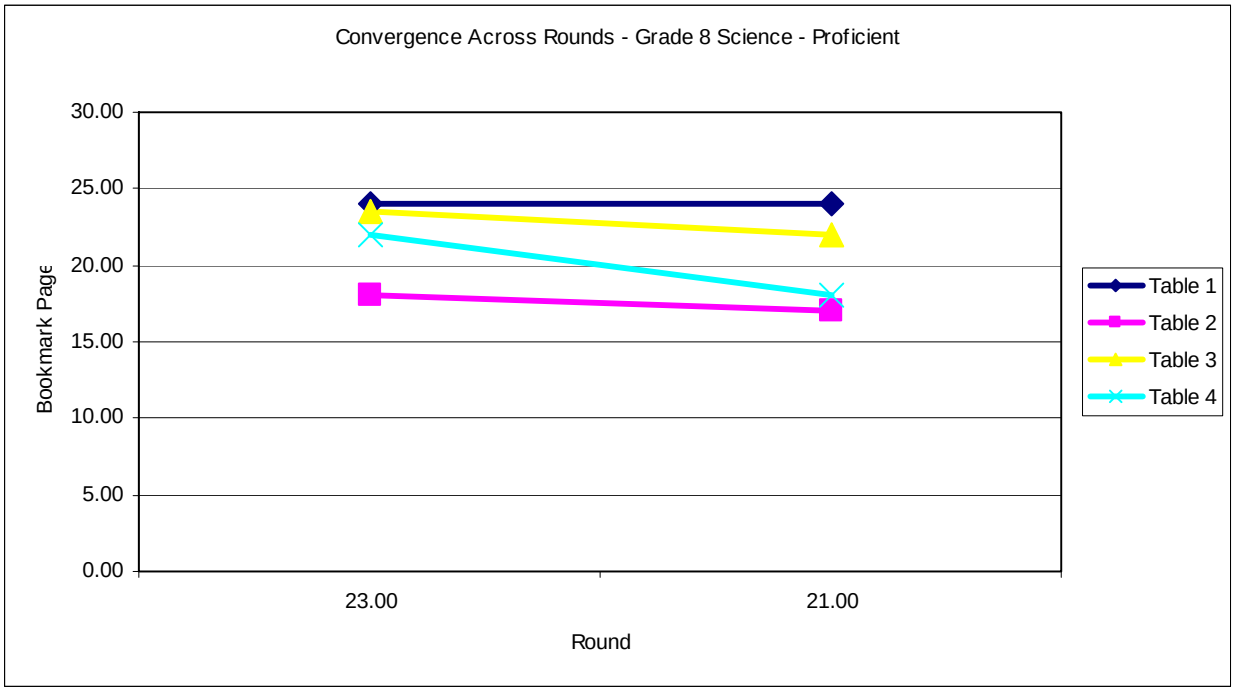


Table K7. Table Convergence Across Rounds – Grade 8 Science – Accelerated

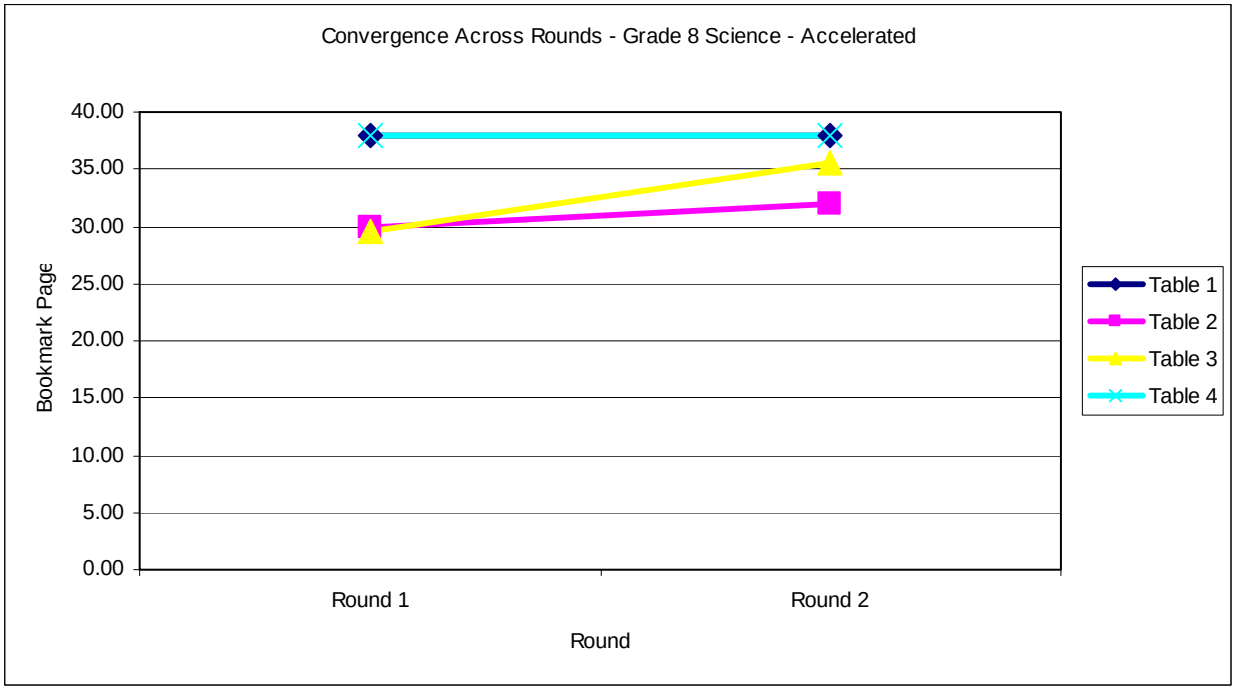


Table K8. Table Convergence Across Rounds – Grade 8 Science – Advanced

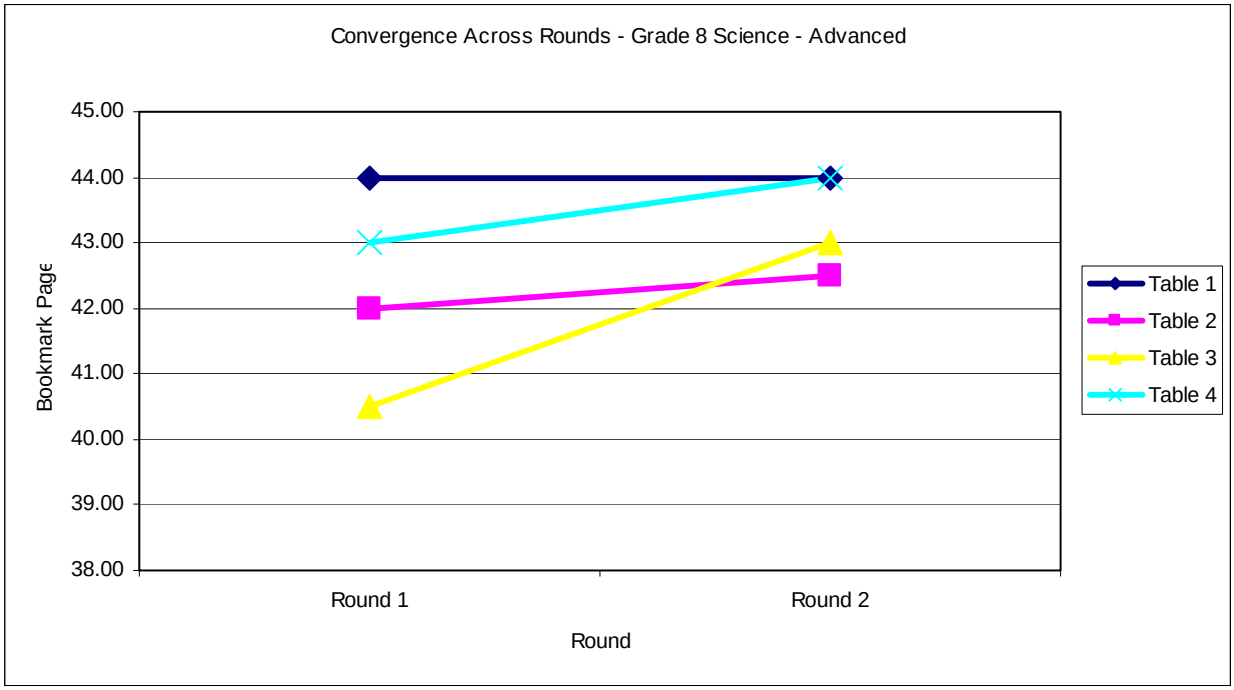


Table K9. Table Convergence Across Rounds – Grade 5 Social Studies – Basic

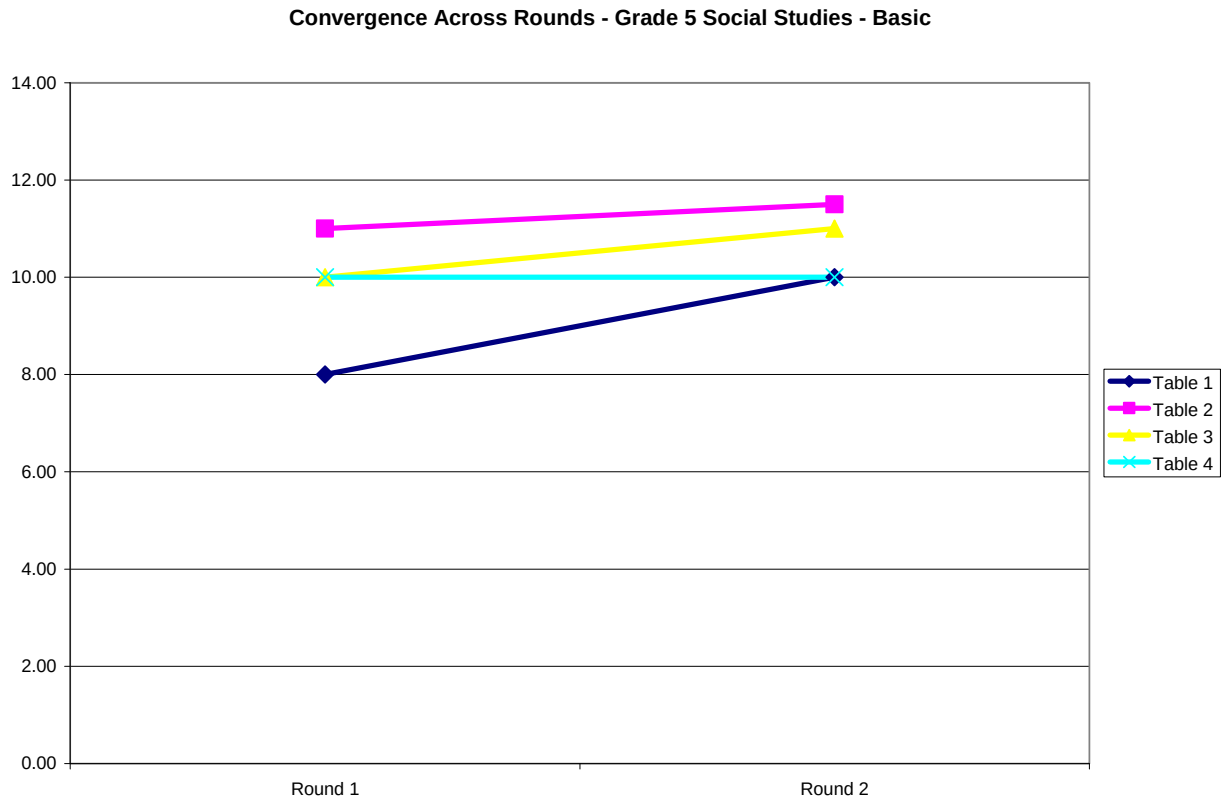


Table K10. Table Convergence Across Rounds – Grade 5 Social Studies – Proficient

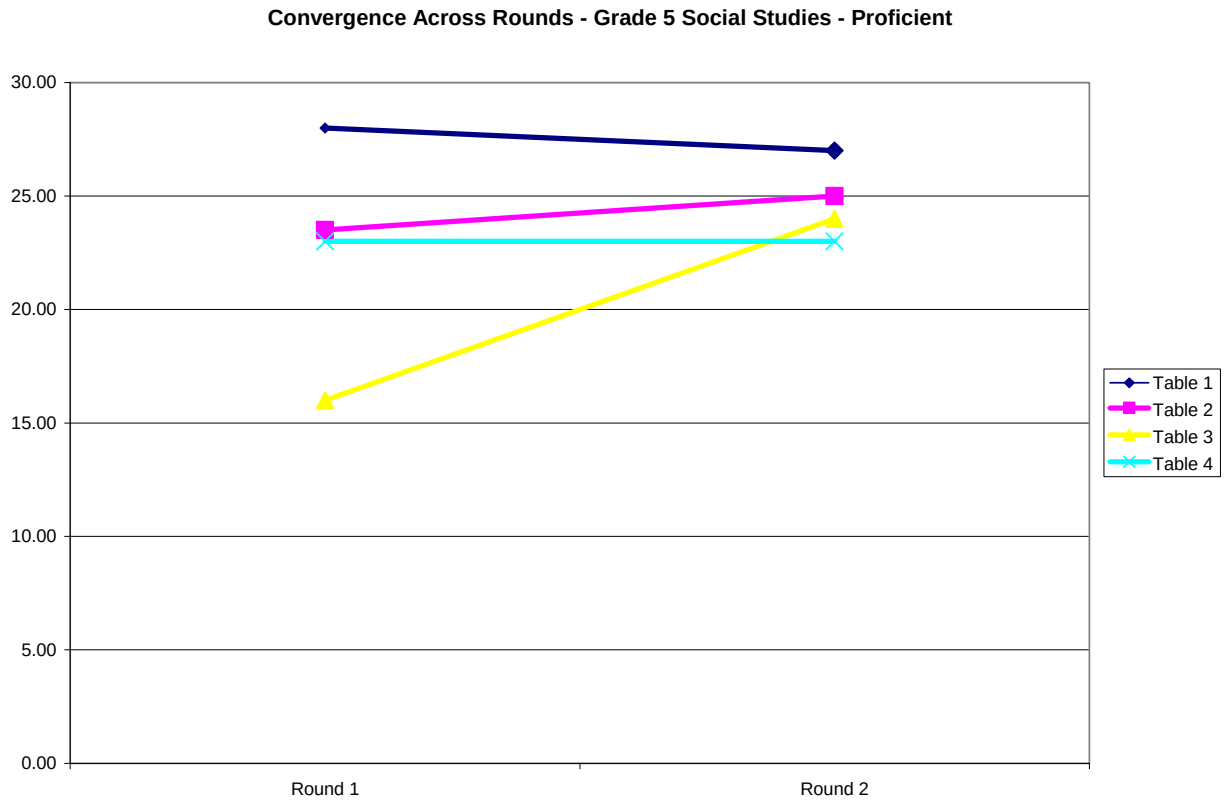


Table K11. Table Convergence Across Rounds – Grade 5 Social Studies – Accelerated

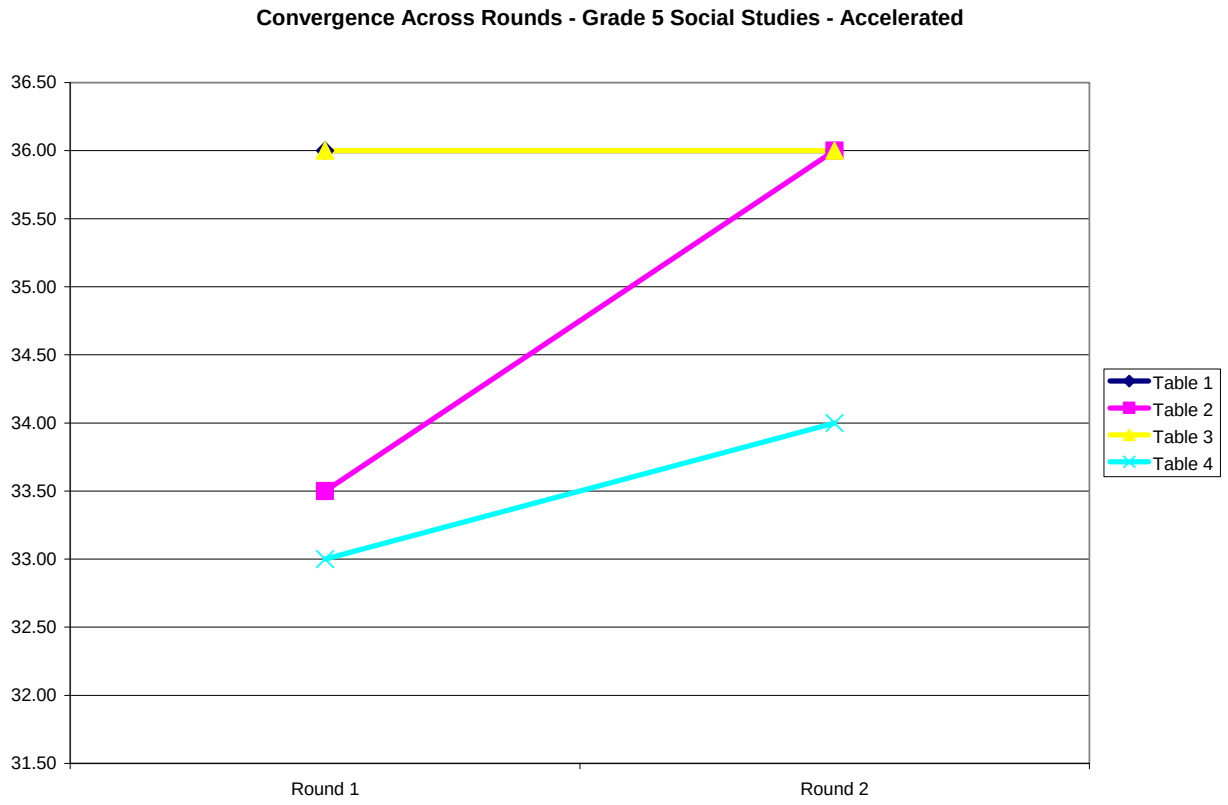


Table K12. Table Convergence Across Rounds – Grade 5 Social Studies – Advanced

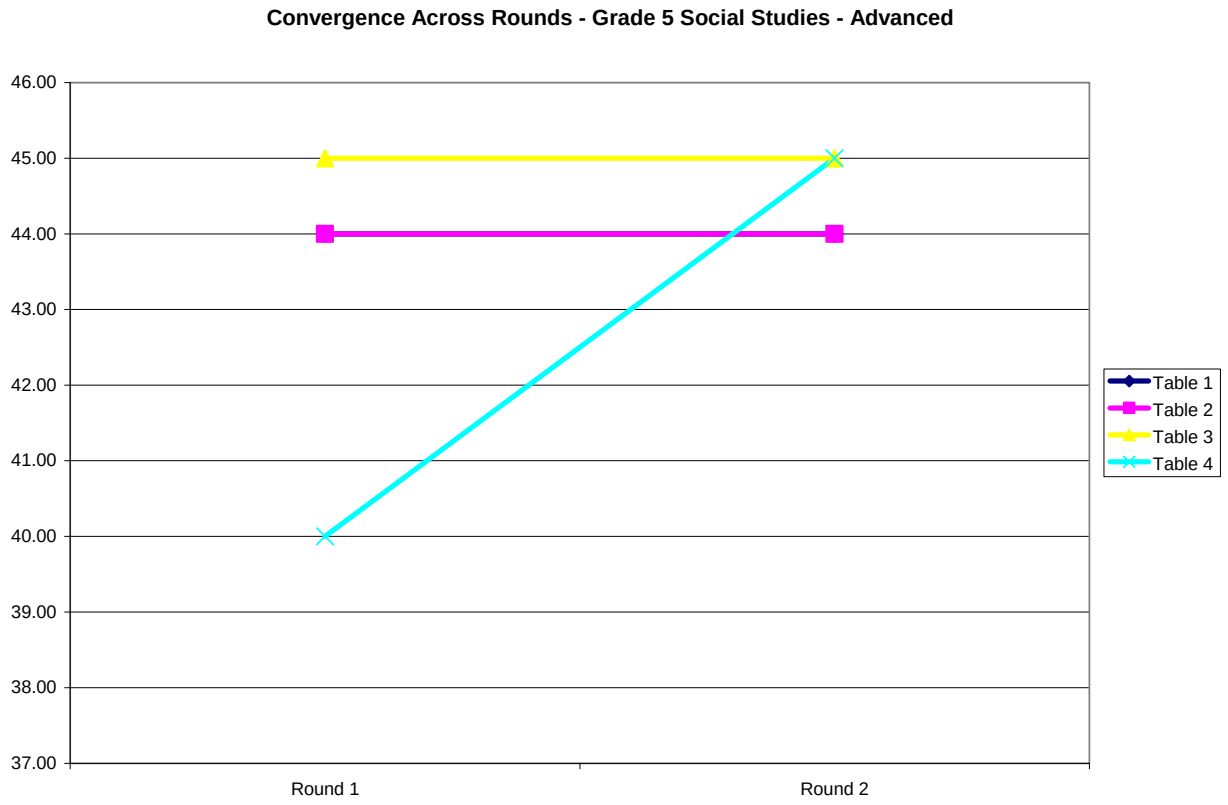


Table K13. Table Convergence Across Rounds – Grade 8 Social Studies – Basic

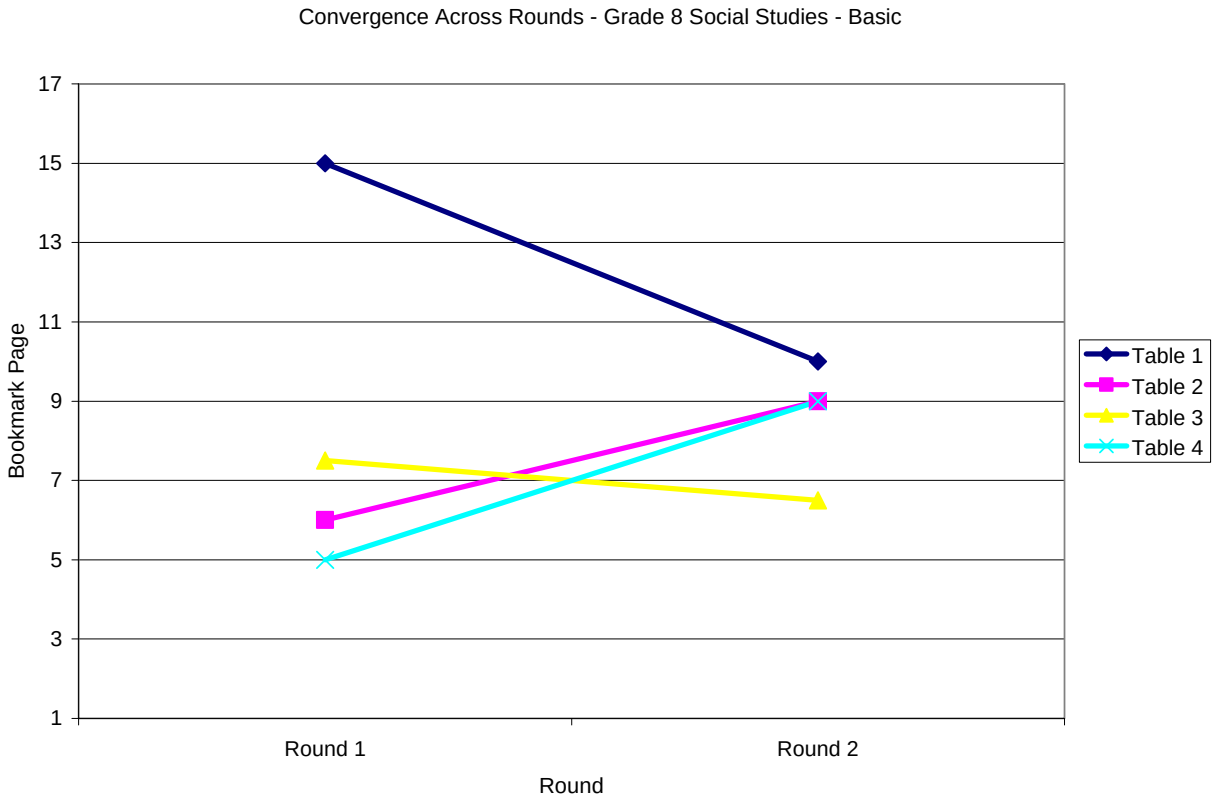


Table K14. Table Convergence Across Rounds – Grade 8 Social Studies – Proficient

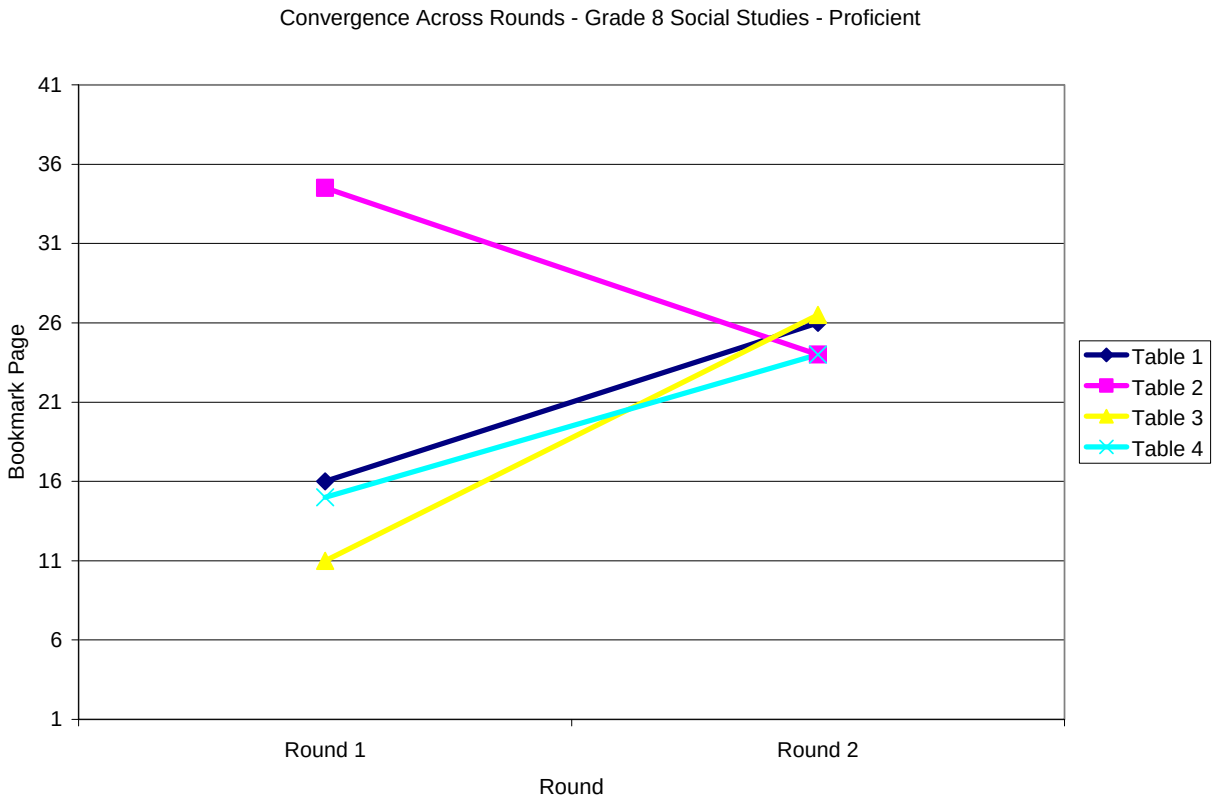


Table K15. Table Convergence Across Rounds – Grade 8 Social Studies – Accelerated

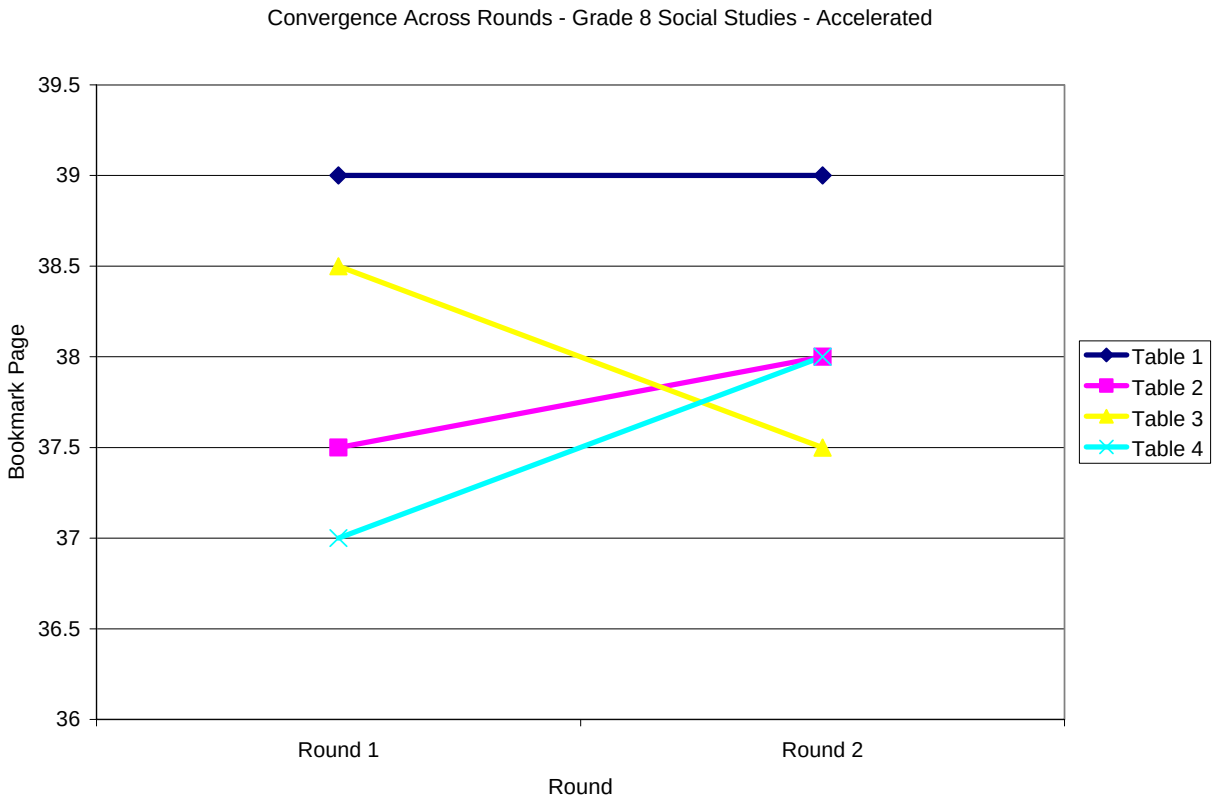


Table K16. Table Convergence Across Rounds – Grade 8 Social Studies – Advanced

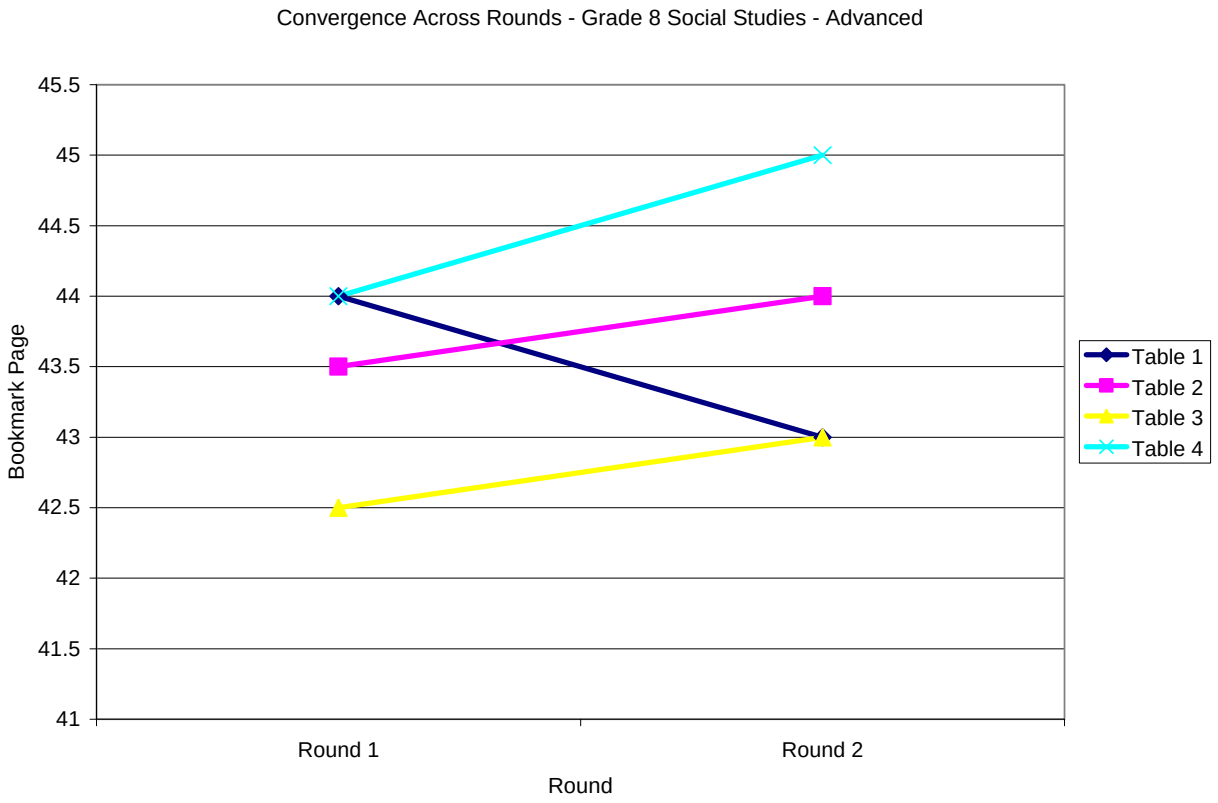


Table K17. Table Convergence Across Rounds – Grade 7 Writing – Basic

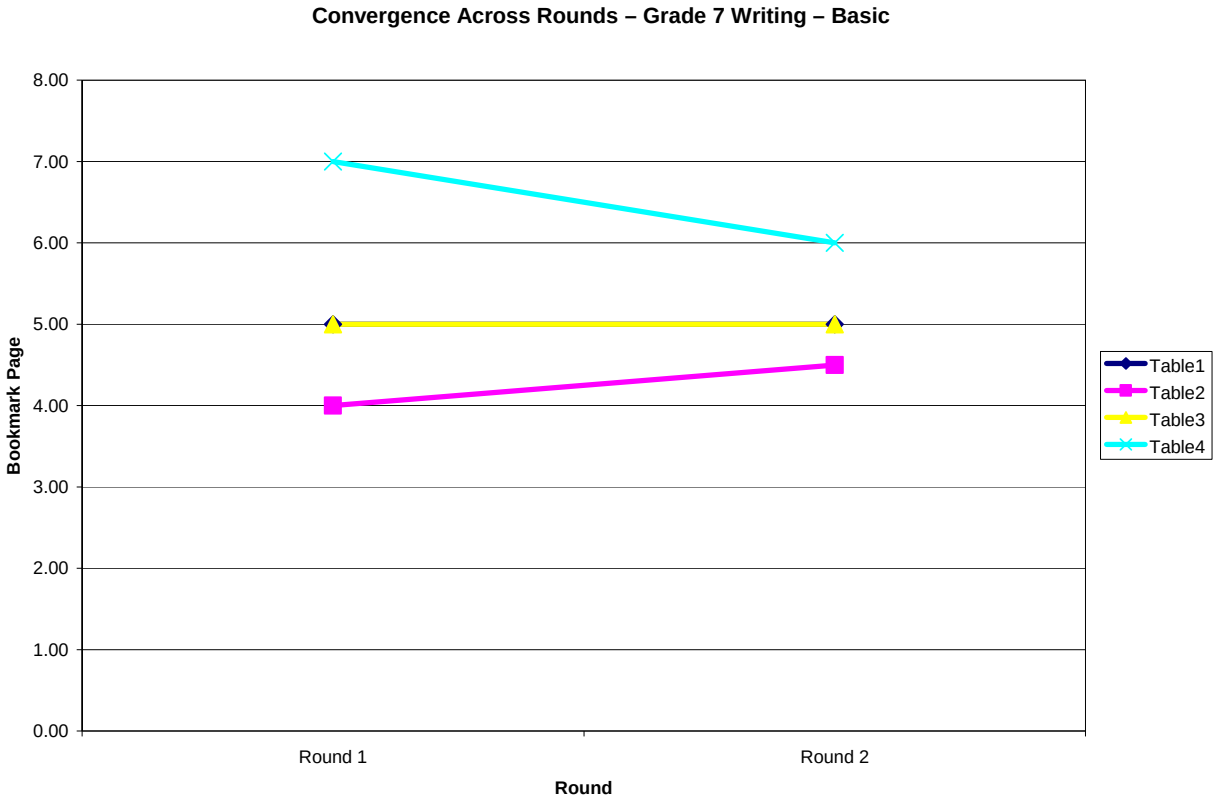


Table K18. Table Convergence Across Rounds – Grade 7 Writing – Proficient

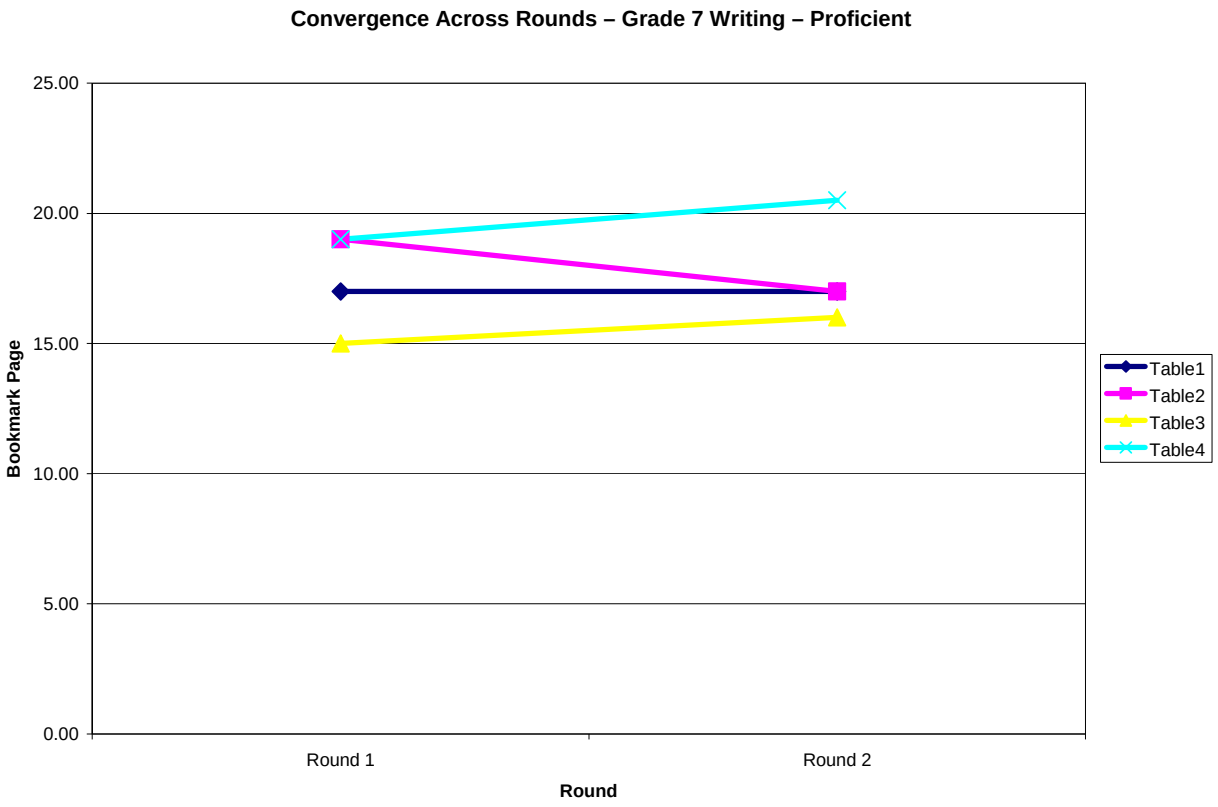


Table K19. Table Convergence Across Rounds – Grade 7 Writing – Accelerated

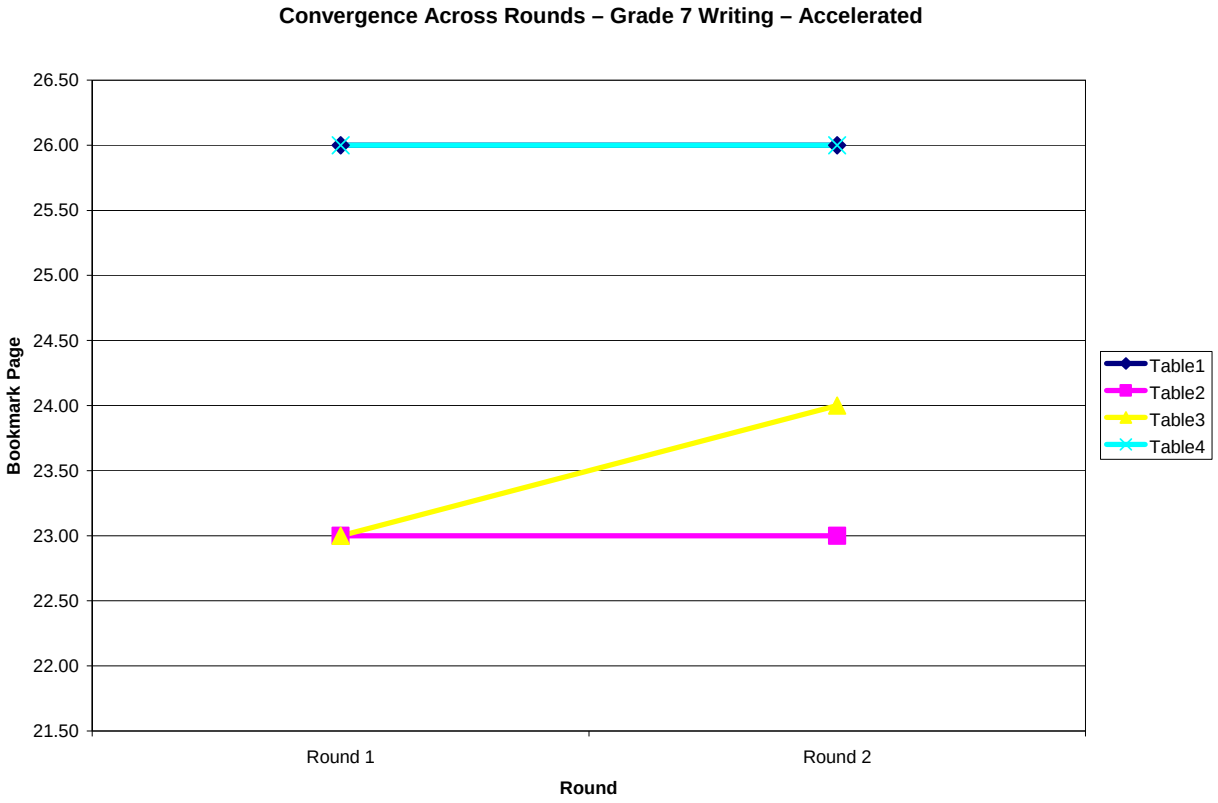
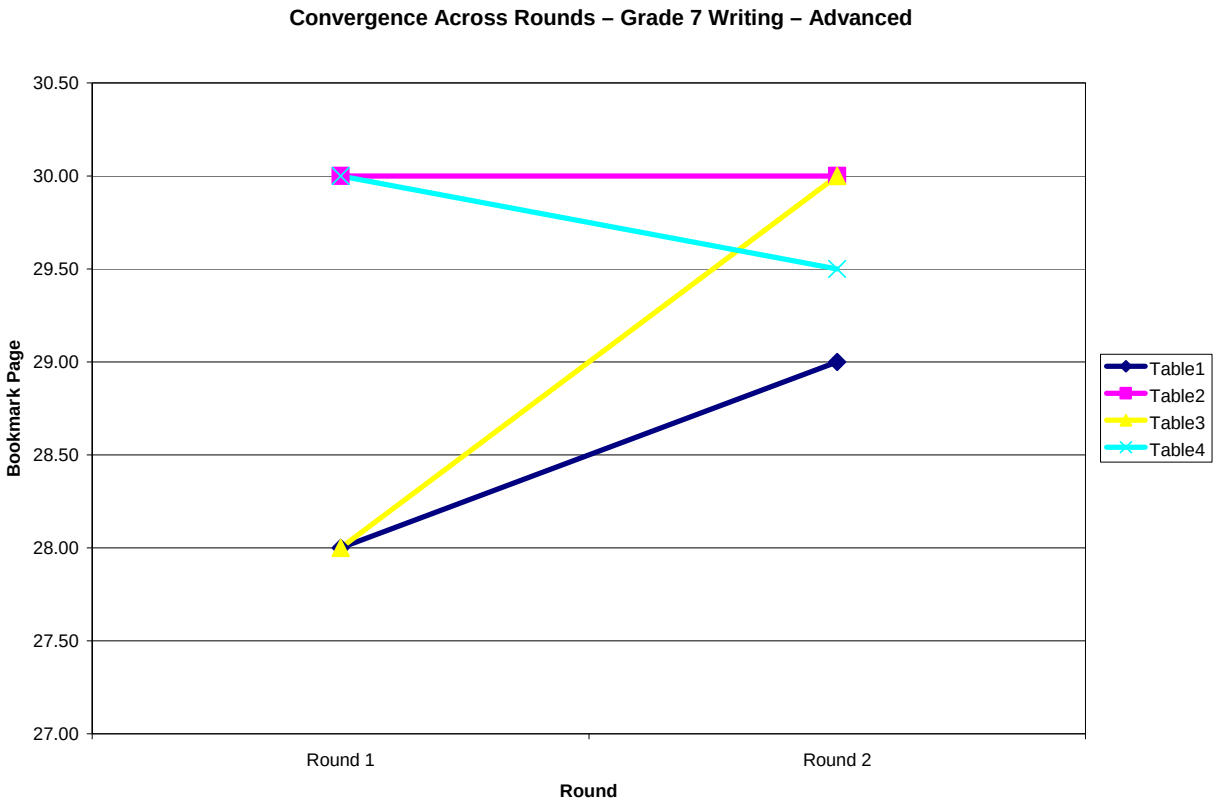


Table K20. Table Convergence Across Rounds – Grade 7 Writing – Advanced



APPENDIX L

Recommended Cut Scores

Table L1. Recommended Cut Scores – Grade 5 Science

	Recommended Cut Score				Estimated Percent of Students At or Above Cut Score	
			Theta Values			
Performance Level	**Page in Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**
Basic	10	15	-0.74	-0.70	90.54	89.96
Proficient	30	27	0.44	0.45	54.90	54.60
Accelerated	40	32	0.99	0.99	33.57	33.57
Advanced	46	40	1.97	1.97	7.02	7.02

Table L2. Recommended Cut Scores – Grade 8 Science

	Recommended Cut Score				Estimated Percent of Students At or Above Cut Score	
			Theta Values			
Performance Level	**Page in Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**
Basic	6	11	-1.09	-1.05	91.35	90.52
Proficient	21	20	0.02	0.02	60.57	60.57
Accelerated	36	30	0.87	0.87	25.49	25.49
Advanced	44	36	1.45	1.45	10.18	10.18

Table L3. Recommended Cut Scores – Grade 5 Social Studies

	Recommended Cut Score				Estimated Percent of Students At or Above Cut Score	
			Theta Values			
Performance Level	**Page in Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**
Basic	10.00	13.00	-0.90	-0.90	90.29	90.29
Proficient	25.00	25.00	0.21	0.23	46.45	45.43
Accelerated	36.00	30.00	0.71	0.71	24.51	24.51
Advanced	44.00	37.00	1.37	1.41	6.71	6.12

Table L4. Recommended Cut Scores – Grade 8 Social Studies

	Recommended Cut Score				Estimated Percent of Students At or Above Cut Score	
			Theta Values			
Performance Level	**Page in Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**
Basic	9.00	14.00	-0.76	-0.76	83.65	83.65
Proficient	25.50	25.00	0.30	0.31	41.45	41.22
Accelerated	38.00	32.00	0.94	0.94	17.97	17.97
Advanced	44.00	36.00	1.35	1.35	8.87	8.87

Table L5. Recommended Cut Scores – Grade 7 Writing

	Recommended Cut Score				Estimated Percent of Students At or Above Cut Score	
			Theta Values			
Performance Level	**Page in Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**	**Ordered Item Book**	**Test Raw Score**
Basic	5.00	9.00	-1.91	-1.91	98.27	98.27
Proficient	17.00	20.00	0.06	0.06	75.54	75.54
Accelerated	24.50	28.00	1.43	1.48	33.82	32.54
Advanced	30.00	36.00	3.93	3.93	2.58	2.58

APPENDIX M

Estimated Percentage of Students at Each Performance Level

Table M1. Estimated Percentage of Students at Each Performance Level – Science

			Estimated Percentage of Students									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Limited**		10.04	10.75	9.62	5.56	27.52	21.45	12.61	17.27	4.94	4.75
	Basic	15/48	35.36	34.42	36.78	31.75	51.75	41.01	37.33	41.25	27.98	34.74
	Proficient	27/48	21.03	20.80	21.24	23.15	12.56	20.78	19.03	18.38	22.25	23.80
	Accelerated	32/48	26.55	26.29	26.17	31.12	7.09	16.32	24.59	19.15	33.51	29.81
	Advanced	40/48	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Limited**		9.48	10.57	8.31	5.73	23.23	17.27	6.88	15.49	4.46	5.91
	Basic	11/48	29.96	28.88	31.11	24.81	49.56	36.73	33.32	40.26	19.91	26.43
	Proficient	20/48	35.08	32.63	37.15	38.52	21.60	30.55	37.88	30.03	37.15	40.40
	Accelerated	30/48	15.30	15.99	14.77	18.42	4.02	9.98	14.68	9.44	21.28	17.05
	Advanced	36/48	10.18	11.93	8.67	12.53	1.59	5.47	7.24	4.79	17.21	10.22

Table M2. Estimated Percentage of Students at Each Performance Level – Social Studies

			Estimated Percentage of Students									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Limited**		9.71	10.43	9.09	6.60	23.24	18.09	9.92	15.97	4.52	6.41
	Basic	13/48	44.85	43.90	45.36	41.51	55.60	56.97	50.16	52.11	36.61	43.66
	Proficient	25/48	20.93	20.72	21.25	22.93	12.96	14.05	21.82	16.98	24.31	22.71
	Accelerated	30/48	18.39	18.60	18.31	21.39	7.16	9.23	15.61	11.70	25.09	20.57
	Advanced	37/48	6.12	6.36	5.99	7.57	1.04	1.66	2.49	3.23	9.48	6.64
Grade 8	**Limited**		16.35	17.18	15.11	12.06	33.62	19.28	14.54	24.67	8.70	11.93
	Basic	14/48	42.43	40.75	44.55	40.66	48.94	57.80	44.72	47.09	35.32	44.03
	Proficient	25/48	23.25	23.46	23.09	26.04	12.23	16.26	23.09	18.09	27.89	25.88
	Accelerated	32/48	9.10	9.35	8.79	10.61	3.23	4.44	8.92	5.73	13.16	9.57
	Advanced	36/48	8.87	9.26	8.47	10.63	1.98	2.21	8.73	4.41	14.93	8.60

Table M3. Estimated Percentage of Students at Each Performance Level – Writing

			Estimated Percentage of Students									
Grade Level	**Proficiency Level**	**Cut Score**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 7	**Limited**		1.73	2.53	0.87	1.05	4.25	1.41	1.49	2.60	0.97	0.98
	Basic	9/41	22.73	28.82	16.07	18.32	37.66	30.70	23.24	30.85	13.46	20.56
	Proficient	20/41	43.00	44.07	41.91	43.22	41.57	46.12	42.10	43.65	40.24	45.39
	Accelerated	28/41	29.96	23.25	37.20	34.21	15.79	20.64	31.25	21.63	40.67	30.77
	Advanced	36/41	2.58	1.34	3.95	3.20	0.73	1.12	1.93	1.26	4.65	2.30

Table M4. Estimated Percentage of Students At or Above Each Performance Level – Science

		Estimated Percentage of Students At or Above Each Performance Level Science									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Basic**	89.96	89.25	90.38	94.44	72.48	78.55	87.39	82.73	95.06	95.25
	Proficient	54.60	54.83	53.60	62.69	20.73	37.54	50.06	41.48	67.08	60.51
	Accelerated	33.57	34.03	32.36	39.54	8.17	16.76	31.03	23.11	44.82	36.71
	Advanced	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Basic**	90.52	89.43	91.69	94.27	76.77	82.73	93.12	84.51	95.54	94.09
	Proficient	60.57	60.55	60.59	69.46	27.21	46.00	59.80	44.25	75.63	67.67
	Accelerated	25.49	27.92	23.44	30.95	5.61	15.45	21.92	14.23	38.48	27.27
	Advanced	10.18	11.93	8.67	12.53	1.59	5.47	7.24	4.79	17.21	10.22

Table M5. Estimated Percentage of Students At or Above Each Performance Level – Social Studies

		Estimated Percentage of Students At or Above Each Performance Level Social Studies									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 5	**Basic**	89.96	89.25	90.38	94.44	72.48	78.55	87.39	82.73	95.06	95.25
	Proficient	54.60	54.83	53.60	62.69	20.73	37.54	50.06	41.48	67.08	60.51
	Accelerated	33.57	34.03	32.36	39.54	8.17	16.76	31.03	23.11	44.82	36.71
	Advanced	7.02	7.74	6.19	8.42	1.07	0.44	6.44	3.95	11.31	6.90
Grade 8	**Basic**	83.65	82.82	84.89	87.94	66.38	80.72	85.46	75.33	91.30	88.07
	Proficient	41.22	42.07	40.34	47.28	17.45	22.91	40.74	28.24	55.98	44.05
	Accelerated	17.97	18.61	17.25	21.24	5.21	6.65	17.65	10.15	28.09	18.17
	Advanced	8.87	9.26	8.47	10.63	1.98	2.21	8.73	4.41	14.93	8.60

Table M6. Estimated Percentage of Students At or Above Each Performance Level – Writing

		Estimated Percentage of Students At or Above Each Performance Level Writing									
Grade Level	**Proficiency Level**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multi-Racial**	**Urban**	**Suburban**	**Rural**
Grade 7	**Basic**	98.27	97.47	99.13	98.95	95.75	98.59	98.51	97.40	99.03	99.02
	Proficient	75.54	68.66	83.06	80.63	58.09	67.89	75.27	66.55	85.57	78.46
	Accelerated	32.54	24.59	41.15	37.41	16.51	21.77	33.17	22.90	45.33	33.07
	Advanced	2.58	1.34	3.95	3.20	0.73	1.12	1.93	1.26	4.65	2.30

APPENDIX N

Meeting Evaluation Form

MEETING EVALUATION

Standard Setting Committee Meeting
August 7-9, 2006

We would like your input on the committee meeting so we can use the information in preparing future meetings. Please check your responses and/or provide your comments from Question 1 to 6. Question 7 and 8 are open-ended questions. Please be as specific as you can in responding to Question 7 and 8. We appreciate your feedback.

Name (optional):_____

1. The meeting was well organized. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

2. The presentations made by ODE and AIR were clear and helpful. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

3. ODE and AIR staff knew the material. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

4. The committee was allowed to make recommendations and decisions. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

5. The committee was given enough time to complete a thorough review of the material presented. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

6. The meeting facilities were appropriate. ☐ Yes ☐ No ☐ NA

Comments:_____

_____

7. What were the most positive aspects of the meeting? Please be specific.

_____

_____

_____

_____

8. What suggestions do you have for future meetings? Please be specific.

_____

_____

_____

_____

Thank You For Taking The Time To Provide This Feedback!