TR 2008 - 10

Ohio Grade 3 Reading Achievement Test

September 2003 Standard Setting for Five Performance Levels

Technical Report

American Institutes for Research

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Executive Summary

On September 29 - 30, 2003, the American Institutes for Research (AIR), under contract to the Ohio Department of Education (ODE, convened a panel of Ohioans to recommend performance-level cut scores on the Ohio Grade 3 Reading Achievement Test. Performance-level standards had originally been set on June 9 - 12, 2003; however, the Ohio legislature, under House Bill 3, required that the number of performance levels be increased from four to five. Therefore, it was necessary to reset standards for the Grade 3 Reading Achievement Test. Using the Bookmark procedure (Mitzel, Lewis, Patz & Green, 2001), the group reviewed the test; using the Ohio Content Standards, the group recommended Basic, Proficient, Accelerated and Advanced cut scores. In arriving at each cut score, panelists considered group agreement and impact on students. 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 at the May Technical Advisory Committee meeting, was followed at a workshop in Columbus on September 29 - 30. Jan Crandell opened the meeting with an introduction on behalf of ODE. Dr. Steve Ferrara provided training and led the participants through three rounds of bookmark placement to first set the Proficient bookmark and then the Basic, Accelerated and Advanced 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 Grade 3 Reading Achievement Test 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.

Panel Composition

Twenty-two panelists, grouped at five tables, participated in the standard setting process. The overall composition of the panel followed specifications provided by ODE and is presented in Exhibit ES1.

Exhibit ES1

Panel Composition

Table 1	Table 2	Table 3	Table 4	Table 5
Grade 3 Teacher	Grade 3 Teacher	Grade 3 Teacher[++]	Grade 2/3 Teacher	Grade 3 Teacher[+]
Reading Specialist	Grade 3 Teacher	K - 5 Reading Specialist/Intervention	Reading Specialist	Reading Specialist
Lead Title I Teacher	Grade 1 Teacher/ Curriculum Specialist	District Literacy Coach	Assistant Superintendent	American Federation of Teachers Reading Coordinator
Parent	Consultant/Adjunct Faculty Member	Grade 3 Teacher*	Grade 2 Teacher*[++++]	Grade 1 Teacher
	K - 2 Teacher/ Reading Coach*			Grade 2 Teacher*[+++]

* Participated in K - 2 Reading Diagnostic Standard Setting
[+] Has 9 years experience with special education
[++] Has special education degree and works with school's special education teacher
[+++] Has 10 years experience with ESL/LEP students
[++++] Has 10 years experience with special needs students

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

The cut scores and estimated consequences of the standards recommended by the panel are presented in Exhibit ES2.

Exhibit ES2

Recommended Cut Scores and Overall Impact

Performance Level	Recommended Cut Score	Estimated Overall Percent of Students At or Above Cut
Basic	Page 13 in ordered item book; raw score 25 out of a possible 49 raw score points	83% on the ordered item book; 82% for the raw score
Proficient	Page 26 in ordered item book; raw score 32 out of a possible 49 raw score points	67% on the ordered item book; 67% for the raw score
Accelerated	Page 40 in ordered item book; raw score 38 out of a possible 49 raw score points	48% on the ordered item book; 44% for the raw score
Advanced	Page 45 in ordered item book; raw score 42 out of a possible 49 raw score points	20% on the ordered item book; 20% for the raw score

Note. Because of the Ohio rounding rule, two percentages are reported in the third column. See Page 25 for a detailed description of the Ohio rounding rule.

Consequences of Cut Scores by Group

For each major demographic group, the percentage of students estimated to meet or exceed the recommended performance levels is presented in Exhibit ES3. These data represent results from the field test and not the ordered item booklet pages.

Exhibit ES3

Estimated Overall and Disaggregated Impact at Each Performance Level

	Estimated Percent of Students in Level by Demographic Categories										
Performance Level	**Scale Score Standard**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multiracial**	**Urban**	**Suburban**	**Rural**
		%	%	%	%	%	%	%	%	%	%
Limited		18	20	15	14	37	29	22	26	10	15
Basic	385	15	16	14	13	23	18	18	17	11	15
Proficient	400	23	23	23	23	22	21	21	24	22	24
Accelerated	415	24	23	25	26	12	18	21	19	27	26
Advanced	432	20	18	23	24	6	14	18	14	30	20
	Number of Students in Each Demographic Category in the March 2003 Field Test										
Number of Students		16,774	8,099	7,797	11,703	2,337	177	427	6,729	4,806	5,156

Note. Because of non-responses on demographic questions, subtotals do not add to the overall total.

Introduction

On September 29 - 30, 2003, the American Institutes for Research (AIR), under contract to the Ohio Department of Education (ODE), convened a panel of Ohioans to recommend performance-level cut scores on the Ohio Grade 3 Reading Achievement Test. Performance-level standards had originally been set on June 9 - 12, 2003; however, the Ohio legislature, under House Bill 3, required that the number of performance levels be increased from four to five. Therefore, it was necessary to reset standards for the Grade 3 Reading Achievement Test. Using the Bookmark procedure (Mitzel, Lewis, Patz & Green, 2001), the group reviewed the test, and using the Ohio Content Standards, recommended Basic, Proficient, Accelerated and Advanced cut scores. In arriving at each cut score, panelists considered group agreement and impact on students. 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 on the Grade 3 Reading Achievement Test 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 Grade 3 Reading Achievement Test. 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 Grade 3 Reading Achievement Test, panelists based their judgments on the PLDs presented in Exhibit 1 when they placed their bookmarks.

Exhibit 1

Grade 3 Reading Achievement Test Performance Level Descriptors

Limited	Students performing at the limited level do not yet have the skills identified at the basic level.
Basic	Students performing at the basic level have some reading skills, but still need teacher support and prompting to comprehend grade-level text. Students usually are able to • use context clues and provided resources to decode and define some unfamiliar words in grade-appropriate reading material • sometimes respond accurately to literal questions about text • make some use of reading comprehension strategies, such as compare and contrast and prediction, to independently build meaning about the text • use illustrations to support their comprehension of the text
Proficient	Students performing at the proficient level have a range of reading skills and can comprehend grade-level texts with little or no teacher support. Students usually are able to • use context clues, structural analysis and provided resources in grade-appropriate reading material to determine the meanings of words • respond accurately to literal questions and sometimes answer inferential questions accurately • usually apply reading comprehension strategies, such as inference, compare and contrast, prediction and summarization, to build meaning from text • sometimes apply self-monitoring strategies such as clarifying questions to help them comprehend essential elements of informational text • identify various elements of literature (e.g., theme, characters, setting and plot) • use text features, such as titles, subtitles, and visual aides, to support their comprehension and draw conclusions about the text • use text structures, such as chronology and problem/solution to help them organize information
Accelerated	Students performing at the accelerated level have a wide range of reading skills enabling them to read and comprehend grade-level texts independently. Students usually are able to • determine meanings of unfamiliar words at or above grade level by using word structure analysis and context clues • respond accurately to literal and inferential questions and usually answer evaluative questions accurately • consistently apply comprehension strategies, such as inference, compare and contrast, prediction, and summarization, to develop a thorough understanding of the text • consider author's use of language to develop an accurate understanding of the text • use the elements of literature (e.g., characters, setting and plot) to develop an accurate understanding of the text • use text features, such as titles, subtitles and visual aides, to support their comprehension and draw accurate conclusions about the text • use text structures, such as chronology, cause and effect, and problem/solution to help them organize and summarize information about the text • consistently apply self-monitoring strategies such as clarifying questions to help them comprehend essential elements of informational text

Advanced	Students performing at the advanced level have reading skills which enable them to use critical reasoning to evaluate text independently. Students usually are able to • use their knowledge of word structure and context clues to extend their vocabulary • consistently respond accurately to inferential and evaluative questions • apply comprehension strategies, such as inference, compare and contrast, prediction, and summarization, to develop a thorough and cohesive understanding of the text • infer and evaluate the ways an author's word choice and use of methods affect text and influence the reader • use text features and text structures to interpret and evaluate text

Standard Setting Panel

The demographic composition of the standard setting panel was critical to the process and politics of the standard setting. Accordingly, ODE recruited a standard setting panel of 22 panelists including teachers, primarily content experts, and other stakeholders (e.g., parents). In the workshops, the panelists were grouped randomly at five tables of four or five panelists each. Table assignments were reviewed by ODE staff to promote ease of discussion and to prevent any strong-willed panelists from influencing the entire panel. Because 18 of the participants had attended the June standard setting, table leaders from the original standard setting were selected again to lead the tables. These table leaders were retrained for their table leader roles the morning of September 29.

Recruiting Panel Members

Panel members for this resetting of the Grade 3 Reading Achievement Test standards were recruited with one of two methods. First, all participants in the original Grade 3 Reading standard setting were invited to return. Second, five participants from the K - 2 Reading standard setting meeting were invited. Of the 24 invited participants from the June meeting, 18 agreed to participate in this second standard setting. Of the five invited participants from the K - 2 Reading standard setting meeting, four participants agreed to attend. Because the 18 returning members and the additional four members participated in standard setting workshops earlier in the year, all participants had prior standard setting experience. The four members from the K - 2 Reading standard setting meeting were all designated to different tables. Table assignments remained constant throughout the workshop, and no reshuffling of panelists occurring between rounds.

To ensure representation from all parts of the state, the percentages of student population breakdown across the state were used for targeting geographical representation of panelists:

- Northwest Ohio 13%
- Northeast Ohio 40%
- Southwest Ohio 26%
- Southeast Ohio 5%
- Central Ohio 16%

In addition, Ohio's student body includes an 18% minority population. This ethnic breakdown was also considered in the recruiting targets for the panels.

The original invitation list was generated from numerous nomination forms received by the Ohio Department of Education. The nomination forms had been gathered earlier in the test development process. Whereas some of the potential participants from the nomination forms were viable for the standard setting committees, many of the nominations were from two years ago. When AIR contacted these potential participants, we found most were

retired, out of district, in new positions or no longer interested. To generate additional nominees, calls were made to the following organizations:

- Buckeye Association for School Administrators (BASA)
- Ohio School Boards Association (OSBA)
- Ohio Congress of Parents and Teachers (OPTA)
- Ohio Catholic Conference
- Ohio School Psychologists Association
- Ohio Association of Partners in Education (Business)
- Ohio Association of Private Colleges for Teacher Education

Ohio's Urban 21, a group of large districts that includes approximately 22% of Ohio's student body, is another important group of districts for representation in Ohio. All of these districts were contacted and nominations solicited. In addition, several colleges and universities were identified and contacted. They were selected on the basis of their size and location in the state. The colleges and universities contacted were Ohio University, Cleveland State University, Findlay University, Malone College, Xavier University, University of Dayton, Shawnee State and Wittenberg University.

Panel Composition

Overall panel composition is presented in Exhibit 2, with additional details in Appendix A.

Exhibit 2

Grade 3 Reading Achievement Test Panel Composition by Table

Table 1	Table 2	Table 3	Table 4	Table 5
Grade 3 Teacher	Grade 3 Teacher	Grade 3 Teacher[++]	Grade 2/3 Teacher	Grade 3 Teacher[+]
Reading Specialist	Grade 3 Teacher	K - 5 Reading Specialist/Intervention	Reading Specialist	Reading Specialist
Lead Title I Teacher	Grade 1 Teacher/ Curriculum Specialist	District Literacy Coach	Assistant Superintendent	American Federation of Teachers Reading Coordinator
Parent	Consultant/Adjunct Faculty Member	Grade 3 Teacher*	Grade 2 Teacher*[++++]	Grade 1 Teacher
	K - 2 Teacher/Reading Coach*			Grade 2 Teacher*[+++]

* Participated in K - 2 Reading Diagnostic Standard Setting
[+] Has 9 years experience with special education
[++] Has special education degree and works with school's special education teacher
[+++] Has 10 years experience with ESL/LEP students
[++++] Has 10 years experience with special needs students

Training

Training is an essential element of a standard setting workshop. Because all participants had recently been trained in standard setting, the training for this meeting was not as extensive as training for inexperienced standard setting participants. Training consisted of a review and discussion of the Ohio Academic Content Standards, the test specifications as administered by teachers and experienced by students and the PLDs for each performance standard. Participants, led by Dr. Ferrara, 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 the .67 response probability (RP67) in placing their bookmarks. They 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 two-thirds of students who are just barely Proficient (and Basic, Accelerated and Advanced) to respond successfully.[1] 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. Dr. Steve Ferrara, AIR workshop leader, 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 workshop, Dr. Ferrara retrained the table leaders on their role as small-group leaders and facilitators. All three training sessions are discussed below.

Training for Panelists

Dr. Ferrara 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 of .67 or higher. The panelists used this criterion in deciding the placement of the bookmark. The bookmark was placed on the last page in the ordered item booklet where the panelist thought that students just at the performance standard had a probability of .67 of responding successfully. The panelist was to make the judgment that such a minimally qualified student would have a probability greater than or equal to .67 of answering items below the bookmark, and a probability less than .67 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 67, meaning find the point where a borderline student (e.g., a borderline Basic, Proficient, Accelerated or Advanced student) would have a probability of .67 of answering the last item correctly or the last item that 67 out of 100 (minimally reaching the standard) would answer correctly.
4. Practice and internalize the judgmental task:

    Place the bookmark on the page where you would expect two-thirds 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 two-thirds of barely Proficient students to respond successfully to the item on the subsequent page and more than two-thirds of these students to respond successfully to the item on the preceding page.

After training participants on placing bookmarks, Dr. Ferrara spent time training the panelists on how to use an ordered item booklet and an item map.

[1] Responding successfully means correctly answering a multiple-choice item or achieving the score level for the item that corresponds to a page in the ordered item booklet.

Training for Table Leaders

Dr. Ferrara retrained the five table leaders the morning of Day 1 of the workshop. The training began with a description of the table leader's role and responsibilities. In general, the table leader's role is 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 RP67).

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

Dr. Ferrara, with the help of June Zack from AIR and Jan Crandell from ODE, next conducted the 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 Grade 3 Reading Achievement Test review and before placing the bookmarks in each of rounds 1 - 3. A copy of the readiness form is included in Appendix C.

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 RP67 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 field-test data obtained from the March 2003 field test. The ordered item map is presented in Exhibit 3.

Exhibit 3

Grade 3 Reading Achievement Test Standard Setting Ordered Item Map

Item ID	Item Map Order	Item Score Category	Item Parameter	RP67
3R0000AVCXX0179B	1	1	-3.18	-2.4718
3R0088LTBXX0007B	2	1	-2.95	-2.2418
3R0000AVDXX0219A	3	1	-2.93	-2.2218
3R0000AVCXX0176B	4	1	-2.82	-2.1118
3R0088RPDEX0005E	5	1	-1.51	-1.6207
3R0000AVDXX0230A	6	1	-2.21	-1.5018
3R0147AVAXX0020C	7	1	-2.15	-1.4418
3R0088RPEXX0013B	8	1	-2.12	-1.4118
3R0147LTBXX0018E	9	1	-0.71	-1.3021
3R0110ITDXX0010E	10	1	-1.04	-1.2357
3R0088LTDXX0002C	11	1	-1.92	-1.2118
3R0147RPAXX0002S	12	1	-1.35	-1.1336
3R0088RPDEX0005E	13	2	-1.5	-0.9784
3R0088AVAXX0001B	14	1	-1.67	-0.9618
3R0147LTBXX0018E	15	2	-1.98	-0.9453
3R0147LTBXX0011B	16	1	-1.52	-0.8118
3R0110ITCXX0017B	17	1	-1.43	-0.7218
3R0110ITDXX0010E	18	2	-1.04	-0.7126
3R0110ITAXX0018A	19	1	-1.41	-0.7018
3R0088LTEXX0004A	20	1	-1.4	-0.6918
3R0147RPCXX0007A	21	1	-1.38	-0.6718
3R0110RPEXX0013B	22	1	-1.31	-0.6018
3R0147LTCXX0013A	23	1	-1.28	-0.5718
3R0110AVAXX0003A	24	1	-1.24	-0.5318
3R0110ITCXX0007C	25	1	-1.13	-0.4218
3R0110RPEXX0012B	26	1	-1.08	-0.3718

Item ID	Item Map Order	Item Score Category	Item Parameter	RP67
3R0119ITCXX0020S	27	1	-0.38	-0.3271
3R0147RPCXX0004A	28	1	-1	-0.2918
3R0147RPBXX0003B	29	1	-0.93	-0.2218
3R0000AVEXX0134A	30	1	-0.9	-0.1918
3R0110ITDXX0010E	31	3	-0.76	-0.1631
3R0088RPDEX0005E	32	3	-0.64	-0.1482
3R0147LTBXX0018E	33	3	0.59	-0.148
3R0119ITBXX0008A	34	1	-0.72	-0.0118
3R0147LTDXX0016A	35	1	-0.64	0.0682
3R0119AVAXX0018A	36	1	-0.63	0.0782
3R0119ITAXX0013B	37	1	-0.57	0.1382
3R0147LTBXX0018E	38	4	-1.61	0.1405
3R0119RPAXX0011S	39	1	-0.22	0.1522
3R0147RPAXX0002S	40	2	-0.68	0.2176
3R0119RPCXX0019B	41	1	-0.37	0.3382
3R0119ITCXX0006B	42	1	-0.27	0.4382
3R0110ITBXX0011C	43	1	-0.03	0.6782
3R0119ITCXX0020S	44	2	-0.25	0.7405
3R0110RPEXX0025S	45	1	0.41	0.8981
3R0110ITDXX0010E	46	4	0.09	0.9817
3R0088RPDEX0005E	47	4	0.29	1.1615
3R0119RPAXX0011S	48	2	1.07	1.8924
3R0110RPEXX0025S	49	2	2.3	3.0754

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

Round 1

In round 1, we asked the panelists to place the bookmark on the page where they would expect two-thirds of students who are just barely at each of the four levels (Proficient, Basic, Accelerated and Advanced) to respond successfully and to record the page number of the bookmark on the rating form (see Appendix D). Panelists were asked to place the Proficient bookmark first and then to place the Basic, Accelerated and Advanced bookmarks (in that order). Dr. Ferrara 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, an AIR psychometrician and a research assistant entered the data from each form into an Excel spreadsheet. A second psychometrician from AIR reviewed the entries for any keying errors. Next, the AIR group created feedback forms for each table. Each form contained summary statistics showing the median, lowest and highest cut scores for that panelist table. The tables below provide an example of the feedback form (Exhibit 4) and the results of round 1 for all panelist tables (Exhibits 5 - 8). In addition, impact data for the cut scores (see Appendix E) were displayed on the projected screen for panelists' tables to reference and discuss.

Exhibit 4

Grade 3 Reading Achievement Test Example: Feedback Form with Table Agreement Data

Reading Grade 3			
Table 1 Report - Round 1			**Proficient**
	ID	Name	Round 1 Page #
Leader1	11		19
2	12		20
3	13		23
4	14		15
5			
Table Statistics		Median	20
		Low	15
		High	23

Exhibit 5

Grade 3 Reading Achievement Test: Round 1 Recommended Proficient Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	19	28	23	19	19
2	20	21	24	28	20
3	23	17	20	23	21
4	15	27	23	28	17
5		34			19
Low	15	17	20	19	17
High	23	34	24	28	21
Range	8	17	4	9	4
Median	20	27	23	26	19

Exhibit 6

Grade 3 Reading Achievement Test: Round 1 Recommended Basic Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	6	21	12	7	10
2	11	9	11	11	10
3	10	6	8	16	11
4	6	14	8	12	7
5		19			7
Low	6	6	8	7	7
High	11	21	12	16	11
Range	5	15	4	9	4
Median	8	14	10	12	10

Exhibit 7

Grade 3 Reading Achievement Test: Round 1 Recommended Accelerated Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	37	35	35	32	32
2	29	28	34	36	28
3	36	30	41	35	38
4	33	34	37	34	38
5		40			31
Low	29	28	34	32	28
High	37	40	41	36	38
Range	8	12	7	4	10
Median	35	34	36	35	32

Exhibit 8

Grade 3 Reading Achievement Test: Round 1 Recommended Advanced Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	46	43	43	41	46
2	41	38	41	45	40
3	42	41	46	41	42
4	42	41	43	41	46
5		43			37
Low	41	38	41	41	37
High	46	43	46	45	46
Range	5	5	5	4	9
Median	42	41	43	41	42

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 from the spring 2003 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. As shown in Exhibits 5 - 8, the individual panelist cut scores ranged widely in the first round, with a range of 15 - 34 for the Proficient cut score, 6 - 21 for the Basic cut score, 28 - 41 for the Accelerated cut score and 37 - 46 for the Advanced cut score. Variance within each table was fairly consistent for tables 1, 3, 4, and 5, but the range for table 2 was greater for all the cut scores except the Advanced. 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. The AIR technical staff member entered the data from each form into the Excel spreadsheet, and a second staff member from AIR again reviewed the entries for any keying errors. The ratings from round 2 are in Exhibits 9 - 12.

Exhibit 9

Grade 3 Reading Achievement Test: Round 2 Recommended Proficient Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	19	28	23	26	21
2	20	28	22	27	21
3	22	28	26	26	20
4	20	28	23	26	20
5		28			21
Low	19	28	22	26	20
High	22	28	26	27	21
Range	3	0	4	1	1
Median	20	28	23	26	21

Exhibit 10

Grade 3 Reading Achievement Test: Round 2 Recommended Basic Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	8	11	12	16	10
2	10	10	10	16	10
3	10	11	10	16	10
4	9	10	10	16	10
5		11			11
Low	8	10	10	16	10
High	10	11	12	16	11
Range	2	1	2	0	1
Median	10	11	10	16	10

Exhibit 11

Grade 3 Reading Achievement Test: Round 2 Recommended Accelerated Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	37	42	42	36	36
2	37	42	41	36	36
3	37	42	43	36	37
4	37	41	42	36	37
5		41			37
Low	37	41	41	36	36
High	37	42	43	36	37
Range	0	1	2	0	1
Median	37	42	42	36	37

Exhibit 12

Grade 3 Reading Achievement Test: Round 2 Recommended Advanced Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	46	46	47	41	43
2	42	46	47	41	41
3	42	46	48	41	41
4	42	46	48	41	42
5		46			47
Low	42	46	47	41	41
High	46	46	48	41	47
Range	4	0	1	0	6
Median	42	46	48	41	42

Round 3

In round 3, the data and discussion foci were somewhat different than in rounds 1 and 2. Round 3 began with a discussion of impact data and agreement data (at the table level and at the room level). Impact data were again projected on the large screen at the front of the room. Additionally, two copies of impact data were given to each table. Discussions were led by Dr. Ferrara and facilitated by the table leaders. Feedback on high, low and median cut scores was provided at the individual table and full panel levels rather than at the individual panelist and table levels. As before, discussion focused on recommended cut scores and the items between the high and low cut scores. In addition, discussion included a consideration of the degree to which panelists' cut scores had converged or diverged since round 1 as a means of discussing the degree to which panelists agreed about the difficulty of items and the influence of the impact data. The full-panel discussion focused on justifications for moving bookmarks in round 2 in response to having received and considered the impact information.

As before, panelists placed their bookmarks in the ordered item booklet. Their recommended cut scores were entered, checked and reported back to the panelists. The results of round 3 represented the panel's final recommendation to the ODE for the cut scores for the Grade 3 Reading Achievement Test and are presented in Exhibits 13 - 16 below. The impact data for the final recommended cut scores are summarized in the final section of this report and presented in detail in Appendix E.

Exhibit 13

Grade 3 Reading Achievement Test Round 3: Recommended Proficient Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	19	28	26	26	23
2	20	25	24	28	23
3	24	28	28	26	26
4	21	28	24	26	23
5		29			23
Low	19	25	24	26	23
High	24	29	28	28	26
Range	5	4	4	2	3
Median	21	28	25	26	23

Exhibit 14

Grade 3 Reading Achievement Test Round 3: Recommended Basic Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	9	11	13	16	13
2	10	10	13	16	12
3	13	11	18	16	16
4	9	10	12	16	13
5		15			13
Low	9	10	12	16	12
High	13	15	18	16	16
Range	4	5	6	0	4
Median	10	11	13	16	13

Exhibit 15

Grade 3 Reading Achievement Test Round 3: Recommended Accelerated Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	37	42	42	40	36
2	37	42	42	40	36
3	38	42	43	40	37
4	41	41	42	40	37
5		40			37
Low	37	40	42	40	36
High	41	42	43	40	37
Range	4	2	1	0	1
Median	38	42	42	40	37

Exhibit 16

Grade 3 Reading Achievement Test Round 3: Recommended Advanced Cut Score by Each Panelist

Panelist	Table 1	Table 2	Table 3	Table 4	Table 5
1	45	46	47	45	41
2	43	46	47	45	43
3	43	46	48	45	43
4	46	46	48	45	43
5		45			42
Low	43	45	47	45	41
High	46	46	48	45	43
Range	3	1	1	0	2
Median	44	46	48	45	43

Judgments Across Rounds

As panelists discuss the bookmarks, their reasons for choosing bookmarks and impact data, variability across panelists and across tables often decreases over the rounds of decision making. Exhibits 17 - 20 illustrate changes in panelists' decisions about bookmarks over the three rounds.

Note. The scale for the Y-axis is different in the following four graphs.

Exhibit 17

Page Numbers Recommended by Each of 22 Panelists at Each Round, Showing Degree of Convergence Across Rounds Proficient Level Cut Score

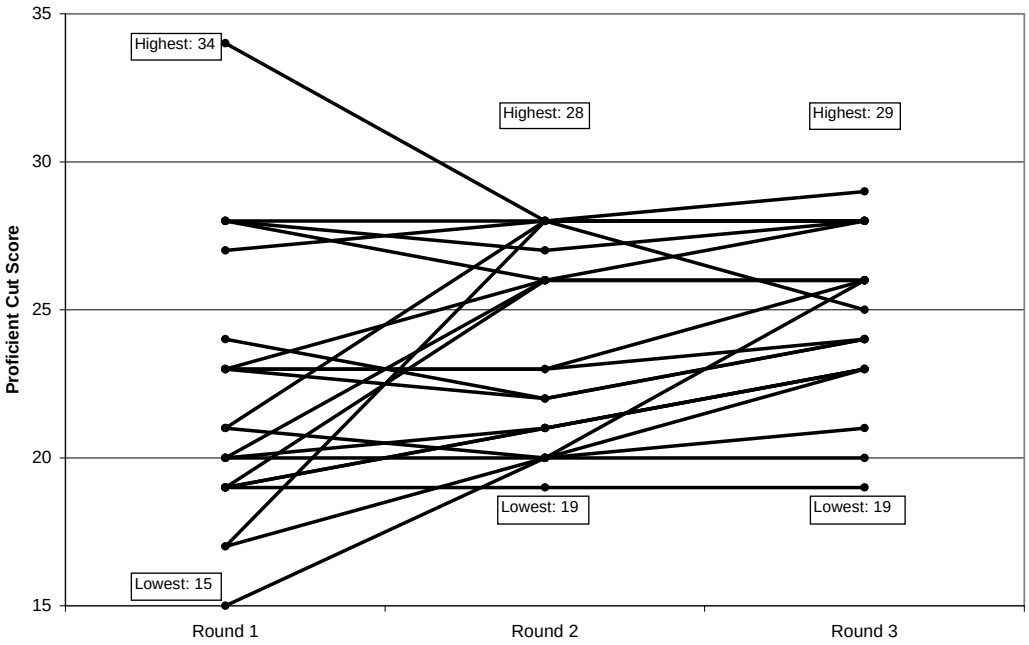


Exhibit 18

Page Numbers Recommended by Each of 22 Panelists at Each Round, Showing Degree of Convergence Across Rounds Basic Level Cut Score

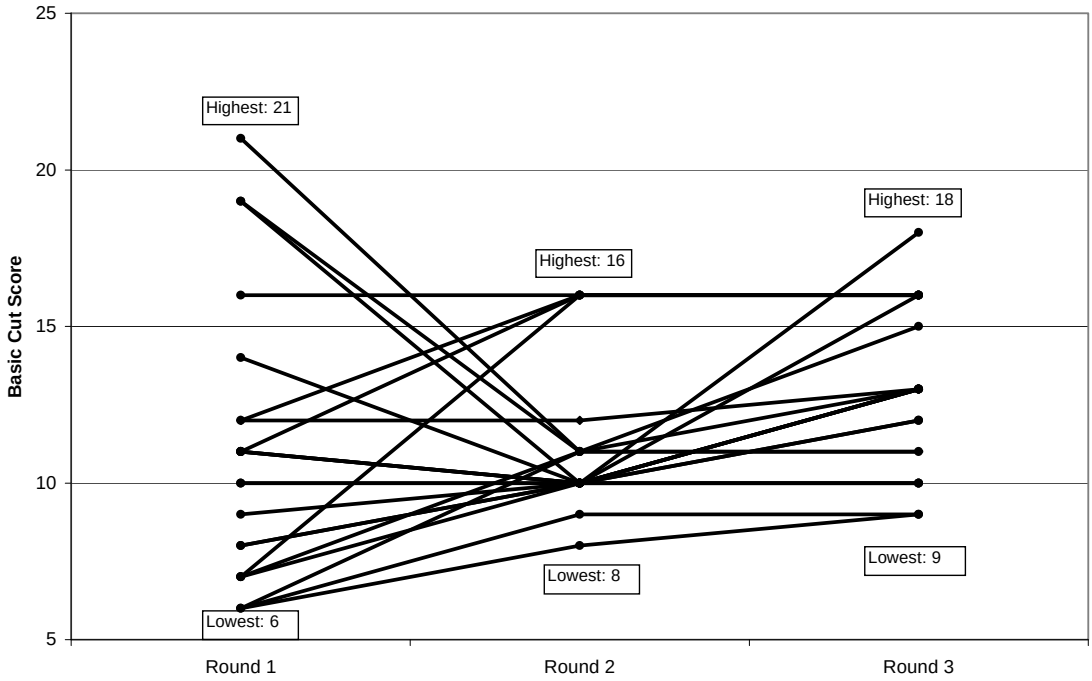


Exhibit 19

Page Numbers Recommended by Each of 22 Panelists at Each Round, Showing Degree of Convergence Across Rounds Accelerated Level Cut Score

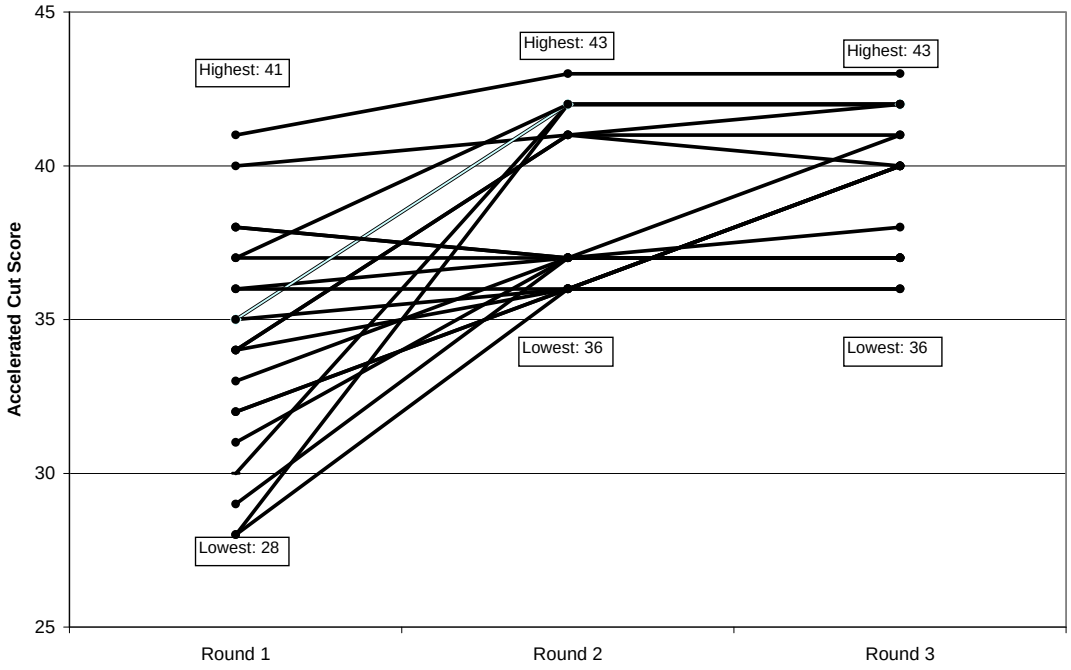
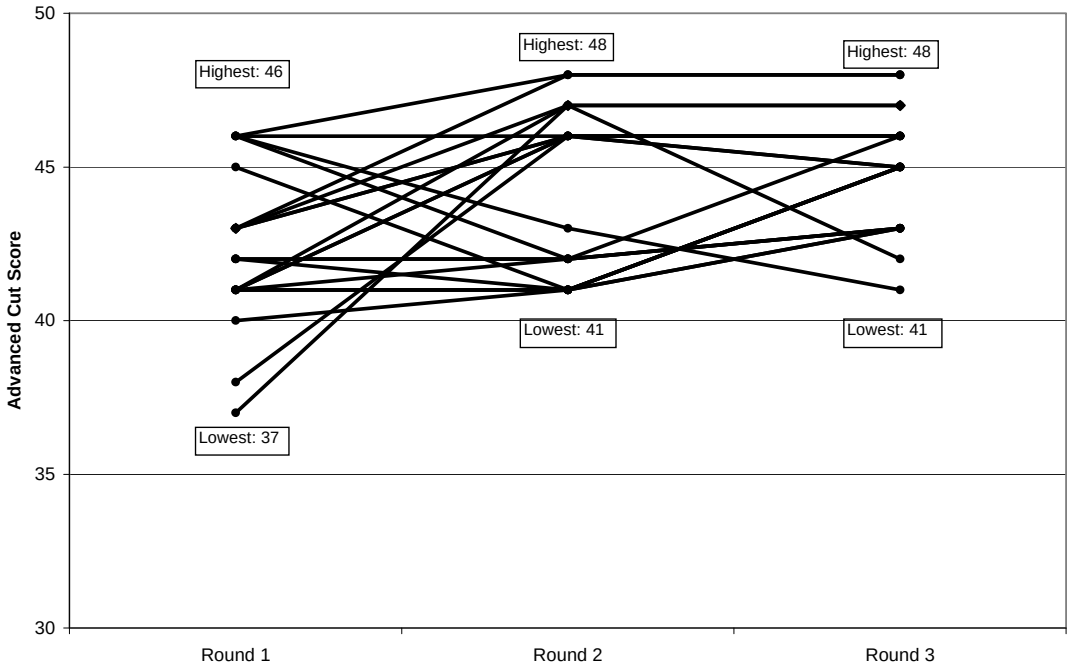


Exhibit 20

Page Numbers Recommended by Each of 22 Panelists at Each Round, Showing Degree of Convergence Across Rounds Advanced Level Cut Score



The four exhibits above illustrate how variability in panelists' bookmark decisions for all four performance levels decreased from the first to the last round. When placing the bookmark for the Proficient level, panelists at tables 2 and 4 tended to place their bookmarks higher over all three rounds compared with the panelists at the other tables. Therefore, a 10-point range in scores was present in final bookmark placements at round 3. When placing the bookmark for the Basic level, panelists at table 4 tended to place their bookmarks higher than the other tables over the second and third rounds, resulting in a 9-point range in bookmark placements at the end of round 3. For the Accelerated and Advanced levels, variability in panelists' bookmark placements decreased over the three rounds, and final bookmark placements for each of these levels had a range of 7 points.

Exhibits 21 - 25 illustrate variability in median table bookmark placements for the four performance levels over the three rounds.

Note. The scale for the Y-axis is different in the following four graphs.

Exhibit 21

Median Page Numbers Recommended by Each Table and the Room at Each Round, Showing Degree of Convergence Across Rounds Proficient Level Cut Score

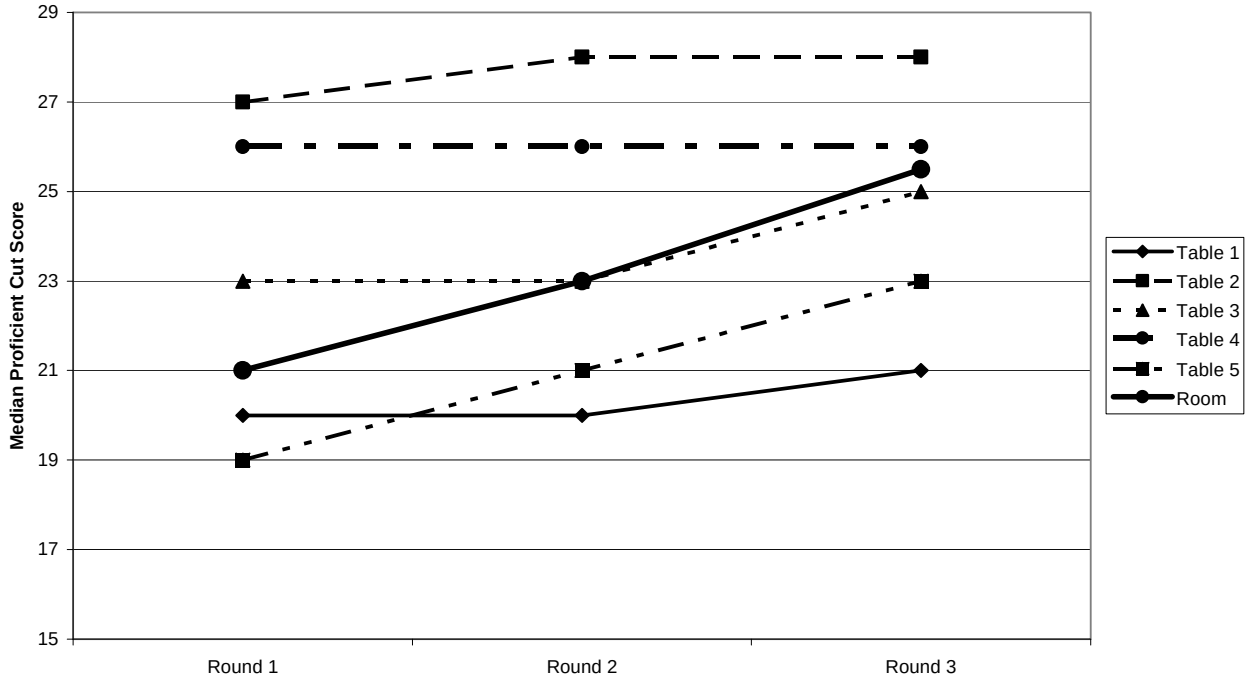


Exhibit 22

Median Page Numbers Recommended by Each Table and the Room at Each Round, Showing Degree of Convergence Across Rounds Basic Level Cut Score

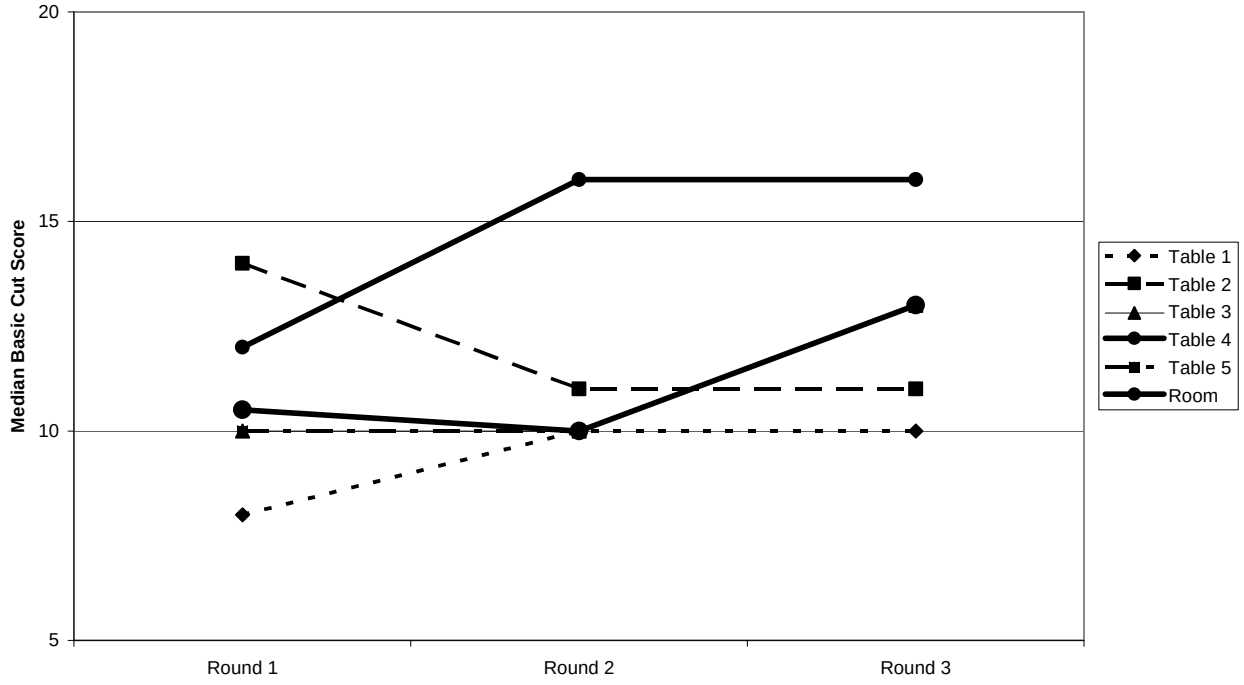


Exhibit 23

Median Page Numbers Recommended by Each Table and the Room at Each Round, Showing Degree of Convergence Across Rounds Accelerated Level Cut Score

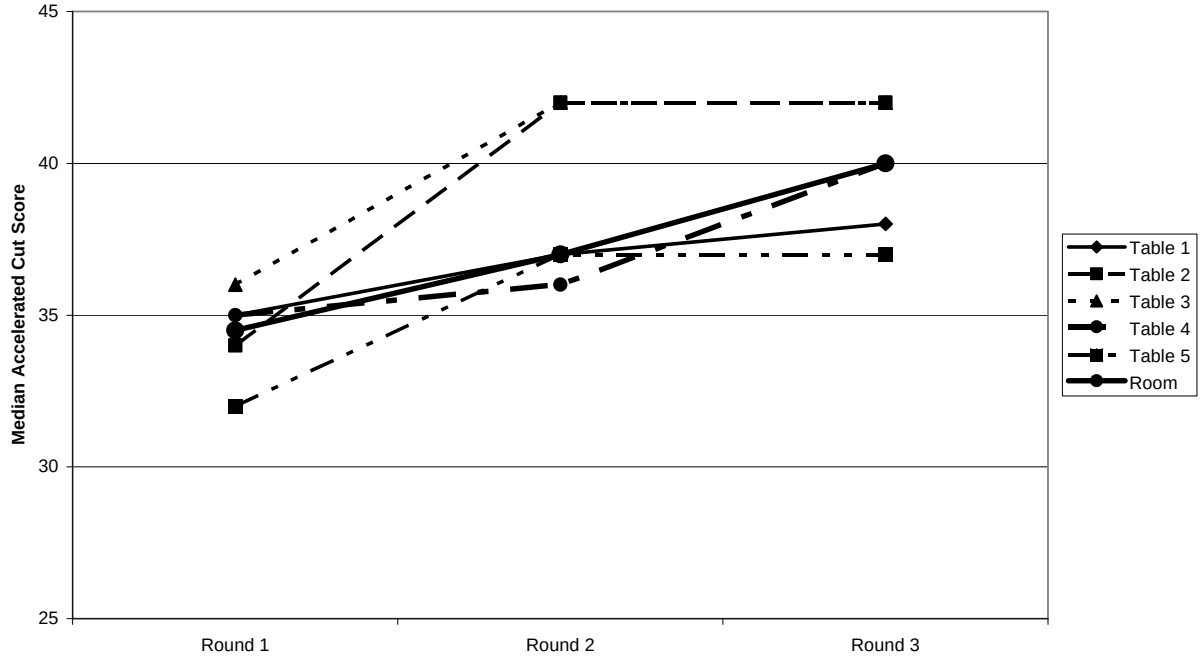


Exhibit 24

Median Page Numbers Recommended by Each Table and the Room at Each Round, Showing Degree of Convergence Across Rounds Advanced Level Cut Score

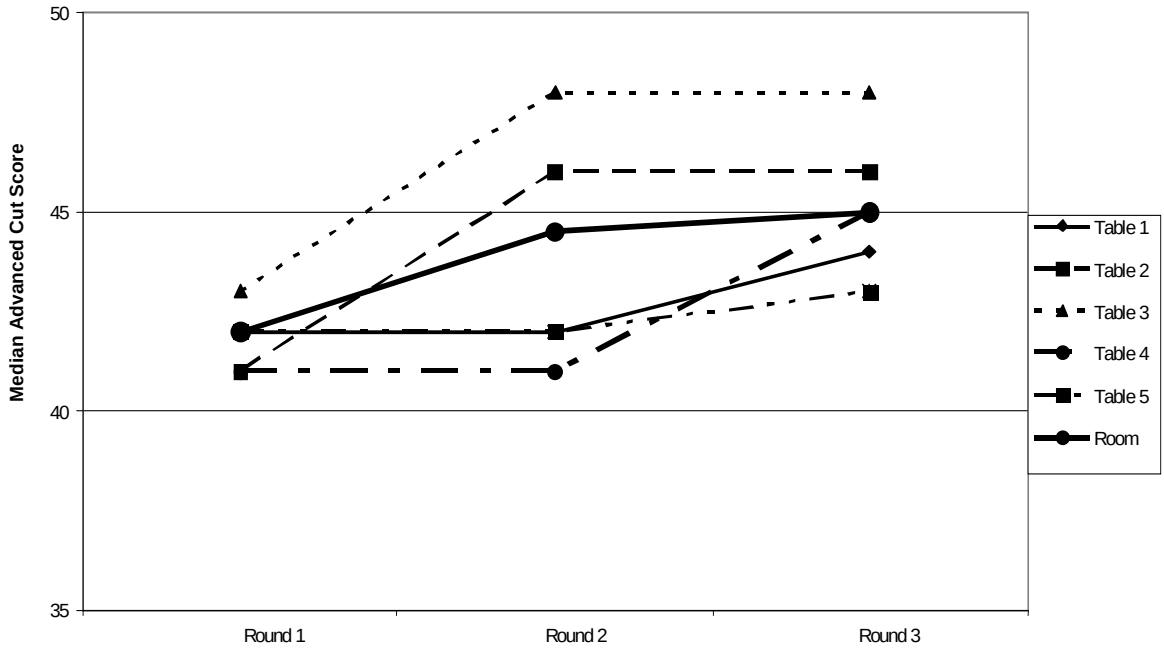
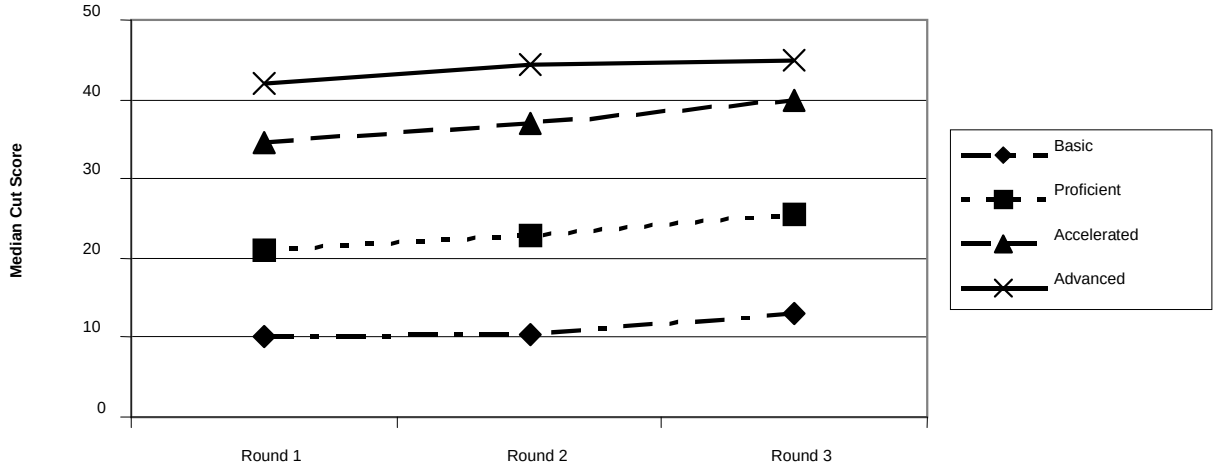


Exhibit 25

Median Page Numbers Recommended by the Room at Each Round, Showing Degree of Convergence Across Rounds



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. The evaluation form contained questions asked in evaluations of previous standard setting workshops for Ohio assessments (e.g., the Ohio Graduation Tests; see questions A-I in Appendix C) and questions that AIR typically includes in evaluations of its standard setting workshops (see questions 1 - 10 in Appendix C). Aggregated results of the closed-ended items are presented in Appendix C, as are the full text of responses to open-ended questions.

Overall, panelists reported that they understood their task, felt that they were well prepared to make bookmark placements, and found the workshop materials to be helpful in placing bookmarks (see questions 1 - 4 in Standard Setting Readiness Form in Appendix C). Panelists were unanimous in reporting that the standard setting process was "fair and unbiased" (question 10). Comments in response to open-ended question 5, regarding the time allocations for the various tasks, were positive overall. Panelists were unanimous in reporting that they understood the training and discussion that was preparatory to placing bookmarks in each of rounds 1, 2 and 3 and understood what they were required to do to complete each round. They also were unanimous in reporting that they were encouraged to discuss the placement of the bookmarks.

Overall, the evaluation results indicate that most panelists were satisfied with the placement of the cut scores. Of the 22 participants, 21 reported that the process was fair and unbiased (one person did not respond to this question). Some panelists expressed concern in questions 7 and 8 about their general satisfaction with the placement of the bookmarks.

The Proficient Cut Score

Thirteen of 21 panelists (one panelist did not respond to this question) reported that they were "generally satisfied with the placement of the Proficient cut score" (see comments to question 7 in Appendix C). Eight panelists responded "No" to this question. Eight panelists reported that they would "move the placement of the bookmark" earlier in the ordered item booklet, thus lowering the Proficient cut score. These eight panelists reported that they would move the bookmark for the Proficient cut score as few as two and as many as six pages prior to the final median page placement by the panel. One additional panelist reported that she would move the bookmark two pages after the final page placement. Panelist rationales (see comments in Appendix C) focus on their judgments about the knowledge and skills required of students to respond to the pages just prior to the final median page placement by the panel (i.e., p. 26; for example, "I feel the basic readers would be able to do the two pages preceding page 26"), their distinction between Proficient and just barely Proficient students, their views on the amount of support Basic and Proficient students would need to respond to test items and on the difficulty of achieving the final panel cut score (e.g., "Too high to ensure student success").

Ten of 18 panelists (four did not respond to this question) reported that they were "generally satisfied with the placement of the Basic, Accelerated and Advanced cut scores" (see comments to question 8 in Appendix C). Eight panelists responded "No" to this question. Below we discuss their rationales for moving the placement of the bookmark separately for each cut score.

The Basic Cut Score

Four panelists reported that they would move the placement of the bookmark for the Basic cut score. Three reported that they would move the bookmark two or three pages before the final median page placement by the panel; one reported that she would move it three pages after the final median page placement by the panel. One panelist reported that part of her rationale for moving the Basic bookmark was a belief that the cut score was too high and "too daunting for student success." Another panelist reported that she thought the Basic bookmark should be moved after the final median page placement by the panel, using this rationale: "I would have placed the Basic score higher in order to make sure students had mastered more material before being promoted to the 4th grade."

The Accelerated Cut Score

Eleven panelists recommended moving the placement of the bookmark for the Accelerated cut score. Five reported that they would move the bookmark two to four pages before the final median page placement by the panel; six reported that they would move it one to three pages after the final median page placement by the panel. Panelist rationales for moving the Accelerated bookmark included the belief that the distinction between Proficient and Accelerated was stronger in the next couple of pages when students were asked to synthesize information and that "these pages include higher level thinking and should reflect so."

The Advanced Cut Score

Eight panelists recommended moving the placement of the bookmark for the Advanced cut score. Four reported that they would move the bookmark two to eight pages before the final median page placement by the panel and four reported that they would move it two to three pages after the final median page placement by the panel. Three panelists said to move the Advanced bookmark three pages after page 45, the final median page placement by the panel. Moving the bookmark three pages later would place the Advanced bookmark at the second to highest possible page. Panelist rationales for moving of Advanced bookmark before included their desires to ensure student success. One panelist reported her rationale for moving the Advanced bookmark later in the book: "Bar needs to be raised. This is a grade-level test. In order to be advanced the student should almost have a 'perfect score.'"

Recommended Final Cut Scores and Impact Data

The ultimate outcomes of the standard setting activity are the recommended cut scores. In this section, the recommended cut scores for each performance level are presented, along with the estimated impact each performance standard would have on subgroups and the total population of Ohio third grade students.

Cut Scores Set by Panel

In the first three rounds of the standard setting workshop, panelists set the Proficient, Basic, Accelerated and Advanced standards for the reading achievement test. The results of this process are presented below.

Proficient

Performance level	Recommended Cut Score			Estimated overall percent of students at or above cut for ordered item book and raw score
	Page in ordered item booklet	Raw score	Theta values based on ordered item booklet and raw score	
Proficient	Page 26	32	-0.37 for ordered item book; -0.37 for raw score	67% for ordered item book; 67% for raw score

Basic

Performance level	Recommended Cut Score			Estimated overall percent of students at or above cut for ordered item book and raw score
	Page in ordered item booklet	Raw score	Theta values based on ordered item book and raw score	
Basic	Page 13	25	-0.98 for ordered item book; -0.96 for raw score	83% on the ordered item book; 82% for raw score

Accelerated

Performance level	Recommended Cut Score			Estimated overall percent of students at or above cut for ordered item book and raw score
	Page in ordered item booklet	Raw score	Theta values based on ordered item book and raw score	
Accelerated	Page 40	38	+0.22 for ordered item book; +0.26 for raw score	48% on the ordered item book; 44% for raw score

Advanced

Performance level	Recommended Cut Score			Estimated overall percent of students at or above cut for ordered item book and raw score
	Page in ordered item booklet	Raw score	Theta values based on ordered item book and raw score	
Advanced	Page 45	42	+0.90 for ordered item book; +0.90 for raw score	20% on the ordered item book; 20% for raw score

Raw Scores, the Ohio Rounding Rule, and Scaled Scores

Once panelists determine the page in the ordered item booklet that they determine is the best standard for a performance level, several steps are followed to determine the theta value, raw score, and scale score corresponding to the standard. First, the theta value associated with the page in the ordered item booklet is identified. This theta value becomes the standard for that performance level cut. The next step is to determine the raw score associated with this theta. To do this, that theta value is sought in the list of theta values associated with the raw scores on the operational form. If the exact theta value does not appear in the operational form, then the two closest values (above and below the standard) are identified. Since the standard represents the value for which students must reach or exceed to be considered in that performance level, the next greater theta value is often the one chosen. However, the Ohio Department of Education implements a rounding rule that impacts the theta selection on the operational form. The ODE rounding rule requires that of the two operational form theta values that are closest to the theta from the ordered item booklet theta value, the one nearest to the standard set by panelists is selected if that nearest theta is below the standard (or smaller in value). Otherwise, the theta from the operational test that is greater than the theta associated with the standard set by the panelists is selected. The raw score associated with the selected theta on the operational form is then used to determine the standard for the levels. The scale score represents a linear transformation of the theta scores, with the proficient cut score level set at a scaled score of 400. 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 the 400 was the scaled score the ODE decided was to represent the proficiency level cut score. The 30 was the standard deviation the ODE decided to use when calculating the scale score. The theta represents any theta 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, determined from the March 2003 field test. This SD[theta] was found to be 1.193991618.

To better understand how the scale scores are calculated, how the rounding rule works, and why two theta values are reported above, start with the standard set by the panelists for the Proficient level, which was page 26 in the ordered item booklet. That page was associated with a theta of -0.37. This theta was one found in the list of thetas on the operational form. The raw score on the operational form associated with this theta value was 32. This raw score was then accepted as the raw score for the Proficient Level standard. The theta of -0.37 was also assigned the scale score of 400, as per the decision by the ODE. All other standard scores were then calculated for the other thetas using (1). Next, examine the Advanced Level. Panelists placed the bookmark at page 45 of the ordered item booklet. The theta value associated with page 45 was 0.90. The scaled score associated with a theta of 0.90 (which was actually 0.898136147930077 when carried out to multiple decimal places) would be calculated from (1) as 400+[30{-0.898136147930077 - (-0.371814866592472)}/ 1.193991618] = 431.91. This value rounds to 432 (as shown in Appendix E). In the operational form, a theta of 0.90 did not exist, so the two closest theta values (0.86 and 1.06) were examined. Of the two closest values, the 0.86 fell closest to the 0.90. Since it was smaller in value than the 0.90 standard set by the panelists, the 0.86 was selected and the raw score associated with the 0.86 was used as the standard. That raw score was 42 out of 49.

Impacts

The impacts of the final recommended cut scores based on the raw score from the process described above are presented in tabular and graphical formats (Exhibits 26 and 27).

Exhibit 26

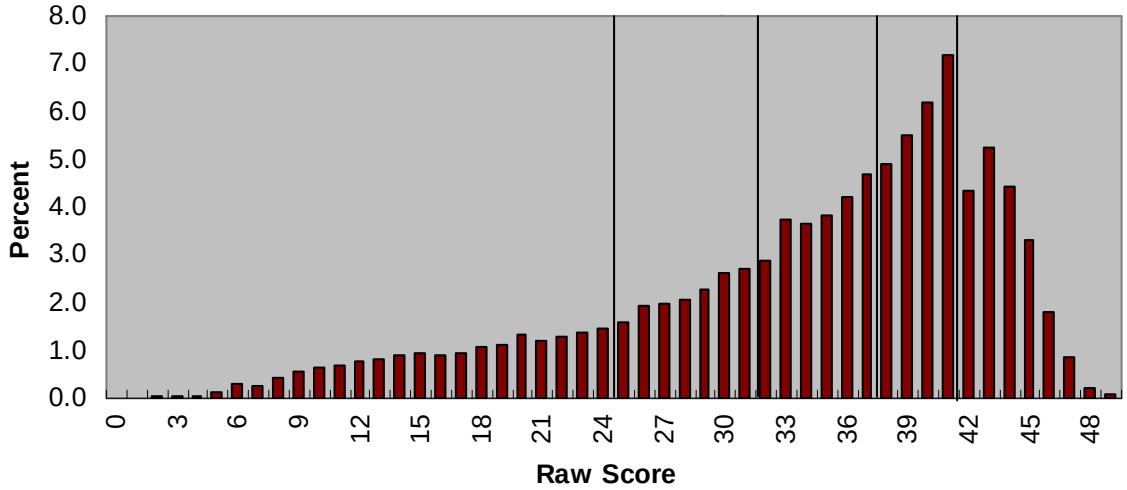
Estimated Overall and Disaggregated Impact at Each Performance Level

	Estimated Percent of Students in Level by Demographic Categories										
Performance Level	**Scale Score Standard**	**Overall**	**Male**	**Female**	**White**	**Black**	**Hispanic**	**Multiracial**	**Urban**	**Suburban**	**Rural**
		%	%	%	%	%	%	%	%	%	%
Limited		18	20	15	14	37	29	22	26	10	15
Basic	385	15	16	14	13	23	18	18	17	11	15
Proficient	400	23	23	23	23	22	21	21	24	22	24
Accelerated	415	24	23	25	26	12	18	21	19	27	26
Advanced	432	20	18	23	24	6	14	18	14	30	20
	Number of Students in Each Demographic Category in the March 2003 Field Test										
Number of Students		16,774	8,099	7,797	11,703	2,337	177	427	6,729	4,806	5,156

Note. Because of non-responses on demographic questions, subtotals do not add to the overall total.

Exhibit 27

Grade 3 Achievement Test Estimated Frequency Distribution
Basic = 25, Proficient = 32, Accelerated = 38, Advanced = 42 out of 49 raw score points



18% Limited, 15% Basic, 23% Proficient, 24% Accelerated, 20% Advanced

Conclusion

Overall, standard setting for the Grade 3 Reading Achievement Test in Ohio 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.

Presentation of Results to Committees

The results of the standard setting workshop were presented to the Grade 3 Reading Achievement Test Fairness and Sensitivity Committee, the ODE Test Steering Committee and the Technical Advisory Committee on October 2 - 3, 2003. Each committee provided positive feedback concerning the process of the standard setting workshop. The committees said that the process of recommending cut scores was acceptable.

Report for the State Board

The present report is intended for use by ODE staff to prepare their report to the State Board of Education.

Next Steps

ODE has expressed that it would like to revisit the standards in the future; therefore, in 2003–04 we will revisit the performance standards established in the previous year. In addition, we will establish Basic, Proficient, Accelerated and Advanced performance standards for the Grade 4 Writing Achievement Test and the Grade 3 Mathematics Achievement Test. These standards will be articulated with the standards set in 2002–03 and revisited in 2004.

References

Masters, G. N. (1982). A Rasch model for partial credit scoring. *Psychometrika*, *47*, 149-174.

Mitzel, H. C., Lewis, D. M., Patz, R. J., & Green, D. R. (2001). The Bookmark procedure: Psychological perspectives. In G. Cizek (Ed.), *Setting performance standards: Concepts, methods and perspectives*. Mahwah, NJ: Erlbaum.

Appendix A

Panel Composition
Ohio Grade 3 Reading Standard Setting Workshop

Exhibit A1

Grade 3 Reading Achievement Test Breakdown of Standard Setting Panelists by District and County

Ohio District	Ohio County	Region
Arcanum	Darke County	North West
Bellefontaine City	Logan County	North West
Bowling Green City	Wood County	North West
Cincinnati City	Hamilton County	South West
Cleveland Municipal	Cuyahoga County	North East
East Cleveland	Cuyahoga County	North East
Franklin Local	Muskingum County	South East
Huber Heights City	Montgomery County	South West
Fremont City	Sandusky County	North West
Liberty Local	Hancock County	North West
Logan-Hocking	Hocking County	South East
North Royalton City	Cuyahoga County	North East
Oregon City	Lucas County	North West
Otsego Local	Wood County	North West
Pickerington Local	Fairfield County	Central
South Western City	Franklin County	Central
Tiffin City	Seneca County	North West
Toledo City	Lucas County	North West
Warren City	Trumbull County	North East
Western Local	Pike County	South East
Willard City	Huron County	North East

Note. Two panelists were from the Cleveland Municipal District.

Exhibit A2

Grade 3 Reading Achievement Test Breakdown of Standard Setting Panelist by LRC District Effectiveness Rating

Grade 3 Reading	LRC District Effectiveness (2002)				
Ohio District	Excellent	Effective	Continuous Improvement	Academic Watch	Academic Emergency
Arcanum			X		
Bellefontaine City			X		
Bowling Green City			X		
Cincinnati City					X
Cleveland Municipal				X	
East Cleveland					X
Franklin Local			X		
Fremont City			X		
Huber Heights City		X			
Liberty Local			X		
Logan-Hocking			X		
North Royalton City	X				
Oregon City		X			
Otsego Local			X		
Pickerington Local		X			
South Western City			X		
Tiffin City		X			
Toledo City					X
Warren City				X	
Western Local				X	
Willard City			X		
Grand Total	1	4	9	4	3

Note. Two panelists were from the Cleveland Municipal District.

Exhibit A3

Grade 3 Reading Achievement Test Breakdown of Standard Setting Panelist by Ethnicity

Ethnic Background	Number
African American	5
Caucasian	17
Grand Total	22

Exhibit A4

Grade 3 Reading Achievement Test Breakdown of Standard Setting Panelist by Gender

Gender	Number
Female	22
Male	0
Grand Total	22

Exhibit A5

Grade 3 Reading Achievement Test Breakdown of Standard Setting Panelists by Roles

Role	Grade 3 Reading	
	Actual	Target
Business/Community Member	2	4
Other Educator	8	8
Teacher	12	13
Grand Total	22	25

Exhibit A6

Grade 3 Reading Achievement Test Breakdown of Standard Setting Education Panelists by Occupation

Occupation	Number
Asst. Superintendent	1
District Literary Coach	1
Grade K, 1 or 2 Teacher	4
Grade 3 Teacher	8
Parent	1
Reading Specialist	5
Title I Teacher	1
Trainer Consultant	1
Grand Total	22

Exhibit A7

Grade 3 Reading Achievement Test Breakdown of Standard Setting Teacher Panelists by Grade Level

Teachers	Number
At grade level	8
Above grade level	0
Below grade level	4
Title I Teacher	1
Reading Specialists	5
Grand Total	18

Specifications for Panel Representatives from ODE

Summary of Grade 3 Reading Standard Setting Committees

GENERAL MEMBERSHIP TABLE

TYPE /subtype)	TARGET(subtype)	Obtained	SOURCES
TEACHER	13	12	OEA/OFT
at	(9)	8	
above	(2)	0	
below	(2)	4	
TITLE I TEACHER	N/A	1	
READING SPECIALISTS	N/A	5	
EDUCATOR	8	2	
/superintendent/administrator	(1)	1	BASA/OASSA
/school board member	(1)	0	OSBA
/curriculum supervisor	(2)	1	
/higher education	(1)	0	
/early childhood	(1)	0	
/specialty office/organization	(2)	0	e.g. OCTELA/ Office of Literacy
COMMUNITY	4	2	
/parents	(2)	1	PTA
/business/community	(2)	1	
TOTAL	25	22	

GENDER	COUNT
Female	22
Male	0

ETHNICITY	COUNT
African-American	5
Caucasian	17
Hispanic	0
Asian	0
Native American	0

REGIONAL	COUNT
NE	6
NW	9
C	2
SE	3
SW	2

Summary

22 members total
18 teachers (5 at grade level, 4 below grade level, 0 above grade level, 1 Title I, 5 reading specialists)
2 other educators (superintendent, curriculum supervisor); 2 community (1 parent, 1 business/community member)

Appendix B

Content Materials
Ohio Grade 3 Reading Standard Setting Workshop

Grade 3 Reading
Performance Level Descriptors

Limited	Students performing at the limited level do not yet have the skills identified at the basic level.
Basic	Students performing at the basic level have some reading skills, but still need teacher support and prompting to comprehend grade-level text. Students usually are able to • use context clues and provided resources to decode and define some unfamiliar words in grade-appropriate reading material • sometimes respond accurately to literal questions about text • make some use of reading comprehension strategies, such as compare and contrast and prediction, to independently build meaning about the text • use illustrations to support their comprehension of the text
Proficient	Students performing at the proficient level have a range of reading skills and can comprehend grade-level texts with little or no teacher support. Students usually are able to • use context clues, structural analysis and provided resources in grade-appropriate reading material to determine the meanings of words • respond accurately to literal questions and sometimes answer inferential questions accurately • usually apply reading comprehension strategies, such as inference, compare and contrast, prediction and summarization, to build meaning from text • sometimes apply self-monitoring strategies such as clarifying questions to help them comprehend essential elements of informational text • identify various elements of literature (e.g., theme, characters, setting and plot) • use text features, such as titles, subtitles, and visual aides, to support their comprehension and draw conclusions about the text • use text structures, such as chronology and problem/solution to help them organize information
Accelerated	Students performing at the accelerated level have a wide range of reading skills enabling them to read and comprehend grade-level texts independently. Students usually are able to • determine meanings of unfamiliar words at or above grade level by using word structure analysis and context clues • respond accurately to literal and inferential questions and usually answer evaluative questions accurately • consistently apply comprehension strategies, such as inference, compare and contrast, prediction, and summarization, to develop a thorough understanding of the text • consider author's use of language to develop an accurate understanding of the text • use the elements of literature (e.g., characters, setting and plot) to develop an accurate understanding of the text • use text features, such as titles, subtitles and visual aides, to support their comprehension and draw accurate conclusions about the text

Accelerated (cont.)	• use text structures, such as chronology, cause and effect, and problem/solution to help them organize and summarize information about the text • consistently apply self-monitoring strategies such as clarifying questions to help them comprehend essential elements of informational text
Advanced	Students performing at the advanced level have reading skills which enable them to use critical reasoning to evaluate text independently. Students usually are able to • use their knowledge of word structure and context clues to extend their vocabulary • consistently respond accurately to inferential and evaluative questions • apply comprehension strategies, such as inference, compare and contrast, prediction, and summarization, to develop a thorough and cohesive understanding of the text • infer and evaluate the ways an author's word choice and use of methods affect text and influence the reader • use text features and text structures to interpret and evaluate text

Grade 3 Reading
Standards and Benchmarks

Standard: <u>Phonemic Awareness</u>, Word Recognition and Fluency
Benchmarks:

A. Use letter-sound correspondence knowledge and structural analysis to decode words.
B. Demonstrate fluent oral reading, using sight words and decoding skills, varying intonation and timing as appropriate for text.

Standard: <u>Acquisition of Vocabulary</u>
Benchmarks:

A. Use context clues to determine the meaning of new vocabulary.
B. Read accurately high- frequency sight words.
C. Apply structural analysis skills to build and extend vocabulary and to determine word meaning.
D. Know the meaning of specialized vocabulary by applying knowledge of word parts, relationships and meanings.
E. Use resources to determine the meanings and pronunciations of unknown words.

Standard: <u>Reading Process</u>: Concepts of Print, Comprehension Strategies and Self-Monitoring Strategies
Benchmarks:

A. Establish a purpose for reading and use a range of reading comprehension strategies to understand literary passages and text.
B. Make predictions from text clues and cite specific examples to support predictions.
C. Draw conclusions from information in text.
D. Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.
E. Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).
F. Apply and adjust self-monitoring strategies to assess understanding of text.

Standard: <u>Reading Applications: Informational</u>, Technical and Persuasive Text
Benchmarks:

A. Use text features and structures to organize content, draw conclusions and build text knowledge.
B. Ask clarifying questions concerning essential elements of informational text.
C. Identify the central ideas and supporting details of informational text.
D. Use visual aids as sources to gain additional information from text.
E. Evaluate two- and three- step directions for proper sequencing and completeness.

Standard: <u>Reading Applications: Literary Text</u>
Benchmarks:

A. Compare and contrast plot across literary works.
B. Use supporting details to identify and describe main ideas, characters and setting.
C. Recognize the defining characteristics and features of different types of literary forms and genres.
D. Explain how an author's word choice and use of methods influences the reader.
E. Identify the theme of a literary text.

Appendix C

Evaluations
Ohio Grade 3 Reading Standard Setting Workshop

Grade 3 Reading Achievement Test
Standard Setting Readiness Form

September 2003

Panelist ID number _____

Proficient, Basic, Accelerated, and Advanced Cut Scores

Training and Preparation for Round 1

I have completed the standard setting training review and I understand what I need to do to complete Round 1.

Yes No
(circle one)

Preparation for Round 2

I have discussed the results from Round 1, including my placement of the Bookmark and the two types of feedback, and I understand what I need to do to complete Round 2.

Yes No
(circle one)

Preparation for Round 3

I have discussed the results from Round 2, including my placement of the Bookmark and the two types of feedback, and I understand what I need to do to complete Round 3.

Yes No
(circle one)

During the workshop, everyone was encouraged to discuss their placement of the Bookmark.

Yes No
(circle one)

Comments:

Evaluation of the Standard Setting Workshop
Grade 3 Reading Achievement Test

September 2003

The purpose of this evaluation form is to secure your feedback about the standard setting process. Your feedback will provide a basis for evaluating the training, methods, and materials in the standard setting process.

Please complete the information below. Do not put your name on the form as we want your feedback to be anonymous.

The frequencies and percentages provided only represent those panelists who answered the questions – non-responses are not indicated or listed.

Content area: _____ Grade_____

Date: _____

	Statement	Agree (Freq. / %)	Disagree (Freq. / %)	No response (Freq.)
A	The workshop leaders clearly explained the purpose of the meeting.	22 / 100%	0 / 0%	0
B	The workshop leaders clearly explained my task.	22 / 100%	0 / 0%	0
C	The examples and exercises helped me understand how to perform my task.	21 / 100%	0 / 0%	1
D	The large and small group discussions helped me understand the process.	21 / 100%	0 / 0%	1
E	I was able to follow the instructions and complete the rating sheets accurately.	21 / 100%	0 / 0%	1
F	The discussions after the first round of rating were helpful to me.	21 / 100%	0 / 0%	1
G	The discussions after the second round of rating were helpful to me.	21 / 100%	0 / 0%	1
H	The information showing the distribution of student scores was helpful to me.	20 / 95%	1 / 5%	1
I	The facilities and food service helped to create a good working environment.	19 / 90%	2 / 10%	1

1. Please read each of the following statements carefully and indicate your response.

		Strongly Agree (Freq. / %)	Agree (Freq. / %)	Disagree (Freq. / %)	Strongly Disagree (Freq. / %)
a.	I understood the purpose of this standard setting workshop.	20 / 91%	2 / 9%	0 / 0%	0 / 0%
b.	The training on the Bookmark process gave me the information I needed to complete my assignment.	17 / 77%	5 / 23%	0 / 0%	0 / 0%
c.	The training on the content standards gave me the information I needed to complete my assignment.	15 / 68%	7 / 32%	0 / 0%	0 / 0%
d.	The training on the Performance Level Descriptors gave me the information I needed to complete my assignment.	20 / 91%	2 / 9%	0 / 0%	0 / 0%
e.	The agreement data gave me the information I needed to complete my assignment.	18 / 82%	4 / 18%	0 / 0%	0 / 0%
f.	The impact data gave me the information I needed to complete my assignment.	17 / 77%	4 / 18%	1 / 5%	0 / 0%

2. Please rate the clarity of the following.

		Very Clear (Freq. / %)	Somewhat Clear (Freq. / %)	Somewhat Unclear (Freq. / %)	Very Unclear (Freq. / %)
a.	Instructions provided by the trainers.	20 / 91%	2 / 9%	0 / 0%	0 / 0%
b.	Description of the "Proficient" performance level.	21 / 95%	1 / 5%	0 / 0%	0 / 0%
c.	Description of the "Basic" performance level.	22 / 100%	0 / 0%	0 / 0%	0 / 0%
d.	Description of the "Accelerated" performance level.	21 / 95%	1 / 5%	0 / 0%	0 / 0%
d.	Description of the "Advanced" performance level.	19 / 86%	3 / 14%	0 / 0%	0 / 0%

3. Please rate the usefulness of the following for learning the Bookmark method.

		Very Useful (Freq. / %)	Somewhat Useful (Freq. / %)	Not Useful (Freq. / %)
a.	Reviewing the test prior to standard setting	20 / 91%	2 / 9%	0 / 0%
b.	Information folder	16 / 73%	6 / 27%	0 / 0%
c.	Ordered item booklet	22 / 100%	0 / 0%	0 / 0%

4. How important was each of the following factors in your placement of the bookmark?

		Very Important (Freq. / %)	Somewhat Important (Freq. / %)	Not Important (Freq. / %)
a.	The Performance Level Descriptors	22 / 100%	0 / 0%	0 / 0%
b.	Your perception of the difficulty of the items	21 / 95%	1 / 5%	0 / 0%
c.	Your experiences with students	18 / 86%	3 / 14%	0 / 0%
d.	Small group discussions	17 / 81%	4 / 19%	0 / 0%
e.	Large group discussions	18 / 82%	4 / 18%	0 / 0%
f.	The agreement data	14 / 67%	7 / 33%	0 / 0%
g.	The impact data	16 / 73%	6 / 27%	0 / 0%

Were any materials or procedures especially influential in your placement of the bookmark? If so, which ones? Why?

(See Evaluation Comments Sheet)

5. How appropriate was the amount of time you were given to complete the following components of the standard setting process?

	Too Much (Freq. / %)	About Right (Freq. / %)	Too Little (Freq. / %)
a. Training on the Bookmark process	4 / 19%	17 / 81%	0 / 0%
b. Reviewing the test	2 / 9.5%	17 / 81%	2 / 9.5%
c. Reflect on the placement of your bookmarks in each round	2 / 9%	20 / 91%	0 / 0%
d. Round 2 discussion	1 / 5%	20 / 95%	0 / 0%
e. Round 3 discussion	5 / 24%	16 / 76%	0 / 0%

7. Are you generally satisfied with the placement of the Proficient cut score?

Yes (Freq. / %)	No (Freq. / %)
13 / 62%	8 / 38%

Why or why not?

(See Evaluation Comments Sheet)

If not, in which direction would you move the placement of the Bookmark and by how much?

____pages before the current page

2 PERSONS RECOMMENDED 2 PAGES
3 PERSONS RECOMMENDED 3 PAGES
2 PERSONS RECOMMENDED 5 PAGES
1 PERSON RECOMMENDED 6 PAGES

____pages after the current page

1 PERSON RECOMMENDED 2 PAGES (THIS PERSON REPORTED THAT SHE WAS GENERALLY SATISFIED WITH THE PLACEMENT)

Your rationale:

(See Evaluation Comments Sheet)

8. Are you generally satisfied with the placement of the Basic, Accelerated, and Advanced cut scores?

Yes (Freq. / %)	No (Freq. / %)
10 / 56%	8 / 44%

3 PERSONS WROTE YES TO BASIC AND NO TO ACCELERATED AND ADVANCED.
1 PERSON WROTE YES TO BASIC AND ADV AND NO TO ACCELERATED.

Why or why not?
(See Evaluation Comments Sheet)

If not, in which direction would you move the placement of the Bookmark and by how much?

Basic Cut Score
1 PERSON RECOMMENDED MOVING 2 PAGES BEFORE
2 PERSONS RECOMMENDED MOVING 3 PAGES BEFORE
1 PERSON RECOMMENDED MOVING 3 PAGES AFTER

Rationale Statements: (See Evaluation Comments Sheet)

Accelerated Cut Score
1 PERSON RECOMMENDED MOVING 2 PAGES BEFORE
3 PERSONS RECOMMENDED MOVING 3 PAGES BEFORE
1 PERSON RECOMMENDED MOVING 4 PAGES BEFORE
1 PERSON RECOMMENDED MOVING 1 PAGE AFTER
4 PERSONS RECOMMENDED MOVING 2 PAGES AFTER
1 PERSON RECOMMENDED MOVING 3 PAGES AFTER

Rationale Statements: (See Evaluation Comments Sheet)

Advanced Cut Score
3 PERSONS RECOMMENDED MOVING 2 PAGES BEFORE
1 PERSON RECOMMENDED MOVING 8 PAGES BEFORE
1 PERSON RECOMMENDED MOVING 2 PAGES AFTER
3 PERSONS RECOMMENDED MOVING 3 PAGES AFTER

Rationale Statements: (See Evaluation Comments Sheet)

9. The standard setting process was fair and unbiased.

Yes (Freq. / %)	No (Freq. / %)
21 / 100%	0 / 0%

10. What suggestions do you have to improve the training or the standard setting process?

(See Evaluation Comments Sheet)

Grade 3 Reading Achievement Test
Standard Setting Evaluation Comments

Question 5 [Were any materials or procedures especially influential in your placement of the bookmark? If so, which ones? Why?]:

- PLD'S impact data
- The whole and small group discussion really assisted me in making the valued decisions!
- Reviewing the test especially.
- discussion during table group
- small group discussion because he varied makeup of the small group
- Discussions and hearing other points of view was very helpful.
- The PLD's were helpful in clarifying my understanding of the levels.
- Reviewing the PLD's in relationship to the ordered item booklet.
- ordered item booklet; reviewing items with my group
- Order Item Booklet because it showed how well children answered questions.
- The PLD's were extremely influential. They kept me focused on what the child needs to know and be able to do.
- The PLD's were quite influential as well as the Standards/Benchmarks. These PLD helped to form a picture of a child at each level. Standards - knowing what the child should be exposed to prior to the test - indicators would have been good to see when skills were introduced etc.
- Discussions
- standard setting item map, ordered booklet, PLD
- I have to say the best thing that helped me was that I had been though the process before. I learned from the that experience and fell I did a better job this time in analyzing information, making decisions, and working in the groups.
- Combination of all of them were important. The impact data really made you realize how it would affect the students.
- Group Discussion
- The power pt. helped to review what was expected of us. What really helped though was the PLD's and understanding the levels of difficulty. Also, going through and discussing the questions was extremely helpful. As a table group figuring out the degree or the level of difficulty of each question in terms of Bloom's.
- Complete bookmark procedure.

Question 7 [Are you generally satisfied with the placement of the Proficient cut score?]:

- Generally the upper two levels are fairly close together
- too high to ensure student success
- exactly where it should be - a barely proficient stud of 3rd grade needs to be there.
- The questions involved and the % passing rate.

- I don't feel that 20 - 25 are items that the Basic reviewer can be expected to answer without support.
- I feel the basic readers would be able to do the 2 pages preceding 26. Those pages between 24 and 26 would require support as stated in the PLDs.
- Believe this begins the true barely basic proficient child.
- I believe the set score is okay for a proficient but not barely proficient
- I felt that pg 24 and 24 are clearly proficient skills. They involve higher level reading skills and delving into the material with more of an understanding of how to find details.
- Proficient could have been set at 23
- 26 is too high. Basic students need support on items before 26.

Question 8 [Are you generally satisfied with the placement of the Basic, Accelerated, and Advanced cut scores?]:

- too high, too daunting for student success
- Yes, but not sure this area was really necessary except for legislature. Actually, if a 3rd grade test proficient is the real important part.
- Basic could be higher in my opinion, to set a more reasonable "bottom level" Accelerated and Advanced are OK.
- I would have placed the Basic score higher in order to make sure students had mastered more material before being promoted to the 4th grade.
- The thought processes for the questions in reference to the PLD's and the Benchmark Standards do not align to the higher cuts.
- At least we've moved up equally for proficient acc and adv. I agree we have to set our standards up there - something we need to aspire to but now that leaves a large group of Basic and below that will need help.
- While I'm not sure basic isn't a page or two higher, I agree these are good bookmarks for the PLDs.
- Felt accelerated and advanced were too low.
- Basic & Accelerated are all right. Advanced needs to be a tougher goal to reach. Based on our placement & field tests, 20% of students are advanced - not likely
- Acc & Adv are too high. They are also too close.

Question 8 Rationales for Moving Accelerated:

- These pages include higher level thinking and should reflect so.
- I feel the next page or two make a break into synthesizing and I feel that's the break for accelerated versus a highly proficient score.
- I feel advanced students should be less than 46% (from field test) The question pg #41 should be able to be answered by a high proficient student.

Question 8 Rationales for Moving Advanced:

- Want to ensure student success. Want to be an advocate for all of my students.
- The remaining items reflect higher level thinking with nonfiction text.
- Bar needs to be raised. This is a grade-level test. In order to be advanced the student should almost have a "perfect score".

Question 9 Comments:

- Good input from all involved.
- I felt all comments were treated with respect and added to the discussion.
- As fair as the median can be
- Lots of information to base it on. Lots of input from discussion
- Absolutely
- I would have liked a few more minutes (not 5) to read the stories in detail since I was not part of the "Achievement Committee" in June. Everything else was great

Question 10:

- I had trouble w/ noise levels at times which made it difficult for me to concentrate.
- Male input - teachers/administrators would have been insightful. Thanks.
- Great as is - maybe a little too much rehashing
- None
- I would like to have demographic information about population used to develop impact data. It would be helpful to know the range of acceptable extended responses.
- Reveal the proficient agreed upon level, then have us set the other cut scores. The other 3 are based on the proficient level.
- Get rid of the term "Just Barely" Proficient, Basic, etc. Its difficult to think if a Just Barely child at the end of third grade not being totally proficient. If "Just Barely" stays then the PLD's should reflect the Just Barely idea at the end of third grade.
- None, I learned a lot of important information and would be interested in helping again.
- It would not have worked without all of these together [small group discussions, large group discussions, the agreement data, and the impact data].
- The only suggestion that I'd like to make is with the PLD's. I don't think the "Limited" definition or information under limited is adequate. There should be a list despite how small, of things a limited student could do. Simply say that they don't yet have skills... doesn't tell me what "limited skills" they may possess. Please reconsider your info under "Limited". There should be a couple bullet points as to what they can do.

General Comments Shared in Workshop

Panelists were sensitive to the possibility that they could be setting a standard that, in the long run (5-10 years down the road), would be too easy. This influence stemmed from a discussion of the 3rd Grade Achievement test as a first year test. Panelists felt that as students started taking the K - 2 Diagnostic tests over the years, they would become better prepared for the Achievement test. Future 3rd grade students would have the advantage of working more extensively with the content standards and benchmarks, both through the diagnostic assessments and teacher instruction. This exposure might produce future performance that is higher than current performance. Thus, over the years, there would be an increase in the number of students reaching the proficient, accelerate and advantage performance levels.

Appendix D

Panelist Materials
Ohio Grade 3 Reading Standard Setting Workshop

Grade 3 Reading Achievement Test Ordered Item Booklet Map

Page Number	Ohio Code	Content Standard	Benchmark	Type of Item	Key	Score Points
1	3R0000AVCXX0179B	Acquisition of Vocabulary	Apply structural analysis skills to build and extend vocabulary and to determine word meaning.	Multiple Choice	B	1 of 1
2	3R0088LTBXX0007B	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Multiple Choice	B	1 of 1
3	3R0000AVDXX0219A	Acquisition of Vocabulary	Know the meaning of specialized vocabulary by applying knowledge of word parts, relationships and meanings.	Multiple Choice	A	1 of 1
4	3R0000AVCXX0176B	Acquisition of Vocabulary	Apply structural analysis skills to build and extend vocabulary and to determine word meaning.	Multiple Choice	B	1 of 1
5	3R0088RPDEX0005E	Reading Process	Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.	Constructed Response		1 of 4

6	3R0000AVDXX0230A	Acquisition of Vocabulary	Know the meaning of specialized vocabulary by applying knowledge of word parts, relationships and meanings.	Multiple Choice	A	1 of 1
7	3R0147AVAXX0020C	Acquisition of Vocabulary	Use context clues to determine the meaning of new vocabulary.	Multiple Choice	C	1 of 1
8	3R0088RPEXX0013B	Reading Process	Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).	Multiple Choice	B	1 of 1
9	3R0147LTBXX0018E	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Constructed Response		1 of 4
10	3R0110ITDXX0010E	Informational Text	Use visual aids as sources to gain additional information from text.	Constructed Response		1 of 4
11	3R0088LTDXX0002C	Literary Text	Explain how an author's word choice and use of methods influences the reader.	Multiple Choice	C	1 of 1

12	3R0147RPAXX0002S	Reading Process	Establish a purpose for reading and use a range of reading comprehension strategies to understand literary passages and text.	Constructed Response		1 of 2
13	3R0088RPDEX0005E	Reading Process	Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.	Constructed Response		2 of 4
14	3R0088AVAXX0001B	Acquisition of Vocabulary	Use context clues to determine the meaning of new vocabulary.	Multiple Choice	B	1 of 1
15	3R0147LTBXX0018E	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Constructed Response		2 of 4
16	3R0147LTBXX0011B	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Multiple Choice	B	1 of 1
17	3R0110ITCXX0017B	Informational Text	Identify the central ideas and supporting details of informational text.	Multiple Choice	B	1 of 1
18	3R0110ITDXX0010E	Informational Text	Use visual aids as sources to gain additional information from text.	Constructed Response		2 of 4

19	3R0110ITAXX0018A	Informational Text	Use text features and structures to organize content, draw conclusions and build text knowledge.	Multiple Choice	A	1 of 1
20	3R0088LTEXX0004A	Literary Text	Identify the theme of a literary text.	Multiple Choice	A	1 of 1
21	3R0147RPCXX0007A	Reading Process	Draw conclusions from information in text.	Multiple Choice	A	1 of 1
22	3R0110RPEXX0013B	Reading Process	Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).	Multiple Choice	B	1 of 1
23	3R0147LTCXX0013A	Literary Text	Recognize the defining characteristics and features of different types of literary forms and genres.	Multiple Choice	A	1 of 1
24	3R0110AVAXX0003A	Acquisition of Vocabulary	Use context clues to determine the meaning of new vocabulary.	Multiple Choice	A	1 of 1
25	3R0110ITCXX0007C	Informational Text	Identify the central ideas and supporting details of informational text.	Multiple Choice	C	1 of 1

26	3R0110RPEXX0012B	Reading Process	Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).	Multiple Choice	B	1 of 1
27	3R0119ITCXX0020S	Informational Text	Identify the central ideas and supporting details of informational text.	Constructed Response		1 of 2
28	3R0147RPCXX0004A	Reading Process	Draw conclusions from information in text.	Multiple Choice	A	1 of 1
29	3R0147RPBXX0003B	Reading Process	Make predictions from text clues and cite specific examples to support predictions.	Multiple Choice	B	1 of 1
30	3R0000AVEXX0134A	Acquisition of Vocabulary	Use resources to determine the meanings and pronunciations of unknown words.	Multiple Choice	A	1 of 1
31	3R0110ITDXX0010E	Informational Text	Use visual aids as sources to gain additional information from text.	Constructed Response		3 of 4
32	3R0088RPDEX0005E	Reading Process	Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.	Constructed Response		3 of 4

33	3R0147LTBXX0018E	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Constructed Response		3 of 4
34	3R0119ITBXX0008A	Informational Text	Ask clarifying questions concerning essential elements of informational text.	Multiple Choice	A	1 of 1
35	3R0147LTDXX0016A	Literary Text	Explain how an author's word choice and use of methods influences the reader.	Multiple Choice	A	1 of 1
36	3R0119AVAXX0018A	Acquisition of Vocabulary	Use context clues to determine the meaning of new vocabulary.	Multiple Choice	A	1 of 1
37	3R0119ITAXX0013B	Informational Text	Use text features and structures to organize content, draw conclusions and build text knowledge.	Multiple Choice	B	1 of 1
38	3R0147LTBXX0018E	Literary Text	Use supporting details to identify and describe main ideas, characters and setting.	Constructed Response		4 of 4
39	3R0119RPAXX0011S	Reading Process	Establish a purpose for reading and use a range of reading comprehension strategies to understand literary passages and text.	Constructed Response		1 of 2

40	3R0147RPAXX0002S	Reading Process	Establish a purpose for reading and use a range of reading comprehension strategies to understand literary passages and text.	Constructed Response		2 of 2
41	3R0119RPCXX0019B	Reading Process	Draw conclusions from information in text.	Multiple Choice	B	1 of 1
42	3R0119ITCXX0006B	Informational Text	Identify the central ideas and supporting details of informational text.	Multiple Choice	B	1 of 1
43	3R0110ITBXX0011C	Informational Text	Ask clarifying questions concerning essential elements of informational text.	Multiple Choice	C	1 of 1
44	3R0119ITCXX0020S	Informational Text	Identify the central ideas and supporting details of informational text.	Constructed Response		2 of 2
45	3R0110RPEXX0025S	Reading Process	Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).	Constructed Response		1 of 2
46	3R0110ITDXX0010E	Informational Text	Use visual aids as sources to gain additional information from text.	Constructed Response		4 of 4

47	3R0088RPDEX0005E	Reading Process	Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.	Constructed Response	4 of 4
48	3R0119RPAXX0011S	Reading Process	Establish a purpose for reading and use a range of reading comprehension strategies to understand literary passages and text.	Constructed Response	2 of 2
49	3R0110RPEXX0025S	Reading Process	Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative).	Constructed Response	2 of 2

Notes on Grade 3 Reading Achievement Test Ordered Item Booklet

- Each multiple-choice item appears on one page.
- The answer key for each multiple-choice item is on the item map.
- Open-ended items and their associated scoring rubrics appear in the ordered item booklet.
- To indicate the score level of each open ended item, we have bolded the scoring rubric text and added asterisks.

Grade 3 Reading Achievement Test
Standard Setting Workshop
September 29 - 30, 2003
Bookmark Placement Sheet

Panelist ID number _____

	Round 1		Round 2		Round 3	
Performance Level	**Bookmark placed on page no.**	**Initials**	**Bookmark placed on page no.**	**Initials**	**Bookmark placed on page no.**	**Initials**
Basic						
Proficient						
Accelerated						
Advanced						

Agenda
Setting Performance Levels for the Grade 3 Reading Achievement Test
September 29-30, 2003

Monday September 29

Morning

8:00 – 8:30	Continental breakfast Review role and responsibilities with Table Leaders
8:30 – 9:30	Welcome, introductions, overview of the HB 3 and goals of the workshop Ohio Department of Education Workshop overview and agenda Steve Ferrara American Institutes for Research Workshop logistics and reimbursement procedures Julie Wronski, Monica Austin American Institutes for Research
9:30 – 11:30	Brief reviews: – Bookmark standard setting procedures and judgmental task – Grade 3 reading standards and benchmarks – Grade 3 Reading Achievement Test – (Includes a brief break)
11:30 – 12:00	Examine and discuss the new Performance Level Descriptors
12:00 – 12:30	Lunch

Afternoon

12:30 – 1:30	Review the ordered item booklet, answering two questions for each item: – What do students need to know and be able to do to respond successfully to each item? – What makes each item more difficult than the previous items?
1:30 – 3:30	Round 1: Set 4 cut scores Start with Proficient Then set the Basic, Accelerated, and Advanced cut scores
3:30 – 4:00	Break (and analysis of round 1 data)

4:00 – 5:00	Begin Round 2 – Discuss feedback on agreement and impact – Set 4 cut scores
5:00 – 5:30	Debrief day 1, prepare for day 2
5:30	Adjourn

Tuesday September 30

Morning

8:00 – 9:00	Continental breakfast
9:00 – 9:30	Review the agenda, PLDs, etc. in preparation for day 2
9:30 – 10:30	Complete Round 2
10:30 – 11:00	Break (and analysis of round 2 data)
11:00 – 12:00	Begin Round 3 – Discuss feedback on agreement and impact – Set 4 cut scores
12:00 – 1:00	Lunch

Afternoon

1:00 – 2:00	Complete Round 3
2:00 – 2:30	Break (and analysis of round 3 data)
2:30 – 3:00	Closing session – Debrief on the workshop – Receive final cut scores and feedback – Complete workshop evaluation
3:00	Adjourn

Grade 3 Reading Standard Setting Powerpoint Presentation

Setting Performance Standards for the Ohio Grade 3 Reading Achievement Test Using the Bookmark Standard Setting Procedure

Main Activities Today

- Overview of the workshop
- Review the task of setting standards for four levels:
  - Proficient
  - Basic, Accelerated, Advanced
- Review the Bookmark standard setting procedure
- Complete round 1, begin round 2

Ohio Standard Setting September 29-30, 2003 2

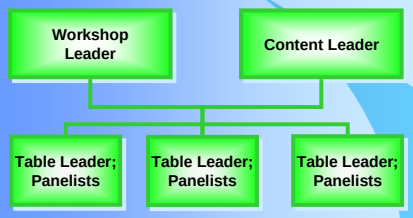
Standard Setting Folder Contents

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

Right Side
- Meeting agenda
- Performance Level Descriptors
- Ohio Grade 3 Reading Academic Content Standards and Benchmarks
- Standard Setting Readiness Form
- Workshop Evaluation Form

Ohio Standard Setting September 29-30, 2003 3

Standard Setting Workshop



Ohio Standard Setting September 29-30, 2003 4

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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Logistics and Reimbursement

Ohio Standard Setting September 29-30, 2003 6

The Agenda

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Ohio Grade 3 Reading Standard Setting Workshop: Purpose

Recommend to the Ohio Department of Education performance standards on the Grade 3 Reading Achievement Test that correspond to the Performance Level Descriptors for Basic, Proficient, Accelerated, and Advanced levels of performance

Ohio Standard Setting September 29-30, 2003 8

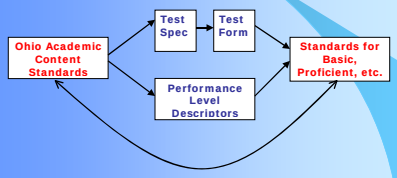
Next

- Orientation to standard setting

What Do We Mean by "Standard Setting" and "Performance Standards"?

- **Ohio Academic Content Standards: Specify the content that should 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 should know and be able to do**
- **Performance Standards: Specify the level of performance required to achieve a performance level.**
  - **How much, how well**

Translating Content Standards to Performance Standards

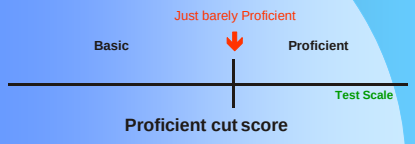


Our Task

Recommend cut scores on the Grade 3 Reading Achievement Test that correspond to the Performance Level Descriptors for Basic, Proficient, Accelerated, and Advanced levels of performance

Setting Cut Scores for the Achievement Test

Set cut scores that indicate that students have demonstrated knowledge and skills required at each level



Next

- The Bookmark standard setting method

The Bookmark Method

- **Research-based procedure**
- **Used in over 20 states and districts**
- **Previously used in Ohio**
- **Has withstood legal challenges**

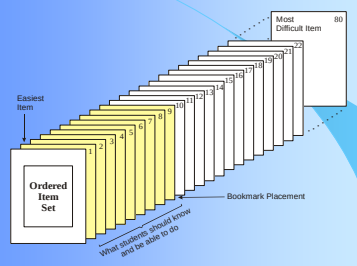
The Bookmark Method (cont'd)

- **Test content is structured so that increasing knowledge and skills can be evaluated directly against descriptions of performance.**
- **Using this method, trained experts determine what students at a performance level should know and be able to do.**

The Bookmark Method (cont'd)

- Using an ordered item booklet, experts:
  - Find the location in the ordered item booklet that separates groups of examinees into categories, and then
  - Literally, place a bookmark at that location in the ordered item booklet.
- This placement task takes place over multiple rounds of discussion and deliberation.

Ordered Item Booklet



Ordered Item Booklet

- Items are taken from the fall 2003 operational test form
- Items scored (0,1), (0,1,2), etc.
- Ordering of the items in the booklet is based on student performance in the March field test

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

Studying the Ordered Item Booklet

- Consider each item, answer two questions:
  - What does this item measure?
  - Why is this item more difficult than the previous items?
- Consider the knowledge and skills a student must be able to demonstrate in order to answer each item correctly or to attain each score point

Does an Item Seem Out of Order?

- Item orderings are based on actual student performance
- Order may be sensitive to instruction
  - Teachers may present material in different orders or teach material that others do not

Notes on Bookmark Placement

- The Bookmark (conceptually) divides two item sets, not two items
- Don't get hung up on the content represented by any single item
- For CR items, the difficulty of a given score point is dependent on the prompt, rubric and scoring guide, and the stimulus materials
- OK to disregard an item that seems out of order

Important Concept to Understand

- Response probability (RP) criterion

Response Probability (RP) Criterion

- The RP criterion is defined as the location in the ordered item booklet that corresponds to a given probability of success
- You will use RP67

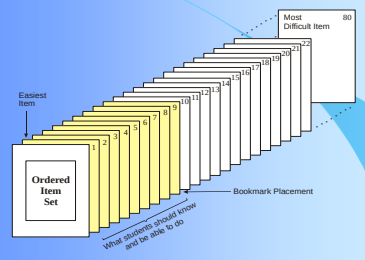
Response Probability (RP)

Using RP67 means that you expect two-thirds of students (at the performance level that is being set) will answer an item successfully

Bookmark Placement Task

- Place your bookmark on the page that (approximately) two-thirds of those students who are just barely at the level would be able to answer successfully
  - Fewer than 2/3 of these students would be expected to respond successfully to the next item
  - More than 2/3 of these students would be expected to response successfully to the previous item
- Record the page number of the bookmark on the Bookmark Placement Sheet

Bookmark Placement



In all rounds, consider…

- Ohio Academic Content Standards
  - What students should know and be able to do
- Performance level descriptors
  - How much, how well

Our Task - Reprise

- Determine how much of the Ohio Academic Content Standards, as measured by the Grade 3 Reading Achievement Test, students should know and be able to do in order to be at each level
- Avoid percentage correct thinking--Think content!
- Think page numbers, not test scores!

You Are the Experts!

- Two questions:
  - What content/processes does each item require?
  - What makes each item harder than the previous ones?

Review the Grade 3 Reading Achievement Test and Related Materials

- Standards and Benchmarks
  - Individual review, table and room discussion
- Grade 3 Reading Achievement Test
  - Individual review, table and room discussion
- Proficiency Level Descriptors
  - Individual review, table and room discussion

Limited

Students performing at the limited level do not yet have the skills identified at the basic level.

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Basic

Students performing at the basic level have some reading skills, but still need teacher support and prompting to comprehend grade-level text.

Students usually are able to…

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Proficient

Students performing at the proficient level have a range of reading skills and can comprehend grade-level texts with little or no teacher support.

Students usually are able to…

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Accelerated

Students performing at the accelerated level have a wide range of reading skills enabling them to read and comprehend grade-level texts independently.

Students usually are able to…

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Advanced

Students performing at the advanced level have reading skills which enable them to use critical reasoning to evaluate text independently.

Students usually are able to…

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Review the Ordered Item Booklet

- Study the ordered item booklet
- Two questions
  1. What do students…
  2. What makes…
- Individual review, table and room discussion

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Next: Round 1

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Tools for Round 1

- **Ohio Grade 3 Reading Content Standards and Benchmarks**
- **Performance Level Descriptors**
- **Ordered Item Booklet**
- **Item Map**
- **Bookmark Placement Sheet**
- **Your expert judgments and the judgments of your colleagues**

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Bookmark Placement Sheet

Panelist ID number _____

Perfor-mance Level	Round 1		Round 2		Round 3	
	Bookmark placed on page no.	Initials	Bookmark placed on page no.	Initials	Bookmark placed on page no.	Initials
Basic						
Proficient						
Accelerat ed						
Advanced						

Preparing for Round 1

- Steps
  - Proficient
  - Basic, Accelerated, Advanced
- Consider
  - Importance of Proficient
    - Intervention
    - NCLB reporting
  - Room above and below
    - 2 levels above, 2 below
    - 2 cut scores above, 1 below

Final Preparation for Round 1

- Review your answers to the two questions
  - What do students need to know and be able to do to respond successfully to this item?
  - What makes this item more difficult than the previous items?
- Place bookmarks
  - Proficient
  - Basic, Accelerated, Advanced
- Independent activity

Conduct Round 1

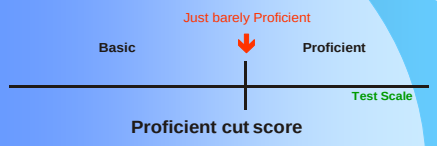
- Table Leaders
  - Check in with all panelists re: readiness to conduct Round 1
- Panelists
  - Complete readiness form
  - Place bookmarks--independently

Round 1 Task

- **Place your bookmark on the page that (approximately) two-thirds of those students who are just barely at that level would be able to answer successfully**
  - **Fewer than 2/3 of these students would be expected to respond successfully to the next item**
  - **More than 2/3 of these students would be expected to response successfully to the previous item**
- **Record the page numbers of the bookmarks on the Bookmark Placement Sheet**

Setting Cut Scores in Round 1

Set cut scores that indicate that students have demonstrated knowledge and skills required at each level



Round 2

Tools for Round 2

- **Ohio Grade 3 Reading Content Standards and Benchmarks Performance Level Descriptors**
- **Ordered Item Booklet**
- **Item Map**
- **Agreement and impact information**
- **Bookmark Placement Sheet**
- **Your expert judgments and the judgments of your colleagues**

Preparing for Round 2

- Learn the two types of feedback

Two Types of Feedback

- Agreement data for <u>your table</u>
  - Median, lowest, and highest
- Impact data
  - Percentages at each level: overall and by gender and race/ethnicity

Purpose of Feedback

- **Add important information to your thinking**
- **Develop common understandings**
- **Inform discussion and possible re-evaluation of bookmark placement decisions**

Agreement Feedback Data

Agreement data discussion

- How comfortable are you with where you placed your bookmark in light of the agreement data?
- What is the range of cognitive demands and the difficulty of the items between the low and high bookmarks at your table?
- On the basis of this discussion, do you expect 2/3 of students at each level to respond successfully to fewer or more items?
- Remember:
  - Item-based rationales for moving bookmarks

Impact data

- Based on Round 1 median cut scores
- Percentages of students at/above each level

Impact data discussion

- Do the impacts of the current placements of the bookmarks seem reasonable?
- What are the implications for the current placements of your bookmarks?
- Remember:
  - Item-based rationales for moving the bookmarks

Final Preparation for Round 2

- Consider and discuss the two types of feedback
  - At your tables
  - Systematically
- Large group discussion
- Reconsider your bookmark placement—independently

Conduct Round 2

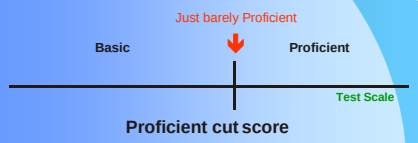
- Table Leaders
  - Check in with all panelists re: readiness to conduct Round 2
- Panelists
  - Complete readiness form
  - Place bookmarks--independently

Round 2 Task

- **Place your bookmark on the page that (approximately) two-thirds of those students who are just barely at that level would be able to answer successfully**
  - **Fewer than 2/3 of these students would be expected to respond successfully to the next item**
  - **More than 2/3 of these students would be expected to response successfully to the previous item**
- **Record the page numbers of the bookmarks on the Bookmark Placement Sheet**

Setting Cut Scores in Round 2

Set cut scores that indicate that students have demonstrated knowledge and skills required at each level



Next: Prepare for Round 3

Tools for Round 3

- **Ohio Grade 3 Reading Content Standards and Benchmarks**
- **Performance Level Descriptors**
- **Ordered Item Booklet**
- **Item Map**
- **Agreement and impact information**
- **Bookmark Placement Sheet**
- **Your expert judgments and the judgments of your colleagues**

Two Types of Feedback

- Agreement data for <u>each table</u>
  - Median, lowest, highest
- Impact data
  - Percentages at/above each level: overall and by gender and race/ethnicity

Final Preparation for Round 3

- Consider and discuss the two types of feedback
  - At your tables
  - Systematically
  - Then large group discussion
- Then reconsider your bookmark placements—independently

Conduct Round 3

- Table Leaders
  - Check in with all panelists re: readiness to conduct Round 3
- Panelists
  - Complete readiness form
  - Place bookmarks--independently

Round 3 Task

- Place your bookmarks on the pages that (approximately) two-thirds of those students who are just barely at that level would be able to answer successfully
  - Fewer than 2/3 of these students would be expected to respond successfully to the next item
  - More than 2/3 of these students would be expected to response successfully to the previous item
- Record the page numbers of the bookmarks on the Bookmark Placement Sheet

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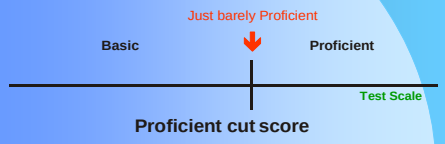
Setting Cut Scores in Round 3

Set cut scores that indicate that students have demonstrated knowledge and skills required at each level



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Appendix E

Impact Data
Ohio Grade 3 Reading Standard Setting Workshop

Reading	Ordered Item Booklet Grade 3		Exhibit E1. Estimated Percent of Students Reaching Each Cut Score Reading Grade 3									
RP	RP Scale Score	Item Map Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial	Urban	Suburban	Rural
-2.47	347	1	98	97	98	98	95	95	98	96	99	99
-2.24	353	2	97	96	98	98	92	93	96	94	98	98
-2.22	354	3	96	96	97	98	91	93	96	94	98	98
-2.11	356	4	96	95	97	97	90	91	96	93	98	97
-1.62	369	5	92	90	94	94	81	84	90	87	96	94
-1.50	372	6	90	89	93	93	79	81	88	85	95	93
-1.44	373	7	90	88	92	92	77	80	88	84	95	92
-1.41	374	8	89	87	92	92	77	79	87	84	94	92
-1.30	377	9	88	86	90	91	73	78	85	82	94	90
-1.24	378	10	87	85	89	90	71	78	84	80	93	90
-1.21	379	11	86	84	89	90	70	78	84	80	93	89
-1.13	381	12	85	83	88	89	68	76	82	78	92	88
-0.98	385	13	83	80	85	87	64	71	79	75	91	86
-0.96	385	14	82	80	85	86	63	71	78	74	90	85
-0.95	386	15	82	79	85	86	63	70	78	74	90	85
-0.81	389	16	79	76	82	84	58	67	75	71	88	82
-0.72	391	17	77	74	80	82	55	66	72	68	87	80
-0.71	391	18	77	74	80	82	55	65	71	68	86	80
-0.70	392	19	76	74	80	81	54	65	71	68	86	79
-0.69	392	20	76	74	79	81	54	65	71	67	86	79
-0.67	392	21	76	73	79	81	53	64	70	67	86	79
-0.60	394	22	74	71	77	79	50	62	68	65	85	77
-0.57	395	23	73	70	76	78	49	61	68	64	84	76
-0.53	396	24	72	69	75	77	47	59	67	62	83	75
-0.42	399	25	69	66	72	74	42	55	62	58	80	72

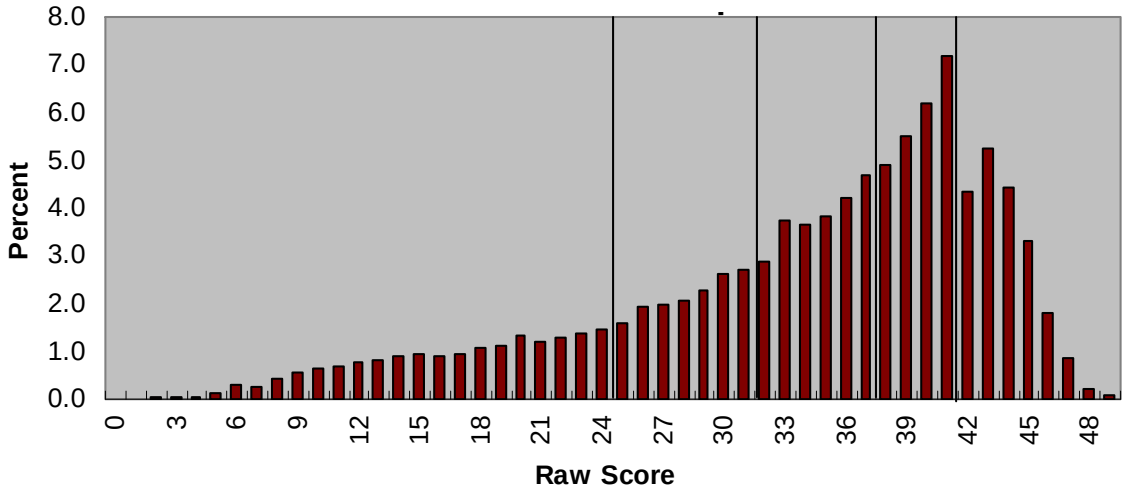
Reading	Ordered Item Booklet Grade 3		Exhibit E1. Estimated Percent of Students Reaching Each Cut Score Reading Grade 3									
RP	RP Scale Score	Item Map Page	Overall	Male	Female	White	Black	Hispanic	Multi-Racial	Urban	Suburban	Rural
-0.37	400	26	67	64	71	73	41	53	60	57	79	70
-0.33	401	27	66	63	70	72	39	52	58	55	78	69
-0.29	402	28	65	62	69	71	38	51	57	54	77	68
-0.22	404	29	62	59	66	68	35	49	54	51	74	65
-0.19	405	30	61	58	65	67	34	49	53	50	73	64
-0.16	405	31	60	57	64	66	33	48	52	49	72	63
-0.15	406	32	59	56	63	65	33	48	52	49	72	62
-0.15	406	33	59	56	63	65	33	48	52	49	72	62
-0.01	409	34	54	51	58	60	28	44	48	43	68	57
0.07	411	35	52	48	56	57	25	42	45	41	65	54
0.08	411	36	51	48	55	57	24	42	45	40	64	54
0.14	413	37	49	46	53	55	22	39	43	38	62	51
0.14	413	38	49	46	53	55	22	39	43	38	62	51
0.15	413	39	48	45	52	54	22	38	43	37	62	51
0.22	415	40	46	42	50	52	19	35	41	35	59	48
0.34	418	41	41	38	45	47	16	29	36	31	54	43
0.44	420	42	37	34	41	43	14	24	33	27	50	39
0.68	426	43	28	25	31	32	9	19	23	20	39	28
0.74	428	44	26	23	28	30	8	18	21	18	37	26
0.90	432	45	20	18	23	24	6	14	18	14	30	20
0.98	434	46	18	16	20	21	5	12	16	12	27	18
1.16	439	47	13	12	15	16	3	7	12	9	20	13
1.89	457	48	3	3	4	4	1	1	4	2	5	3
3.08	487	49	0	0	0	0	0	1	0	0	1	0

Reading	Operational Form Grade 3		Exhibit E2. Estimated Percent of Students Reaching Each Cut Score Reading Grade 3									
Theta	Scale Score	Raw Score	Overall Percent	Male	Female	White	Black	Hispanic	Multi-Racial	Urban	Suburban	Rural
-5.94	260	0	99	100	100	100	100	100	100	99	99	99
-5.19	279	1	99	100	100	100	100	100	100	99	99	99
-4.45	298	2	99	100	100	100	100	100	100	99	99	99
-3.99	309	3	99	99	99	100	99	100	100	99	99	99
-3.65	318	4	99	99	99	100	99	99	100	99	99	99
-3.38	324	5	99	99	99	99	99	99	100	99	99	99
-3.15	330	6	99	99	99	99	99	99	100	99	99	99
-2.95	335	7	99	99	99	99	98	99	99	98	99	99
-2.77	340	8	99	99	99	99	97	98	99	98	99	99
-2.61	344	9	98	98	99	99	96	96	99	97	99	99
-2.46	348	10	98	97	98	98	95	95	98	96	99	99
-2.32	351	11	97	96	98	98	93	94	97	95	99	98
-2.19	354	12	96	96	97	97	91	92	96	94	98	98
-2.08	357	13	96	95	97	97	90	90	95	93	98	97
-1.96	360	14	95	94	96	96	87	90	94	92	98	96
-1.86	363	15	94	93	95	96	85	89	94	90	97	96
-1.75	365	16	93	92	95	95	84	87	92	89	96	95
-1.66	368	17	92	91	94	94	82	84	90	88	96	94
-1.56	370	18	91	89	93	94	80	82	89	86	95	93
-1.47	372	19	90	88	92	93	78	80	88	85	95	92
-1.38	375	20	89	87	91	92	76	79	87	83	94	92
-1.30	377	21	88	85	90	91	73	78	85	81	93	90
-1.21	379	22	86	84	89	90	70	78	84	80	93	89
-1.13	381	23	85	83	88	89	68	76	82	78	92	88
-1.04	383	24	84	81	86	88	65	73	80	76	91	87
-0.96	385	25	82	80	85	86	63	71	78	74	90	85

Reading	Operational Form Grade 3		Exhibit E2. Estimated Percent of Students Reaching Each Cut Score Reading Grade 3									
Theta	Scale Score	Raw Score	Overall Percent	Male	Female	White	Black	Hispanic	Multi-Racial	Urban	Suburban	Rural
-0.88	387	26	81	78	84	85	61	69	77	73	89	83
-0.80	389	27	79	76	82	83	58	67	74	70	88	82
-0.72	391	28	77	74	80	82	55	65	71	68	87	80
-0.63	393	29	75	72	78	80	51	63	69	65	85	78
-0.55	396	30	72	70	76	78	48	60	67	63	83	75
-0.46	398	31	70	67	73	75	44	56	64	60	81	73
-0.37	400	32	67	64	71	73	40	53	60	57	79	70
-0.28	402	33	64	61	68	70	38	51	56	54	76	67
-0.18	405	34	60	57	64	66	34	48	53	50	73	63
-0.08	407	35	57	53	61	63	30	46	49	46	70	59
0.03	410	36	53	50	57	59	26	43	47	42	66	56
0.14	413	37	49	45	53	55	22	39	43	38	62	51
0.26	416	38	44	41	48	50	18	32	39	33	57	46
0.39	419	39	39	36	43	45	15	26	35	29	52	41
0.53	423	40	34	31	37	38	12	21	29	24	46	35
0.69	427	41	28	25	30	31	9	19	23	20	39	28
0.90	432	42	20	18	23	24	6	14	18	14	30	20
1.06	436	43	16	14	18	19	4	10	14	11	24	16
1.29	442	44	11	9	12	13	2	6	10	7	17	10
1.56	449	45	6	5	7	7	1	4	6	4	10	6
1.91	457	46	3	3	3	4	0	1	4	2	5	3
2.38	469	47	1	1	1	1	0	1	1	1	2	1
3.16	489	48	0	0	0	0	0	0	0	0	1	0
3.94	508	49	0	0	0	0	0	0	0	0	0	0

Exhibit E3

Grade 3 Estimated Achievement Test Estimated Frequency Distribution
Basic=25, Proficient=32, Accelerated=38, Advanced=42 out of 49 raw score points



18% Limited, 15% Basic, 23% Proficient, 24% Accelerated, 20% Advanced