

APPENDIX D: STANDARD SETTING REPORT

**Maryland Standard Setting for
The Modified Maryland School Assessment**

May 10–13, 2010

FINAL REPORT



Maryland Standard Setting for The Modified Maryland School Assessment May 10–13, 2010

EXECUTIVE SUMMARY

Committees of Maryland educators were convened from May 10 to 13, 2010, in Towson, Maryland, to set standards for the Modified Maryland School Assessment (Mod-MSA) tests for Reading and Math, Grades 3–5. A total of 134 educators participated for two days per subject to recommend cut scores for these tests. The outcomes of the conference are described in this summary and more detailed information will be provided in a subsequent Standard Setting Technical Report.

The main purpose of the standard setting meetings was to obtain cut score recommendations for each grade within the two content areas for each of the three performance levels: Basic, Proficient, and Advanced. The item mapping procedure was applied to set the recommended standards. Under the item mapping procedure, the panelists are presented with test items and score points in an ordered item book in which each item will appear on a separate page in the book. The panelists are asked to place bookmarks between those items the borderline student for a particular performance level should answer correctly and those item such a student should answer incorrectly.

Panelists

The panelists met in three committees: a committee representing Grade 3, a committee representing Grade 4, and a committee representing Grade 5. The number of panelists on each committee is shown in Table 1.

Table 1. The number of panelists on each committee

Subject	Grade 3	Grade 4	Grade 5
Reading	23	22	23
Math	23	22	21

All the panelists provided voluntary demographic information. Complete demographic information from the panelists will be summarized in the Standard Setting Technical Report. A summary of a subset of panelist demographic information is provided in Table 2, and a summary of the current positions of the panelists appears in Table 3.

Table 2. A summary of experience, gender, and ethnicity data for the committees

Subject	Grade	Years Experience (Average)	Gender		Ethnicity			
			Male	Female	Caucasian	African American	Other	Missing
Reading	3	16.35	1	22	19	3	0	1
	4	17.32	2	20	18	4	0	0
	5	18.87	2	21	16	6	1	0
Math	3	14.37	1	22	19	2	1	1
	4	12.48	1	21	15	5	1	1
	5	14.90	2	19	15	5	1	0

Table 3. Panelists' current positions in Maryland

Subject	N	Positions					
		CSO	GET	SET	SES	AP	SLP
Reading	68	16	17	24	8	2	1
Math	66	14	22	25	4	1	0

Note: CSO: Content Specialist/Content Supervisor (Central Office); GET: General Education Teacher; SET: Special Education Teacher; SES: Special Education Supervisor (Central Office); AP: Assistant Principal; SLP: Speech and Language Pathologist.

Method and Procedure

The standard setting conference began on Monday, May 10. The Reading committees met first (on May 10 and 11), followed by the Math committees. The Reading and the Math committees followed identical agendas and processes. Therefore, the process presented in this document applies to both content areas.

Monday morning was devoted to introductions of the staff, to a description of standard setting, and to a description of the Mod-MSA tests and student population. For this stage of the conference, all the panelists met together in one large room. The agendas for the standard setting are shown in Appendix A. All committees within a subject followed the same agenda.

After the midmorning break, the committee members broke into their grade-specific groups. The three committees (Grade 3, Grade 4, and Grade 5) met separately in individual conference rooms. The committee members spent the remainder of the morning working individually to familiarize themselves with the Mod-MSA test items for their grade by completing the items in their ordered item booklets (OIBs). OIBs were constructed for the three grades by using items from the spring 2010 test administration. These booklets were created by augmenting items from the scored form (45 items for Reading and 51 items for Math) with unscored items that had acceptable item statistics to provide the most complete coverage possible of the scale score range

while maintaining content representation. The scale score associated with a response probability of 0.67 was calculated for each item in the OIB on the basis of spring 2010 data. Items were ordered on the basis of these scale scores and sorted from least to most difficult.

Each ordered item book was accompanied by an item map. The item maps for Reading Grade 3, Grade 4, and Grade 5 are shown in Appendices C, D, and E, respectively. Math Grade 3, Grade 4, and Grade 5 can be found in Appendices F, G, and H, respectively. Each item map contains seven pieces of information:

1. Page number
2. A unique item identifier
3. Item position on the administration form
4. Reporting strand
5. Content category or standard
6. Correct option
7. Location (scale score)
8. *p value*³

Before and after lunch, the panelists reviewed the Mod-MSA performance level descriptors (PLDs) and created behavioral anchors to clearly and concretely describe “threshold” or minimally qualified students at the Proficient and Advanced performance levels. Throughout this process, the panelists were led through table-level and committee-level discussions by a Pearson facilitator. This process required Monday afternoon. The result from creating performance level descriptors was a set of descriptors for threshold students at the Proficient and Advanced levels.

After this process of PLD review, the panelists received additional training in the item mapping process. This training was provided by a Pearson psychometrician within each committee. After the training, each committee practiced the item mapping process as a group, using a practice OIB constructed from unused Mod-MSA items. This allowed the panelists to gain familiarity with the method and ask questions before beginning the process. For Grade 4, Math and Reading training did not include application to the practice ordered item booklet. Instead, the focus was on the process steps. In the item mapping procedure, the panelists are asked to identify the item in an OIB that is the last item that a threshold student at a given level would be able to correctly answer. The panelists were instructed to identify the last item in an ordered item book that a threshold student at a given level would have a response probability of at least 0.67 of answering correctly (Huynh, 2006).

After this training, all three committees began the standard setting process late Monday afternoon. The standard setting process consisted of three rounds of judgments. The panelists were provided with feedback after each round. The feedback was intended to inform the panelists’ decisions but not to dictate their ratings. After round 1, the panelists met in small groups of four or five panelists each. The panelists were provided the cut scores for each panelist in the group based on the round 1 of ratings in addition to the mean and median cut

³ The P value information was shared during the second round of item mapping.

score at each level for that table. In reviewing the cut score report, the panelists were asked to think about the following:

- How similar are their cut scores to the cut score of the group (i.e., is a given panelist more lenient or stringent than the other panelists)?
- If so, why is this the case?
- Do the panelists have different conceptualizations of these threshold students?

The panelists were informed that there was no intention for them to come to consensus on their cut score judgments but that they should discuss differences to get a feel for why differences existed. After round 1, the panelists were provided with an item map containing *p values*, where a *p value* is an index of student performance on each test item. The panelists were informed that this information was to help them better understand the ordering of items, and that it would not provide any specific insights about the performance of students at a given level.

After round 2, the panelists received the same feedback for each table that was provided after round 1. Next, the panelists were given the mean and median cut scores for the committee, across tables. The Pearson facilitator led the discussion with the panelists from all five tables combined. The facilitator noted the differences and similarities across tables but reminded the panelists that consensus was not required.

Finally, the panelists were provided a graphic display of the impact of using the median cut score for all students. The impact data graphic representation provided the panelists with information on what percentages of students are at each performance level for the populations of interest (all students, African American/Caucasian, and female/male). The panelists were given time to discuss, within the big group, the appropriateness of the committee level cut scores given the proportion of students in each level.

After round 3, the panelists were shown the cut scores they were recommending on the basis of this final round of ratings, the panelists were given the mean and median cut scores for the committee, across tables, and were provided a graphic display of the impact of using the median cut score for all students.

Results

Round 3 Cut Scores

The Reading Grade 3, Grade 4, and Grade 5 ordered item books contained 53, 53, and 52 ordered items, respectively. The Math Grade 3, Grade 4, and Grade 5 ordered item books contained 62, 61, and 64 ordered items, respectively. Table 4 summarizes the cut scores after the round 3 final rating for these tests. These are the committees' recommendations based on item location in the ordered item book. The scale score cuts associated with these recommendations and the percentages of students in the Advanced and Proficient performance levels based on these cuts are presented in Table 5. Please note that separate committees made recommendations for each of these tests. Mean, median, minimum, and maximum ratings by

round are presented in Appendix J. Graphs presenting individual ratings across the three rounds by performance level are presented for Reading Grade 3 in Appendix K, Reading Grade 4 in Appendix L, Reading Grade 5 in Appendix M, Math Grade 3 in Appendix N, Math Grade 4 in Appendix O, and Math Grade 5 in Appendix P.

Table 4. OIB Cut scores after round 3 by subject and grade

Subject	Grade	Score	Proficient	Advanced
Reading	3	Mean	24.87	45.09
		Median	24.00	45.00
	4	Mean	16.91	39.36
		Median	18.00	42.00
	5	Mean	18.35	40.09
		Median	18.00	41.00
Math	3	Mean	20.17	44.30
		Median	19.00	44.00
	4	Mean	18.86	52.68
		Median	17.00	53.00
	5	Mean	18.52	48.76
		Median	18.00	49.00

Table 5. Scale score cut scores after round 3 with associated impact by subject

Subject	Grade	Proficient SS Cut	Percentage Proficient*	Advanced SS Cut	Percentage Advanced
Reading	3	55	20.4	65	13.3
	4	54	25.9	66	12.4
	5	53	35.7	69	8.4
Math	3	55	22.5	67	13.4
	4	54	28.5	68	9.9
	5	58	21.5	71	8.2

*The percentage indicates students who were Proficient but not Advanced.

Figure 1 shows the percentage of students in each performance level, using the cut scores after the round 3 final rating for Reading Grade 3, Grade 4, and Grade 5.

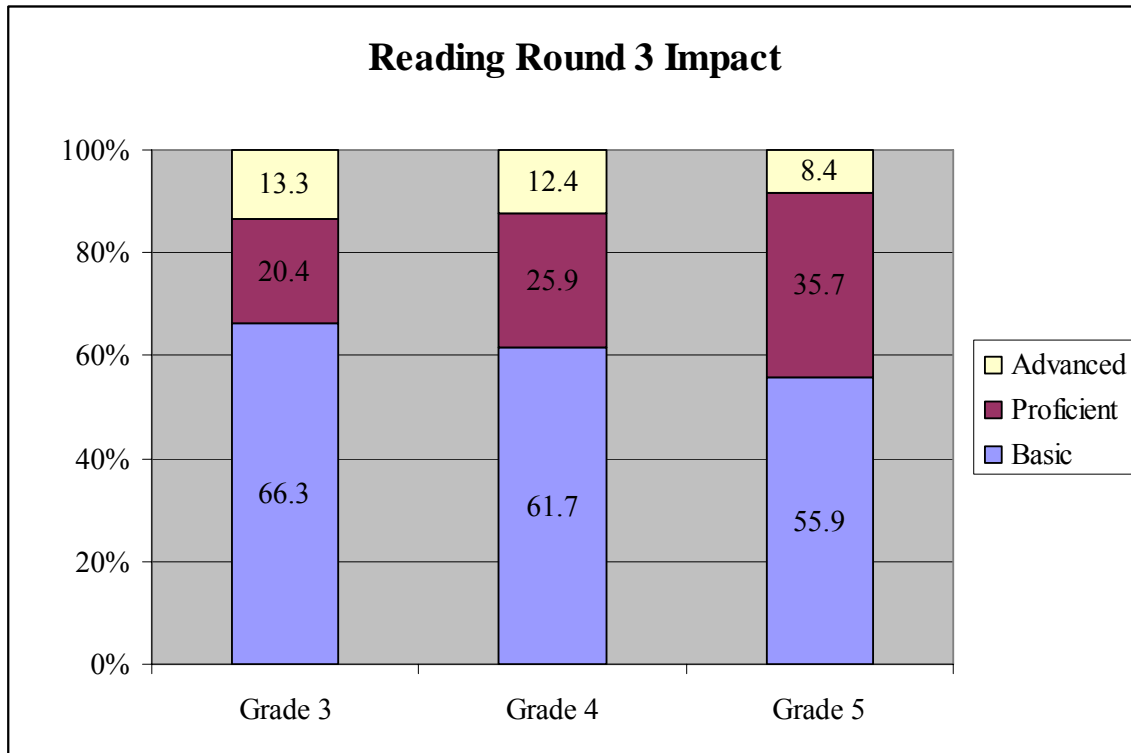


Figure 1. The percentages of students in each performance level, using the final cut scores for Reading by grade.

Figure 2 shows the percentage of students in each performance level, using the cut scores after the round 3 final rating for Math Grade 3, Grade 4, and Grade 5.

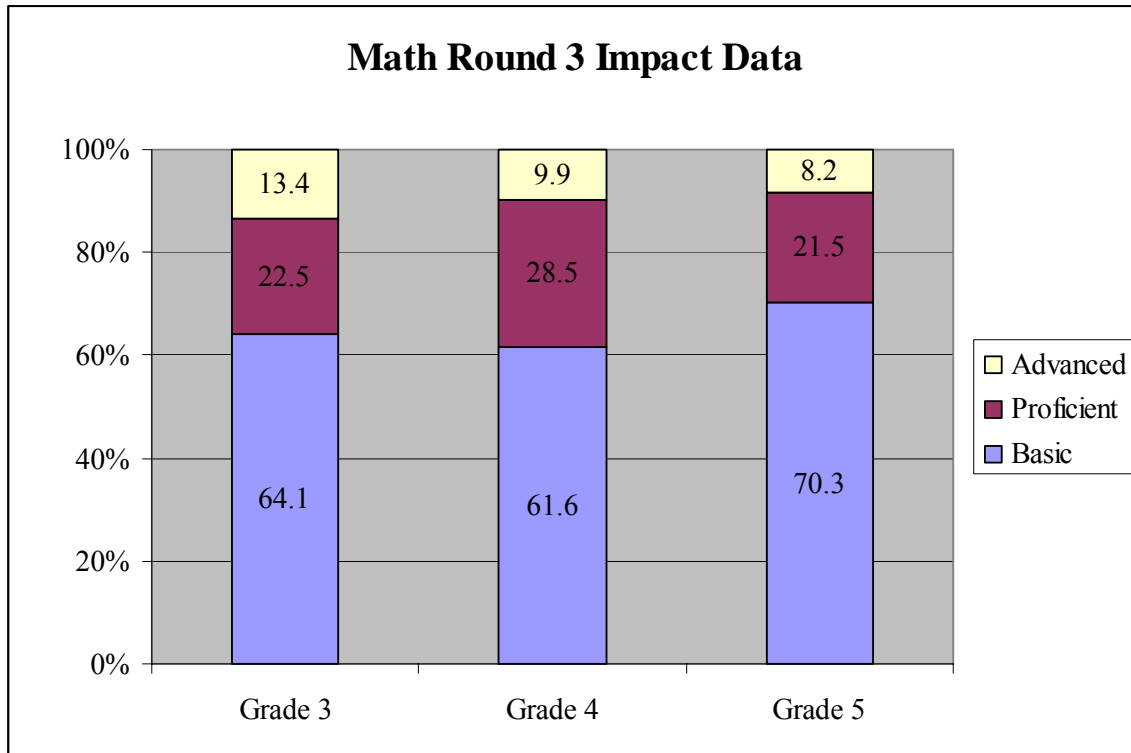


Figure 2. The percentage of students in each performance level, using the final cut scores for Math by grade.

FINAL REPORT

This document provides a detailed description of the standard-setting procedures used with the Maryland Mod-MSA Mathematics and Reading tests. The main purpose of the standard-setting meetings was to obtain cut score recommendations for each grade within the two content areas for each of the three performance levels: Basic, Proficient, and Advanced.

Committees of Maryland educators were convened May 10 through May 13, 2010, in Towson, Maryland, to set standards for the Modified Maryland School Assessment (Mod-MSA) tests for Math and Reading, grades 3 through 5 (see Appendix A for agenda). A total of 134 educators participated for two days per subject to recommend cut scores for these tests. The item mapping procedure was applied to set the recommended standards.

A total of six vendor staff members were involved in conducting the standard setting activity. For each standard setting meeting, a facilitator from Pearson provided training in the implementation of the standard setting procedure and the interpretation and use of feedback data. The Pearson facilitators were: Dr. Daniel Murphy, Dr. Stephen Murphy, and Dr. Kimberly O'Malley. In addition, one staff member from Pearson served the role of a data analyst, supporting the facilitator by taking notes, collecting judge's ratings and performing all analyses required to generate feedback reports. The Pearson data analyst was Morgen Hickey. Two additional Pearson staff members, Scott Hanlin and Andrea Tompkins, were present to oversee the standard setting meeting, coordinate meals, assist the psychometricians, and accommodate any unforeseen requests.

Panelists

The panelists met in three committees: a committee representing Grade 3, a committee representing Grade 4, and a committee representing Grade 5. The number of panelists on each committee is shown in Table 1.

Table 1. The number of panelists on each committee

Subject	Grade 3	Grade 4	Grade 5
Reading	23	22	23
Math	23	22	21

All panelists provided voluntary demographic information, using the form shown in Appendix B. A summary of panelist gender and ethnicity information is provided in Table 2.

Table 2. A summary of experience, gender, and ethnicity data for the committees

Subject	Grade	Years Experience (Average)	Gender		Ethnicity			
			Male	Female	Caucasian	African American	Other	Missing
Reading	3	16.35	1	22	19	3	0	1
	4	17.32	2	20	18	4	0	0
	5	18.87	2	21	16	6	1	0
Math	3	14.37	1	22	19	2	1	1
	4	12.48	1	21	15	5	1	1
	5	14.90	2	19	15	5	1	0

Table 3 provides a summary of panelists' responses to the question, "Compared to other school districts in Maryland, how would you describe the size of your district?"

Table 3. Summary of panelists' responses to district size.

District Size	Reading			Math		
	Grade 3	Grade 4	Grade 5	Grade 3	Grade 4	Grade 5
Large	11	10	9	9	6	10
Medium	8	7	9	9	10	8
Small	4	5	5	5	6	3

Table 4 provides a summary of panelists' responses to the question, "Compared to other school districts in Maryland, how would you describe the location of your district?"

Table 4. Summary of panelists' responses to district location.

District Location	Reading			Math		
	Grade 3	Grade 4	Grade 5	Grade 3	Grade 4	Grade 5
Rural	7	6	9	7	8	4
Suburban	10	8	9	12	10	9
Urban	3	5	5	4	3	7
Multiple Response	2	3			1	

Table 5 provides a summary of panelists' responses to the question, "Compared to other school districts in Maryland, how would you describe the geographic location of your district?"

Table 5. Summary of panelists’ responses to district geographic location.

Geographic Location	Reading			Math		
	Grade 3	Grade 4	Grade 5	Grade 3	Grade 4	Grade 5
Central	10	8	10	7	5	8
East	5	4	2	3	6	2
North	2	2	1	3	1	2
South	3	3	4	5	8	6
West	2	3	5		2	2
Multiple Response	1	1	1	5		1

Method and Procedure

The standard-setting conference began on Monday, May 10. The Reading committees met first (on May 10 and 11), followed by the Math committees. The Reading and the Math committees followed identical agendas and processes. For simplicity the process is presented only once in this document.

The morning of Monday, May 10, was devoted to introductions of the staff, to a description of standard setting, and to a description of the Mod-MSA tests and student population. For this stage of the conference, all panelists met together in one large room. The agendas for the standard setting are shown in Appendix A. All committees within a subject followed the same agenda.

Following the midmorning break, the committee members broke into their grade specific groups. The three committees (Grade 3, Grade 4, and Grade 5) met separately in individual conference rooms. The committees spent the remainder of the morning working individually to familiarize themselves with the Mod-MSA test items for their grade by completing the items in their ordered item booklet (OIB). OIBs were constructed for the three grades using items from the spring 2010 test administration. These booklets were created by augmenting items from the scored form (45 items for Reading and 51 items for Math) with unscored items with acceptable item statistics in order to provide the most complete coverage possible of the scale score range while maintaining content representation. The scale score associated with a response probability of 0.67 was calculated for each item in the OIB based on spring 2010 data. Items were ordered based on these scale scores and sorted from least to most difficult.

Each ordered item book was accompanied by an item map. The item maps for Reading Grade 3, Grade 4, and Grade 5 are shown in Appendices C, D and E, respectively, Math grades 3 through 5 can be found in Appendices F, G, and H, respectively. Each item map contains eight pieces of information:

1. Page number

2. A unique item identifier
3. Item position on the administration form
4. Reporting strand
5. Content category or standard
6. Correct option
7. Location (scale score)
8. *p value*⁴

Before and after lunch, the panelists reviewed the Mod-MSA performance level descriptors (PLDs) and created behavioral anchors to clearly and concretely describe “threshold” or minimally qualified students at the Proficient and Advanced performance levels. Throughout this process the panelists were led through table-level and committee-level discussions by a Pearson facilitator. This process required the afternoon of Monday, May 10. The result from creating performance level descriptors was a set of descriptors for threshold students at the Proficient and Advanced levels.

After this process of PLD review, the panelists received additional training in the item mapping process. This training was provided by a Pearson psychometrician within each committee. Following the training, each committee practiced the item mapping process as a group, using a practice OIB constructed from unused Mod-MSA items. This allowed the panelists to gain familiarity with the method and ask questions before beginning the process. For Grade 4, Math and Reading training did not include application to the practice ordered item booklet. Instead, the focus was on the process steps. In the item mapping procedure, the panelists are asked to identify the item in an OIB that is the last item that a threshold student at a given level would be able to correctly answer. The panelists were instructed to identify the last item in an ordered item book that a threshold student at a given level would have a response probability of at least 0.67 of answering correctly (Huynh, 2006).

After this training, all three committees began the standard-setting process late Monday afternoon. The standard-setting process consisted of three rounds of judgments. During each round, panelists were asked to assign cut scores for each performance level. The panelists reviewed the items and placed bookmarks in the item book where they believed the cut scores should be. This was determined as the point at which *threshold* students of that proficiency level have a probability of at least 0.67 of responding correctly to that item and the items before it, and less than that probability of responding correctly to items following it.

“Threshold” examinees are students with the minimum level of proficiency needed to make it into a particular proficiency level. It is this hypothetical population of students that panelists must reference when making judgments about items. Therefore, it is extremely important that each judge have an understanding of what defines this group. was no easy task. The behavioral anchors generated earlier were used to define the knowledge and skills that characterize a typical “threshold” student in each level and provide a frame of reference for conceptualizing this population.

To evaluate whether the training activities successfully helped panelists understand the task, a readiness survey was completed by each panelist prior to each round of judgments (Appendix I). The readiness survey asked panelists to report if they understood the task Pearson facilitators

⁴ The P value information was shared during the second round of item mapping.

asked of them as well as any feedback data provided. Results of the readiness survey indicated if panelists unanimously understood their tasks for the rounds, were ready to begin the rounds, and understood the data presented. Table leaders were instructed to check the panelists' answers. If any panelist appeared to have questions about the next task, the table leader was instructed to answer the questions. If additional assistance was needed, the table leader alerted the facilitator to address the remaining questions.

In round one, panelists were divided into small groups. The panelists then worked independently to place the bookmarks.

In round two, still in small groups, panelists compared bookmarks and discussed the differences between them. Panelists were encouraged to describe the reasons they set bookmarks where they did. The discussion addressed all items in the range between the highest and lowest bookmark for a proficiency level. Once the discussion was over, the panelists independently reconsider their bookmark locations.

Following round two, still in small groups, panelists again compared bookmarks and discussed the differences between them. Next, panelists reconvened as a large group where cut score differences across small groups were discussed. A panelist from each small group presented the conclusions of their group.

In a final, third round, panelists independently made final bookmark placements. Panelists were then briefed on the results of their Round 3 ratings.

The cut score at each performance level was determined by computing the median page number recommended across panelists at a given grade level and identifying the scale score associated with this page in the OIB. This represents the minimum scale score that an examinee must attain to be classified at the particular level. Computed cuts could fall between page numbers. In the final report, all median page numbers were rounded to the next higher point if the decimal value is larger than 4 (e.g., 15.5 would become 16) prior to identifying the scale score for the recommended cut.

After the Round 3 rating sheets were collected, Pearson staff members analyzed data and produced the final cut score recommendations. The panelists reconvened and were presented the final cut score recommendations. The panelists were then asked to complete a short questionnaire, evaluating the standard-setting process. The questionnaire asked about panelists' level of comfort with the standard-setting procedure, their understanding of the performance levels and their satisfaction with final cut scores. More information about this is provided in the Evaluation section of this report.

Panelists were provided with feedback between each round. The feedback was intended to inform the panelist's decisions, but not to dictate their ratings. Following Round 1, panelists met in small groups of 5 to 7 panelists. They were provided the cut scores for each panelist based on the Round 1 ratings in addition to the mean and median cut score at each level for that table. In reviewing the cut score report panelists were asked to think about the following:

- How similar are their cut scores are to that of the group (i.e., is a given panelist more lenient or stringent than the other panelists)?
- If so, why is this the case?

- Do panelists have different conceptualization of these threshold students?

Panelists were informed that there was no intention for them to come to consensus on their cut score judgments, but they should discuss differences to get a feel for why differences exist. Following Round 1 panelists were also provided with an item map containing P values, an index of student performance on each test item. Panelists were given this information to help them better understand the ordering of items, but were cautioned that it would not provide any specific insights about the performance of students at a given level.

Following Round 2, panelists received the same table level feedback that was provided following Round 1. Next, panelists were given the mean and median cut scores for the committee (across tables). The Pearson facilitator lead the discussion with all five tables combined. The facilitator noted the differences and similarities across tables but reminded the panelists that consensus was not required.

Panelists were then shown a graphical display of the impact of using the round 2 median cut score. The impact data provided information on what percentage of students fall into each performance level for all students and for sub-populations of interest (African-American/white, female/male). Panelists were given time to discuss, within the big group, the appropriateness of the committee level cut scores given the proportion of students in each level.

Following Round 3, panelists were shown the cut scores they were recommending based on this round of ratings, given the mean and median cut scores for the committee (across tables), and provided a graphical display of the impact of using the median cut score for all students.

Results

Round 3 Cut Scores

The Reading Grade 3, Grade 4, and Grade 5 ordered item books contained 53, 53, and 52 ordered items, respectively. The Math Grade 3, Grade 4, and Grade 5 ordered item books contained 62, 61, and 64 ordered items, respectively. Table 6 summarizes the cut scores after the Round 3 final ratings. These are the recommendations from the committees based on item location in the ordered item book. The scale score cuts associated with these recommendations and the percentage of students in the advanced and proficient performance levels based upon these cuts are presented in Table 7. Please note that separate committees made recommendations for each of these tests. Mean, median, minimum, and maximum ratings by round are presented in Appendix J. Graphs presenting individual ratings across the three rounds by performance level are presented for Reading Grade 3 in Appendix K, Reading Grade 4 in Appendix L, Reading Grade 5 in Appendix M, Math Grade 3 in Appendix N, Math Grade 4 in Appendix O, and Math Grade 5 in Appendix P.

Table 6. OIB Cut scores after Round 3 by subject and grade.

Subject	Grade	Score	Proficient	Advanced
Reading	3	Mean	24.87	45.09
		Median	24.00	45.00

	4	Mean	16.91	39.36
		Median	18.00	42.00
	5	Mean	18.35	40.09
		Median	18.00	41.00
Math	3	Mean	20.17	44.30
		Median	19.00	44.00
	4	Mean	18.86	52.68
		Median	17.00	53.00
	5	Mean	18.52	48.76
		Median	18.00	49.00

Table 7. Scale score cut scores after the Round 3 with associated impact by subject.

Subject	Grade	Proficient SS Cut	Percentage Proficient*	Advanced SS Cut	Percentage Advanced
Reading	3	55	20.4	65	13.3
	4	54	25.9	66	12.4
	5	53	35.7	69	8.4
Math	3	55	22.5	67	13.4
	4	54	28.5	68	9.9
	5	58	21.5	71	8.2

*The percentage indicates students who were Proficient but not Advanced.

Figure 1 shows the percentage of students in each performance level, using the cut scores after the round 3 final rating for Reading Grade 3, Grade 4, and Grade 5.

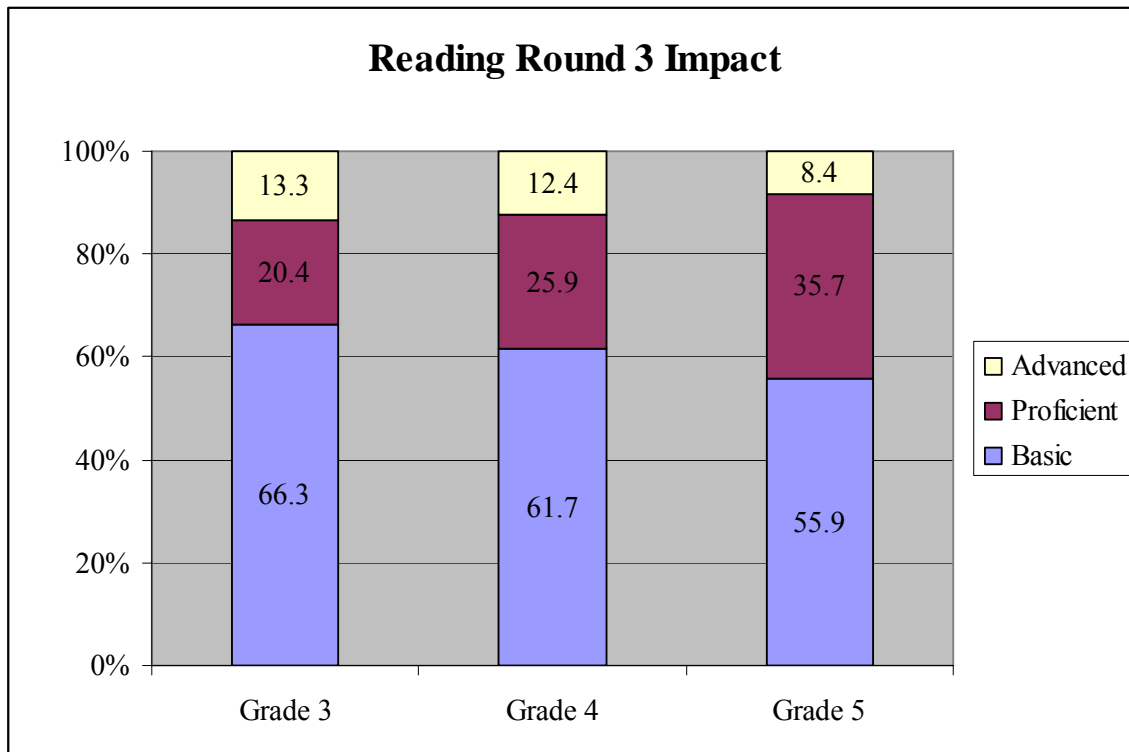


Figure 1. The percentages of students in each performance level, using the final cut scores for Reading by grade.

Figure 2 shows the percentage of students in each performance level, using the cut scores after the round 3 final rating for Math Grade 3, Grade 4, and Grade 5.

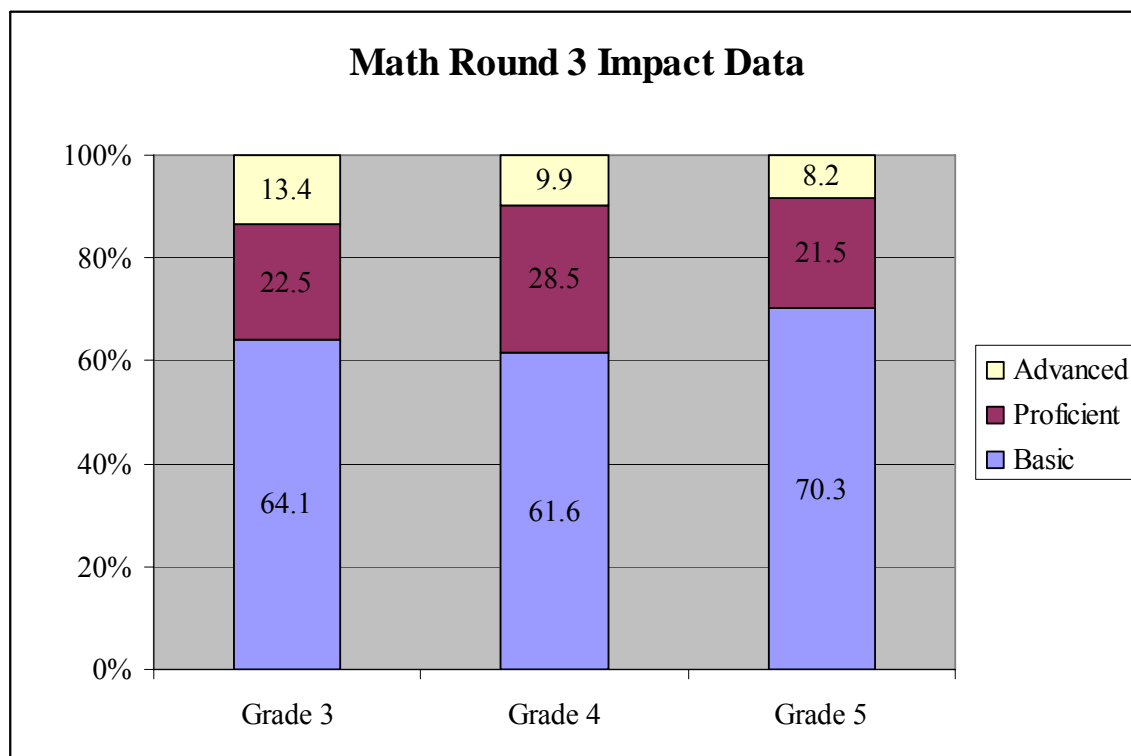


Figure 2. The percentage of students in each performance level, using the final cut scores for Math by grade.

Panelist Variability

In order to describe the variability in panelists' judgments, a Generalizability Theory (G-Theory) study was performed. This information could be used to determine how similar the cut scores might be if a different set of panelists or different composition of small groups were used to set cut scores. For this investigation, the sources of variability of interest were panelists, small groups, and rounds. For each cut score, the variance associated with each of these sources was estimated using the maximum likelihood SAS VARCOMP procedure. For this study, the number of rounds was treated as a fixed factor (3 rounds in total, a typical practice in standard setting meetings), meaning that if the standard setting meeting was held again, the same number of rounds would be used. In addition, because judges discussed all activities in small groups, their judgments were considered dependent on group membership. Therefore, judges were considered "nested" within tables. Variances components for tables (σ^2_{Tables}) and judges within tables ($\sigma^2_{Judges:Tables}$) were computed. Computation of the standard errors was made using the following formula (Lee & Lewis, 2008):

$$SE_{cut} = \sqrt{\frac{\sigma_{Tables}^2}{N_{Tables}} + \frac{\sigma_{Judge:Table}^2}{N_{Judges} \bullet N_{Tables}} + \frac{\sigma_{Error}^2}{3N_{Tables} \bullet N_{Judges}}}$$

Because round was treated as a fixed facet, its variance component was not included in the error term. σ_{error}^2 was a confounding term and included the variance from the interaction between tables and judges within tables as well as variances unexplained by the defined facets. The sample size in the equation referred to the sample size likely to occur in the Decision Study (D study). Without loss of generality, the sample sizes for the D study were assumed the same as the sample size in the G study. Standard errors were computed for each of the two recommended cut scores associated with each Mod-MSA test. For the purposes of this analysis the recommended cut scores were the scale scores associated with the pages bookmarked during standard setting. Different patterns of variance component estimates and hence standard errors for cut scores were anticipated for different cut scores (Lee & Lewis, 2008).

The conditional standard error of measurement (CSEM) for each recommended scale score cut for each Mod-MSA test was calculated using the following formula:

$$CSEM = \frac{1}{\sqrt{I(SS)}}$$

In this formula $I(SS)$ is the amount of psychometric information at a given scale score point; in this case this was the amount of information at each of the two recommended scale score cuts.

The standard error of the cut score (SE_{cut}) and conditional standard error of measurement (CSEM) were used to compute a composite standard error ($SEM_{combined}$) calculated using the following formula:

$$SEM_{combined} = \sqrt{(SE_{cut})^2 + (CSEM)^2}$$

These different standard error indices are presented for each test by grade and committee in Table 8.

Table 8. Standard Error Indices by Test, Grade and Committee.

Committee	Grade	Cut	SE_{cut}	$CSEM$	$SEM_{combined}$
Reading	3	Proficient	0.46	4.00	4.03
		Advanced	1.26	5.00	5.16
	4	Proficient	0.93	5.00	5.09
		Advanced	1.67	5.00	5.27
	5	Proficient	0.97	5.00	5.09
		Advanced	1.74	6.00	6.25
Math	3	Proficient	0.99	5.00	5.10
		Advanced	0.81	5.00	5.06
	4	Proficient	1.11	4.00	4.19
		Advanced	0.97	5.00	5.09
	5	Proficient	0.96	5.00	5.09
		Advanced	1.09	6.00	6.10

Each of these indices was applied to the panel recommended cut scores to produce 1, 2, and 3 standard error bands around the cut score. These results are reported in Appendix Q for Reading Grade 3, Appendix R for Reading Grade 4, Appendix S for Reading Grade 5, Appendix T for Math Grade 3, Appendix U for Math Grade 4, and Appendix V for Math Grade 5.

Evaluations

Exit surveys were administered following the completion of standard setting for each committee. An exit survey was completed by each panelist. For the Reading Grades 3, 4, and 5 and the Math Grades 3, 4 and 5 committees, these questions and the results are shown in Tables 9, 10,

11, 12, 13, and 14 respectively. Responses to each question were on a five-point scale (1 = Totally Disagree, 5 = Totally Agree).

Table 9. The questionnaire results for the Reading Grade 3 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.55	5.00	2	5
I had a good understanding of what the test was intended to measure.	4.61	5.00	3	5
I could clearly distinguish between student performance levels.	4.00	4.00	3	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	4.00	4.00	2	5
I found the feedback on item difficulty useful in setting standards.	4.39	4.00	3	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.43	5.00	3	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.30	4.00	3	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Grade 3 Reading Test.	4.27	4.00	2	5

Table 10. The questionnaire results for the Reading Grade 4 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.55	5.00	3	5
I had a good understanding of what the test was intended to measure.	4.59	5.00	3	5
I could clearly distinguish between student performance levels.	4.05	4.00	3	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	4.27	4.00	3	5
I found the feedback on item difficulty useful in setting standards.	4.41	4.50	3	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.68	5.00	3	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.36	5.00	3	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Reading Grade 4 Test.	4.23	4.00	4	5

Table 11. The questionnaire results for the Reading Grade 5 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.50	5.00	2	5
I had a good understanding of what the test was intended to measure.	4.82	5.00	4	5
I could clearly distinguish between student performance levels.	4.14	4.00	3	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	3.73	4.00	2	5
I found the feedback on item difficulty useful in setting standards.	4.64	5.00	3	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.77	5.00	3	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.41	4.00	4	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Reading Grade 5 Test.	4.64	5.00	4	5

Table 12. The questionnaire results for the Math Grade 3 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.61	5.00	1	5
I had a good understanding of what the test was intended to measure.	4.73	5.00	2	5
I could clearly distinguish between student performance levels.	4.43	5.00	2	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	4.30	5.00	1	5
I found the feedback on item difficulty useful in setting standards.	4.48	5.00	1	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.57	5.00	1	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.55	5.00	2	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Math Grade 3 Test.	4.50	5.00	1	5

Table 13. The questionnaire results for the Math Grade 4 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.86	5.00	4	5
I had a good understanding of what the test was intended to measure.	4.91	5.00	4	5
I could clearly distinguish between student performance levels.	4.18	4.00	3	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	4.32	4.50	3	5
I found the feedback on item difficulty useful in setting standards.	4.52	5.00	4	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.73	5.00	4	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.45	5.00	1	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Math Grade 4 Test.	4.64	5.00	4	5

Table 14. The questionnaire results for the Math Grade 5 standard setting committee

Question	Mean	Median	Min	Max
The method for setting standards, item mapping, was conceptually clear.	4.33	4.00	2	5
I had a good understanding of what the test was intended to measure.	4.57	5.00	4	5
I could clearly distinguish between student performance levels.	4.29	4.00	3	5
After the <u>first</u> round of ratings, I felt comfortable with the standard setting procedure.	4.14	4.00	2	5
I found the feedback on item difficulty useful in setting standards.	4.33	4.00	3	5
I found the feedback on the ratings of judges compared to other judges useful in setting standards.	4.76	5.00	4	5
I found the feedback on the percent of the students tested that would be classified at each performance level useful in setting standards.	4.29	4.00	3	5
I feel confident that the final cut score recommendations reflect the performance levels associated with the Mod-MSA Math Grade 5 Test.	4.52	5.00	3	5

References

- Huynh, H. (2006). A clarification on the response probability criterion RP67 for standard settings based on bookmark and item mapping. *Educational Measurement: Issues and Practice, 25*, 19–20.
- Lee, G, & Lewis, D. (2008). A Generalizability Theory approach to standard error estimates for Bookmark standard settings. *Educational and Psychological Measurement, 68*, 603–620.

Appendix A
Agendas for the Mod-MSA Standard Setting Meetings

Modified Maryland School Assessment – Reading
Standard Setting Agenda

DAY 1 – May 10, 2010

Registration	8:00-8:30	Large Group
Opening Remarks	8:30-9:15	Large Group
<ul style="list-style-type: none"> Welcome and Why You Are Here Introductions Review of Agenda Administrative Tasks Panelist Information 		
Overview of Standard Setting	9:15-9:45	Large Group
<ul style="list-style-type: none"> Purpose Item Mapping Methodology 		
Overview of the Mod-MSA Tests	9:45-10:15	Large Group
<ul style="list-style-type: none"> History Purposes Test Specifications 		
BREAK	10:15-10:30	
Complete Mod-MSA Test	10:30-11:30	Grade Group
Review Performance Level Descriptors	11:30-12:00	Grade Group
<ul style="list-style-type: none"> Create Behavioral Anchors 		
LUNCH	12:00-1:00	
<ul style="list-style-type: none"> Table Leader Training 		
Review Performance Level Descriptors	1:00-2:00	Grade Group
<ul style="list-style-type: none"> Create Behavioral Anchors 		

Overview of Standard Setting	2:00-2:30	Grade Group
Item Mapping		
Ordered Item Booklet		
Item Map		
Ratings Forms		
Practice Round	2:30-3:00	Grade Group
BREAK	3:00-3:15	
Round 1 Standard Setting	3:15-4:15	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		
End of Day Activities		
Review Day 2 Schedule		
Check in materials		

END OF DAY 1

DAY 2 – May 11, 2010

Breakfast	8:00-8:30	Large Group
Review schedule, answer questions	8:30-8:45	Grade Group
Round 1 Feedback	8:45-9:15	Grade Group
Small group discussion of table agreement data		
Round 2 Standard Setting	9:15-10:15	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		

BREAK	10:15-10:45	
Round 2 Feedback	10:45-11:15	Grade Group
Small group discussion of table agreement data		
Large-group discussion of group agreement data		
Large-group discussion of impact data		
Round 3 Standard Setting	11:15-12:00	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		
LUNCH	12:00-1:00	
Round 3 Feedback	1:00-1:15	Grade Group
End of Day Activities	1:15-2:00	Grade Group
Complete Evaluations		
Check in materials		
END OF DAY 2		

Modified Maryland School Assessment – Math
Standard Setting Agenda

DAY 1 – May 12, 2010

Registration	8:00-8:30	Large Group
Opening Remarks	8:30-9:15	Large Group
<ul style="list-style-type: none"> Welcome and Why You Are Here Introductions Review of Agenda Administrative Tasks Panelist Information 		
Overview of Standard Setting	9:15-9:45	Large Group
<ul style="list-style-type: none"> Purpose Item Mapping Methodology 		
Overview of the Mod-MSA Tests	9:45-10:15	Large Group
<ul style="list-style-type: none"> History Purposes Test Specifications 		
BREAK	10:15-10:30	
Complete Mod-MSA Test	10:30-11:30	Grade Group
Review Performance Level Descriptors	11:30-12:00	Grade Group
<ul style="list-style-type: none"> Create Behavioral Anchors 		
LUNCH	12:00-1:00	
<ul style="list-style-type: none"> Table Leader Training 		
Review Performance Level Descriptors	1:00-2:00	Grade Group
<ul style="list-style-type: none"> Create Behavioral Anchors 		

Overview of Standard Setting	2:00-2:30	Grade Group
Item Mapping		
Ordered Item Booklet		
Item Map		
Ratings Forms		

Practice Round	2:30-3:00	Grade Group
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BREAK	3:00-3:15	
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Round 1 Standard Setting	3:15-4:15	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		

End of Day Activities

- Review Day 2 Schedule
- Check in materials

END OF DAY 1

DAY 2 – May 13, 2010

Breakfast	8:00-8:30	Large Group
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Review schedule, answer questions	8:30-8:45	Grade Group
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Round 1 Feedback	8:45-9:15	Grade Group
Small group discussion of table agreement data		

Round 2 Standard Setting	9:15-10:15	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		

BREAK	10:15-10:45	
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Round 2 Feedback	10:45-11:15	Grade Group
Small group discussion of table agreement data		
Large-group discussion of group agreement data		
Large-group discussion of impact data		
Round 3 Standard Setting	11:15-12:00	Grade Group
Readiness Form		
Review Method		
Collect page number/item numbers		
LUNCH	12:00-1:00	
Round 3 Feedback	1:00-1:15	Grade Group
End of Day Activities	1:15-2:00	Grade Group
Complete Evaluations		
Check in materials		
END OF DAY 2		

Appendix B
Panelist Information Sheet

Mod-MSA Grade 3 Reading Standard Setting
Panelist Information Sheet

Judge ID: _____

Please provide the following demographic information that will be used to describe the general characteristics of the panelists who are recommending standards for the Mod-MSA Test.

Your Current Position:

Courses / Grades Taught / Educational Experience (e.g., teaching experience):

Gender (circle one): Male Female

Ethnicity:

Years of Educational Experience (e.g., years teaching):

Compared to other school districts in Maryland, how would you describe the size of your district (circle one)?

Large Medium Small

Compared to other school districts in Maryland, how would you describe the location of your district (circle one)?

Urban Suburban Rural

Compared to other school districts in Maryland, how would you describe the geographic location of your district (circle one)?

North South East West Central

Appendix C

Item Map for the Reading Grade 3 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	100000101529	49	209	3A3c	2	36	0.83
2	100000213633	3	208	1D3a	4	39	0.8
3	100000101905	42	208	1E4b	3	43	0.74
4	100000346450	32	212	2A4c	3	43	0.74
5	100000213631	1	208	1D3a	3	44	0.73
6	100000260365	68	209	3A7b	3	44	0.73
7	100000101908	45	209	3A8b	2	46	0.71
8	100000101911	48	209	3A6a	2	46	0.7
9	100000101533	55	209	3A7b	3	47	0.69
10	100000101969	14	208	1E4c	3	47	0.69
11	100000260368	64	209	3A6a	2	48	0.67
12	100000101530	50	209	3A3b	1	50	0.65
13	100000300552	69	208	1E4c	2	50	0.65
14	100000260338	56	209	3A3d	2	50	0.65
15	100000101937	26	212	2A5a	1	51	0.63
16	100000101514	8	208	1B1a	3	52	0.62
17	100000346452	28	208	1E4c	3	53	0.6
18	100000101527	53	208	1E4c	2	53	0.6
19	100000260460	36	212	2A4g	3	54	0.59
20	100000101932	21	208	1E4d	1	54	0.59
21	100000260465	41	208	1E4c	1	54	0.58
22	100000101909	46	209	3A7b	1	54	0.58
23	100000360183	9	208	1B1a	1	55	0.58
24	100000260339	61	209	3A7c	1	55	0.57
25	100000260461	37	212	2A4b	2	55	0.56
26	100000101518	12	208	1D3b	3	56	0.56
27	100000101513	7	208	1B1a	2	56	0.56

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
28	100000101528	54	208	1E4c	1	58	0.53
29	100000101936	25	212	2A4a	3	58	0.52
30	100000101934	22	212	2A4a	3	58	0.52
31	100000260457	39	212	2A3a	3	58	0.51
32	100000260371	65	209	3A2b	3	59	0.51
33	100000260342	57	209	3A3e	3	59	0.51
34	100000101970	15	208	1E4c	1	59	0.5
35	100000346448	34	212	2A2b	2	60	0.49
36	100000101907	44	209	3A3d	1	60	0.48
37	100000101938	27	212	2A2b	2	61	0.47
38	100000101532	52	209	3A6a	3	62	0.46
39	100000346445	33	212	2A5a	1	62	0.46
40	100000101972	17	212	2A4h	3	62	0.46
41	100000101975	20	212	2A3b	3	63	0.45
42	100000346444	30	212	2A2d	1	63	0.44
43	100000101974	19	212	2A5a	2	64	0.43
44	100000360182	5	208	1D3a	2	64	0.42
45	100000101516	10	208	1D3b	3	65	0.42
46	100000260458	35	212	2A4c	3	65	0.42
47	100000300707	62	208	1E4a	2	65	0.4
48	100000300557	66	209	3A3e	1	66	0.39
49	100000260364	63	209	3A8b	1	67	0.38
50	100000213634	4	208	1D3a	3	67	0.38
51	100000101973	18	212	2A6e	1	68	0.37
52	100000101517	11	208	1D3b	2	71	0.32
53	100000260345	58	209	3A2b	2	71	0.32

Appendix D

Item Map for the Reading Grade 4 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	100000213641	10	208	1D3a	1	40	0.78
2	100000357133	15	208	1E4c	3	43	0.74
3	100000357109	25	212	2A5a	3	44	0.73
4	100000360192	12	208	1D3a	1	44	0.73
5	100000301034	65	209	3A3d	3	47	0.69
6	100000102024	59	208	1E4c	3	47	0.69
7	100000213637	6	208	1D3a	3	47	0.69
8	100000213638	7	208	1D3a	3	47	0.69
9	100000357134	13	212	2A4c	1	49	0.67
10	100000213642	11	208	1D3a	4	50	0.66
11	100000357104	21	208	1E4b	2	50	0.65
12	100000260489	31	212	2A4i	3	51	0.64
13	100000267470	63	208	1E4b	1	51	0.63
14	100000357105	23	208	1E4c	1	52	0.63
15	100000267472	68	209	3A2b	3	53	0.61
16	100000357107	22	212	2A4e	2	53	0.61
17	100000357101	46	209	3A4b	1	54	0.59
18	100000213647	4	208	1D3b	1	54	0.59
19	100000462157	47	209	3A4b	3	55	0.58
20	100000102029	61	209	3A2b	2	55	0.58
21	100000260483	29	208	1E4e	2	56	0.57
22	100000357136	17	212	2A5a	3	56	0.57
23	100000357137	18	212	2A3a	1	56	0.56
24	100000269896	34	212	2A4c	3	57	0.55
25	100000102027	57	209	3A3e	2	58	0.53
26	100000101997	48	209	3A3a	3	59	0.52

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
27	100000102000	52	209	3A3b	2	59	0.52
28	100000357106	20	212	2A4i	3	59	0.52
29	100000200070	54	208	1E4d	1	60	0.51
30	100000267473	66	209	3A3c	2	60	0.50
31	100000213645	2	208	1D3b	1	61	0.50
32	100000357108	24	212	2A4d	1	61	0.49
33	100000102001	53	209	3A7b	1	61	0.49
34	100000102023	58	208	1E4b	2	62	0.47
35	100000213646	3	208	1D3b	3	63	0.47
36	100000269897	38	212	2A6e	3	63	0.46
37	100000102028	60	209	3A8b	1	63	0.46
38	100000357132	14	208	1E4c	2	64	0.45
39	100000357135	16	212	2A4g	2	64	0.45
40	100000102026	56	209	3A6a	3	65	0.44
41	100000101996	49	209	1E4b	3	65	0.43
42	100000101999	51	209	3A7b	1	66	0.42
43	100000269899	40	212	2A3a	1	66	0.42
44	100000357138	19	212	2A2f	2	67	0.41
45	100000357100	45	209	3A6a	3	68	0.40
46	100000271197	35	208	1E4b	1	69	0.38
47	100000213644	1	208	1D3b	1	70	0.36
48	100000269900	37	212	2A4g	1	72	0.33
49	100000357098	43	209	3A3f	2	73	0.33
50	100000102025	55	209	3A3d	1	75	0.30
51	100000260492	33	212	2A6e	1	77	0.28
52	100000260488	32	212	2A4h	1	78	0.26
53	100000260486	28	212	2A4g	1	79	0.25

Appendix E

Item Map for the Reading Grade 5 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	100000213656	7	208	1D3a	1	40	0.78
2	100000102093	13	208	1E4e	1	44	0.73
3	100000213655	6	208	1D3a	2	44	0.73
4	100000213653	4	208	1D3a	4	44	0.73
5	100000102112	24	208	1E4a	3	45	0.72
6	100000102111	20	208	1E4b	3	46	0.70
7	100000102050	43	209	3A6a	3	47	0.70
8	100000213651	2	208	1D3a	4	47	0.69
9	100000213657	8	208	1D3a	3	47	0.69
10	100000213652	3	208	1D3a	2	48	0.68
11	100000102067	57	208	1E4c	2	49	0.67
12	100000213650	1	208	1D3a	1	49	0.67
13	100000213659	10	208	1D3a	1	50	0.65
14	100000102106	30	212	2A4b	3	51	0.65
15	100000102052	45	209	3A7b	2	52	0.63
16	100000360197	11	208	1D3a	2	52	0.62
17	100000102084	34	208	1E4b	3	52	0.62
18	100000102072	60	209	3A7c	3	53	0.62
19	100000102047	46	208	1E4c	2	53	0.61
20	100000102059	49	209	3A3f	1	54	0.60
21	100000303033	67	209	3A7a	3	55	0.59
22	100000102068	54	209	3A3a	2	56	0.58
23	100000102048	41	209	3A3b	1	58	0.55
24	100000102066	56	208	1E4b	3	58	0.54
25	100000102104	26	212	2A4h	1	59	0.53
26	100000102114	21	212	2A4b	1	60	0.51
27	100000102095	12	212	2A4a	3	60	0.51

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
28	100000102113	19	212	2A2d	1	60	0.51
29	100000102096	15	212	2A4g	2	61	0.50
30	100000102116	23	212	2A5a	2	61	0.50
31	100000102061	51	209	3A8b	1	61	0.50
32	100000213658	9	208	1D3a	2	62	0.49
33	100000267477	61	209	3A3e	1	63	0.47
34	100000102051	44	209	3A8b	1	63	0.47
35	100000102056	47	208	1E4c	2	63	0.47
36	100000102071	59	209	3A3b	3	63	0.47
37	100000268380	64	209	3A7b	2	66	0.43
38	100000102087	35	212	2A6b	2	66	0.42
39	100000102108	32	212	2A3a	2	68	0.40
40	100000102057	52	208	1E4b	2	69	0.39
41	100000102090	39	212	2A3a	1	69	0.38
42	100000102098	17	212	2A5a	2	70	0.37
43	100000102069	55	209	3A6a	1	70	0.37
44	100000102060	50	209	3A6a	3	71	0.36
45	100000102117	25	212	2A3a	2	72	0.35
46	100000102099	18	212	2A3a	1	72	0.34
47	100000102115	22	212	2A4i	3	72	0.34
48	100000102107	31	212	2A6e	3	73	0.33
49	100000102094	14	208	1E4b	1	74	0.32
50	100000268378	62	209	3A6a	1	75	0.30
51	100000102088	36	212	2A4g	1	76	0.30
52	100000267481	65	209	3A6c	1	77	0.29

Appendix F
Item Map for the Math Grade 3 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	100000197601	1	246	2A1a	3	40	0.77
2	100000185313	64	268	6A1a	3	42	0.75
3	100000197651	31	246	2E2a	3	43	0.74
4	100000197660	56	246	2E2a	1	46	0.71
5	100000098452	40	241	1B2b	2	46	0.70
6	100000185378	48	268	6A2a	1	47	0.69
7	100000098454	46	241	1C1a	2	47	0.69
8	100000098440	19	241	1A1c	3	48	0.68
9	100000197649	61	273	7	1	49	0.66
10	100000197756	57	257	4B1c	2	51	0.64
11	100000185384	79	268	6C1c	2	52	0.63
12	100000098449	52	241	1B2b	1	52	0.63
13	100000185486	77	273	7	2	52	0.63
14	100000185381	74	268	6A3b	1	52	0.62
15	100000197621	55	246	2D1a	2	53	0.61
16	100000197665	66	251	3C1b	2	54	0.60
17	100000197761	50	273	7	2	54	0.59
18	100000098445	4	241	1A2b	2	55	0.59
19	100000098516	6	268	6A1d	1	55	0.58
20	100000197661	91	251	3A1b	1	56	0.57
21	100000350878	29	241	1C1b	3	57	0.56
22	100000197647	18	246	2E1a	3	58	0.55
23	100000197723	9	257	4A1c	2	58	0.54
24	100000197670	37	251	3C1b	1	58	0.54
25	100000098515	92	268	6A1c	2	59	0.53
26	100000197781	12	262	5B1a	2	59	0.53
27	100000098435	75	241	1A1a	3	59	0.52

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
28	100000197674	38	273	7	1	59	0.52
29	100000197602	54	246	2A1b	1	59	0.52
30	100000197604	2	246	2A1c	3	61	0.50
31	100000197724	71	257	4B1a	1	61	0.50
32	100000197662	65	251	3A1c	2	61	0.49
33	100000185485	76	273	7	1	62	0.49
34	100000185380	78	268	6A2b	2	62	0.48
35	100000185376	89	268	6A1b	1	63	0.46
36	100000197780	11	262	5B1a	3	63	0.46
37	100000197675	39	273	7	2	64	0.46
38	100000098438	3	241	1A1a	3	65	0.44
39	100000197720	81	257	4A1b	2	65	0.44
40	100000197663	94	251	3B1a	1	66	0.43
41	100000197722	28	257	4A1c	3	66	0.42
42	100000185387	88	268	6C1d	1	66	0.42
43	100000185382	63	268	6B1a	3	66	0.42
44	100000197752	14	257	4B1b	3	67	0.41
45	100000197677	26	257	4A1a	3	67	0.41
46	100000185484	68	273	7	1	68	0.40
47	100000197650	62	273	7	2	68	0.39
48	100000197664	86	251	3C1a	2	69	0.39
49	100000185403	8	273	7	2	69	0.38
50	100000197667	42	251	3C1a	1	70	0.37
51	100000197676	85	251	3C2a	1	70	0.36
52	100000098444	41	241	1A2a	1	71	0.36
53	100000185401	7	273	7	2	71	0.35
54	100000098446	58	241	1B1a	2	73	0.33

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
55	100000185473	84	273	7	2	73	0.33
56	100000197753	15	273	7	3	74	0.31
57	100000098527	73	268	6A3a	3	75	0.31
58	100000098532	87	268	6C1b	1	75	0.30
59	100000098447	47	241	1B1a	2	76	0.29
60	100000197648	60	246	2E2a	3	77	0.28
61	100000197754	16	273	7	1	78	0.27
62	100000197751	27	257	4A1b	1	78	0.26

Appendix G
Item Map for the Math Grade 4 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	10000098585	57	241	1B2b	1	39	0.79
2	100000198094	45	246	2B1b	2	39	0.78
3	10000098584	11	241	1B2b	2	40	0.78
4	100000198098	14	246	2B2b	3	42	0.76
5	100000186578	74	268	6A2b	1	44	0.73
6	100000186576	63	268	6C1f	3	44	0.72
7	100000186577	92	268	6A1c	1	45	0.72
8	10000098579	20	241	1A2b	2	46	0.71
9	100000198150	65	262	5B1a	1	46	0.70
10	100000198144	60	262	5B1a	2	47	0.69
11	100000186562	43	273	7	2	49	0.67
12	10000098568	93	241	1A1a	3	50	0.64
13	100000198140	22	262	5B1a	3	51	0.64
14	100000186580	75	268	6A2f	3	52	0.63
15	100000186581	82	268	6B1b	3	53	0.61
16	100000207143	83	268	6C1c	3	53	0.60
17	10000098571	81	241	1A1a	2	54	0.60
18	100000198096	46	246	2B2a	2	55	0.58
19	100000198099	28	246	2D1a	3	55	0.58
20	100000198123	5	257	4B1a	3	56	0.57
21	100000198113	2	273	7	1	56	0.57
22	100000198114	3	273	7	2	56	0.56
23	100000198125	89	257	4A1a	1	57	0.55
24	100000198127	98	257	4B1a	2	57	0.55

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
25	100000186567	96	268	6A3a	1	57	0.54
26	100000198107	36	251	3A1a	2	58	0.53
27	100000198142	23	273	7	3	58	0.53
28	100000186560	78	273	7	2	58	0.53
29	100000098666	64	268	6C1g	1	59	0.53
30	100000098582	58	241	1B1b	1	59	0.52
31	100000198111	1	251	3C1a	2	59	0.52
32	100000098664	99	268	6B1c	2	59	0.52
33	100000198143	24	273	7	2	59	0.51
34	100000198103	39	273	7	1	60	0.51
35	100000186579	101	268	6A2e	1	60	0.50
36	100000198158	41	262	5B1a	1	61	0.49
37	100000186574	68	273	7	2	61	0.49
38	100000186575	69	273	7	2	61	0.49
39	100000098586	52	241	1C1a	2	61	0.48
40	100000198102	38	273	7	2	62	0.48
41	100000198092	27	246	2A1a	1	62	0.48
42	100000198148	40	262	5B1a	2	62	0.47
43	100000198128	26	257	4B1b	3	63	0.46
44	100000198137	80	257	4B2a	1	64	0.44
45	100000198108	71	251	3B1a	2	64	0.44
46	100000098645	73	268	6A1d	3	64	0.44
47	100000098587	34	241	1C1a	3	65	0.42
48	100000098573	77	241	1A1b	2	65	0.42
49	100000098578	6	241	1A2a	2	66	0.42
50	100000198139	56	257	4B2a	3	66	0.42
51	100000198121	84	251	3C1c	2	67	0.41
52	100000098572	51	241	1A1a	1	67	0.40
53	100000198101	37	246	2E1a	1	68	0.39
54	100000186582	97	268	6C2a	2	68	0.38

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
55	100000198122	72	251	3C2a	1	69	0.37
56	100000098583	10	241	1B2a	3	69	0.37
57	100000186573	67	268	6B1b	3	70	0.36
58	100000186561	79	273	7	2	71	0.35
59	100000186566	9	273	7	3	72	0.33
60	100000098580	100	241	1B1a	3	73	0.32
61	100000198157	76	262	5B1a	3	73	0.32

Appendix H
Item Map for the Math Grade 5 Ordered Item Book

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
1	100000196100	72	246	2D1a	2	36	0.80
2	100000196234	42	251	3C1b	2	42	0.75
3	100000187390	18	268	6B1d	3	43	0.73
4	100000099089	45	241	1B2b	2	44	0.72
5	100000187386	22	268	6B1c	1	46	0.70
6	100000099085	40	241	1B1c	1	47	0.69
7	100000196036	25	273	7	2	48	0.68
8	100000196263	81	257	4B1b	2	49	0.67
9	100000196233	8	251	3C1a	2	50	0.65
10	100000099080	5	241	1A1c	1	51	0.64
11	100000196253	14	257	4A1c	2	51	0.64
12	100000196284	33	262	5B1a	2	53	0.63
13	100000099079	38	241	1A1b	3	53	0.63
14	100000099086	30	241	1B1c	1	53	0.62
15	100000196025	85	273	7	3	55	0.60
16	100000187428	62	268	6C1f	1	56	0.59
17	100000099072	65	241	1A1a	2	58	0.56
18	100000187429	61	268	6C1g	3	58	0.56
19	100000187376	21	268	6A1d	3	59	0.55
20	100000196029	26	273	7	1	59	0.54
21	100000099091	46	241	1C1a	3	60	0.54
22	100000099075	29	241	1A1a	2	60	0.53
23	100000099083	28	241	1B1b	3	61	0.53
24	100000196256	56	257	4A1d	3	61	0.53
25	100000196045	13	273	7	2	61	0.52
26	100000196223	71	246	2E1a	3	61	0.52
27	100000187361	67	273	7	2	62	0.51

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
28	100000196277	32	257	4B2a	3	63	0.50
29	100000196057	34	273	7	3	64	0.48
30	100000099177	88	241	1C1b	3	64	0.48
31	100000196054	35	273	7	2	65	0.47
32	100000187367	2	268	6A1a	3	65	0.47
33	100000196094	73	246	2C1a	2	65	0.47
34	100000187370	77	268	6A1b	2	65	0.46
35	100000196229	10	251	3A1b	2	66	0.46
36	100000187366	89	273	7	1	66	0.45
37	100000099180	64	268	6C1e	3	67	0.45
38	100000099082	92	241	1B1a	2	67	0.44
39	100000196043	12	273	7	2	68	0.43
40	100000196281	51	262	5A1a	2	69	0.41
41	100000196247	82	257	4A1a	3	69	0.41
42	100000187382	80	268	6B1b	3	70	0.41
43	100000196079	84	246	2A1b	1	70	0.40
44	100000187388	53	273	7	1	70	0.40
45	100000099090	6	241	1B2b	3	71	0.40
46	100000196231	24	251	3B2a	2	71	0.40
47	100000196042	93	273	7	1	71	0.40
48	100000187380	60	268	6B1a	1	71	0.39
49	100000099081	37	241	1B1a	2	71	0.39
50	100000196238	83	251	3C2a	1	72	0.38
51	100000187360	66	273	7	1	72	0.38
52	100000187391	78	268	6C1a	3	72	0.38
53	100000187363	75	273	7	1	73	0.36
54	100000187389	54	273	7	2	74	0.35

Page	Item CID	Item Seq. No	Reporting Strand	Content Standard	Answer Key	Location	P-Value
55	100000196270	55	257	4B1e	2	75	0.35
56	100000196088	16	246	2B1a	1	76	0.33
57	100000196258	69	257	4B1a	3	77	0.32
58	100000196273	11	257	4B2a	1	78	0.31
59	100000196090	19	246	2B2b	2	79	0.29
60	100000196279	36	262	5A1a	3	80	0.28
61	100000187381	99	268	6B1b	1	83	0.26
62	100000187372	63	268	6A1c	3	85	0.24
63	100000187387	52	268	6B1d	1	87	0.22
64	100000196244	44	251	3C2b	2	89	0.20

Appendix I
Panelist Readiness Survey

**Maryland Mod-MSA Grade 3 Reading
Standard Setting Readiness Survey**

Panelist ID: _____

Instructions: Please circle your response to the following questions.

Round 1		
I understand my task for Round 1.	No	Yes
I am ready to begin Round 1.	No	Yes

Round 2		
I understand my task for Round 2.	No	Yes
I understand the panelist agreement data that was presented from Round 1.	No	Yes
I understand the item difficulty data that was provided.	No	Yes
I am ready to begin Round 2.	No	Yes

Round 3		
I understand my task for Round 3.	No	Yes
I understand the impact data that was presented from Round 2.	No	Yes
I am ready to begin Round 3.	No	Yes

Appendix J

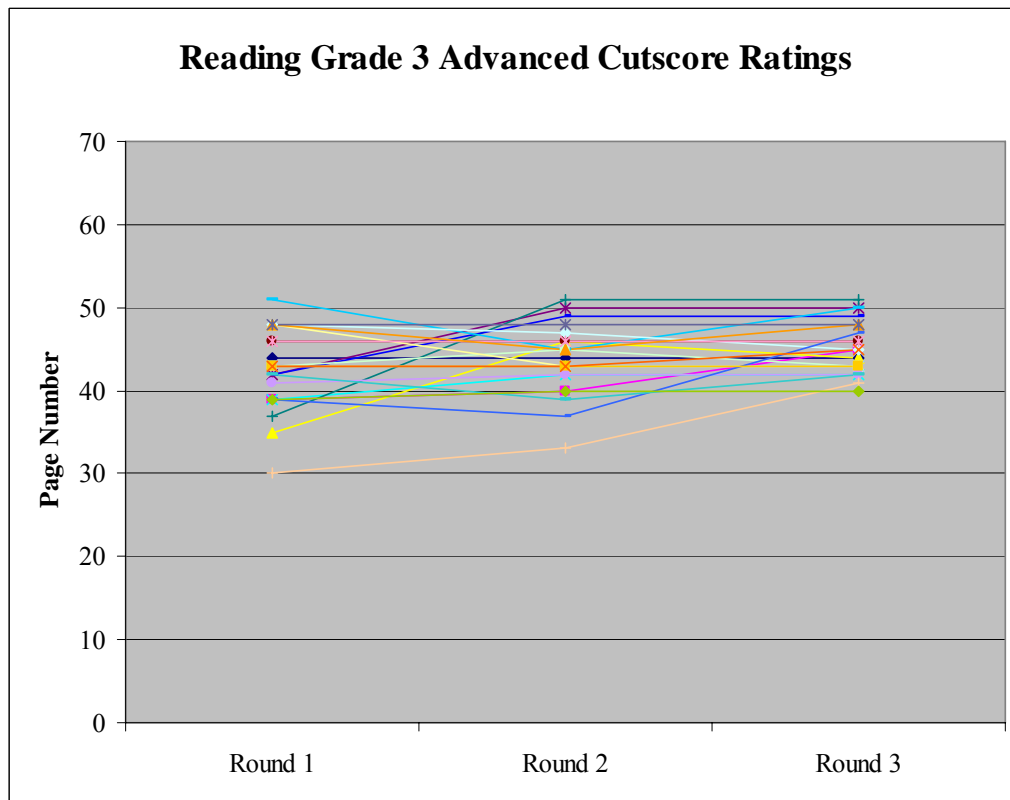
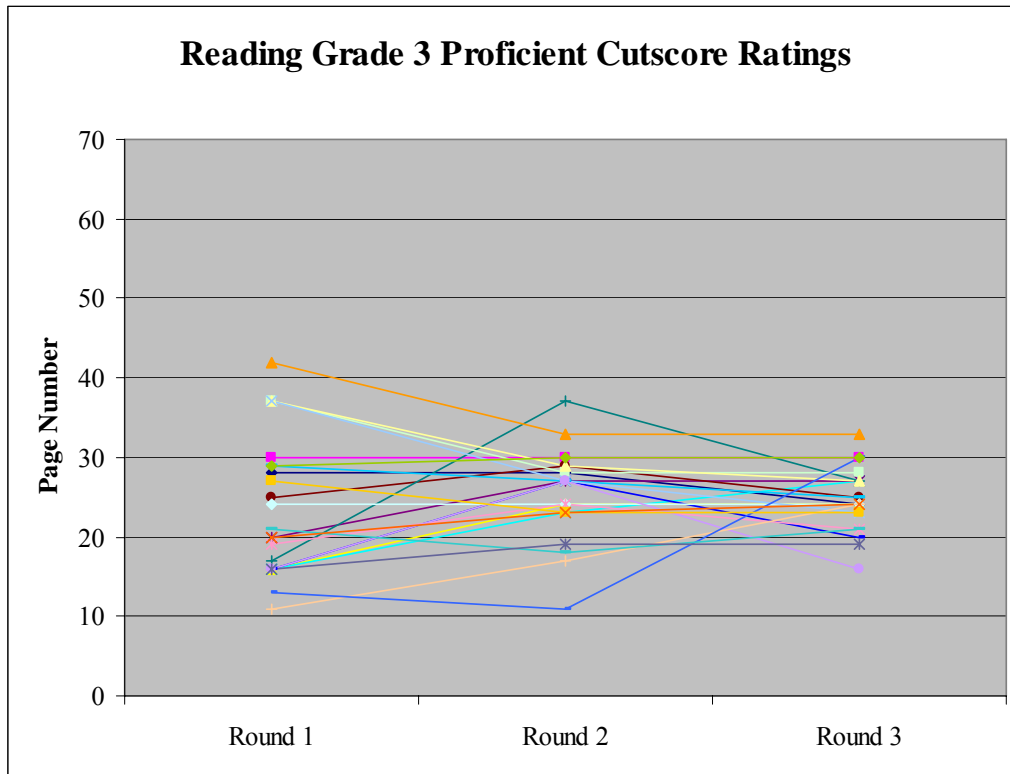
Mean, Median, Minimum, and Maximum Ratings by Round

	Reading Grade 3					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	23.74	42.43	25.43	43.78	24.87	45.09
Median	21.00	43.00	27.00	44.00	24.00	45.00
Minimum	11.00	30.00	11.00	33.00	16.00	40.00
Maximum	42.00	51.00	37.00	51.00	33.00	51.00
	Reading Grade 4					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	19.05	39.55	17.82	40.95	16.91	39.36
Median	20.00	43.00	18.00	43.00	18.00	42.00
Minimum	5.00	14.00	14.00	34.00	13.00	23.00
Maximum	29.00	48.00	24.00	48.00	20.00	48.00
	Reading Grade 5					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	15.26	35.87	18.87	39.13	18.35	40.09
Median	17.00	38.00	18.00	41.00	18.00	41.00
Minimum	2.00	5.00	8.00	27.00	17.00	34.00
Maximum	25.00	49.00	32.00	49.00	35.00	44.00

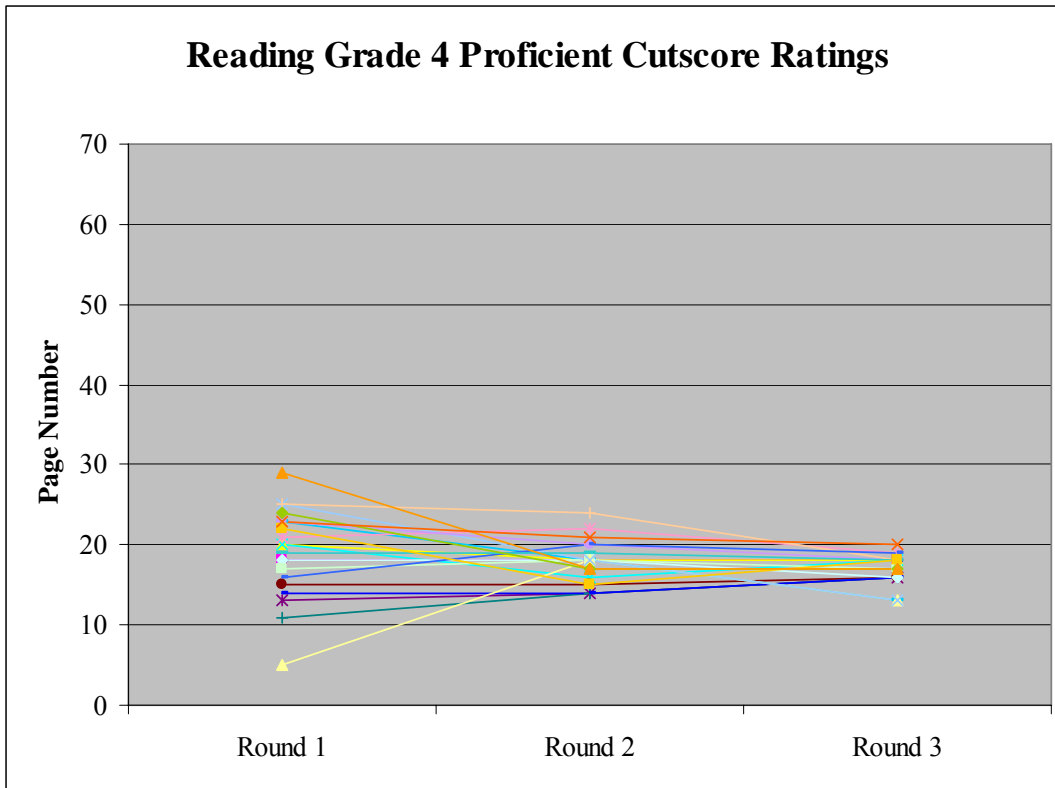
	Math Grade 3					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	20.96	43.48	19.74	43.78	20.17	44.30
Median	20.00	44.00	19.00	45.00	19.00	44.00
Minimum	7.00	28.00	11.00	19.00	12.00	34.00
Maximum	38.00	60.00	28.00	58.00	28.00	50.00
	Math Grade 4					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	24.91	48.41	22.09	50.41	18.86	52.68
Median	23.00	50.00	22.00	53.00	17.00	53.00
Minimum	16.00	31.00	17.00	35.00	16.00	48.00
Maximum	39.00	57.00	27.00	54.00	25.00	54.00
	Math Grade 5					
Round	1		2		3	
Achievement Level	P	A	P	A	P	A
Mean	20.95	50.57	20.29	50.43	18.52	48.76
Median	18.00	50.00	20.00	50.00	18.00	49.00
Minimum	9.00	41.00	15.00	46.00	13.00	43.00
Maximum	44.00	62.00	28.00	59.00	24.00	52.00

Appendix K

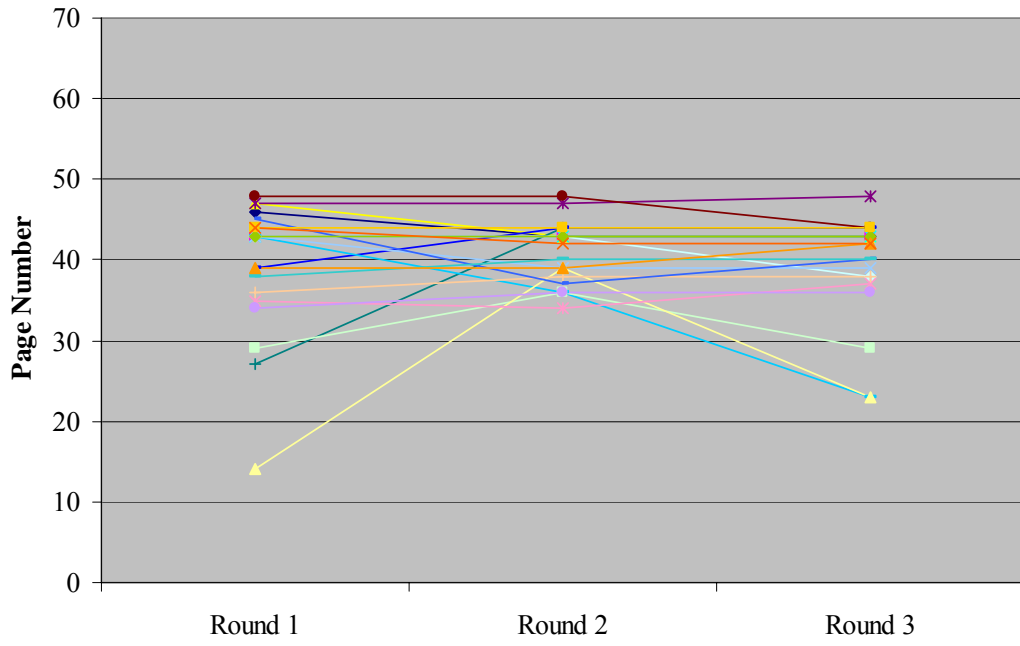
Individual Ratings across Rounds for Reading Grade 3



Appendix L
Individual Ratings across Rounds for Reading Grade 4

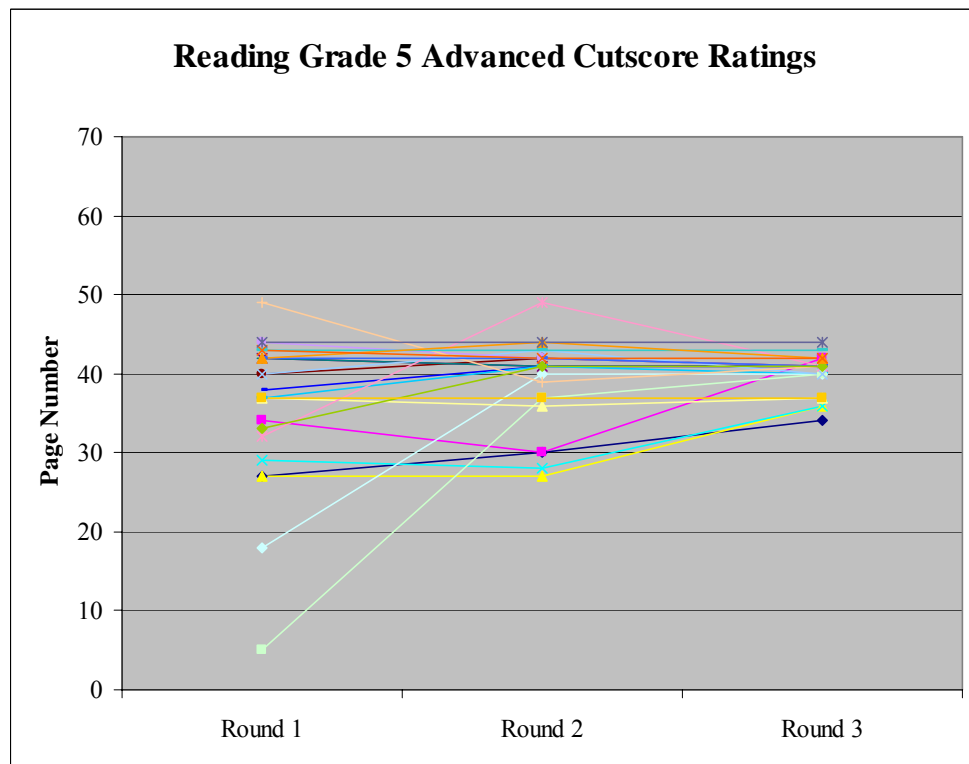
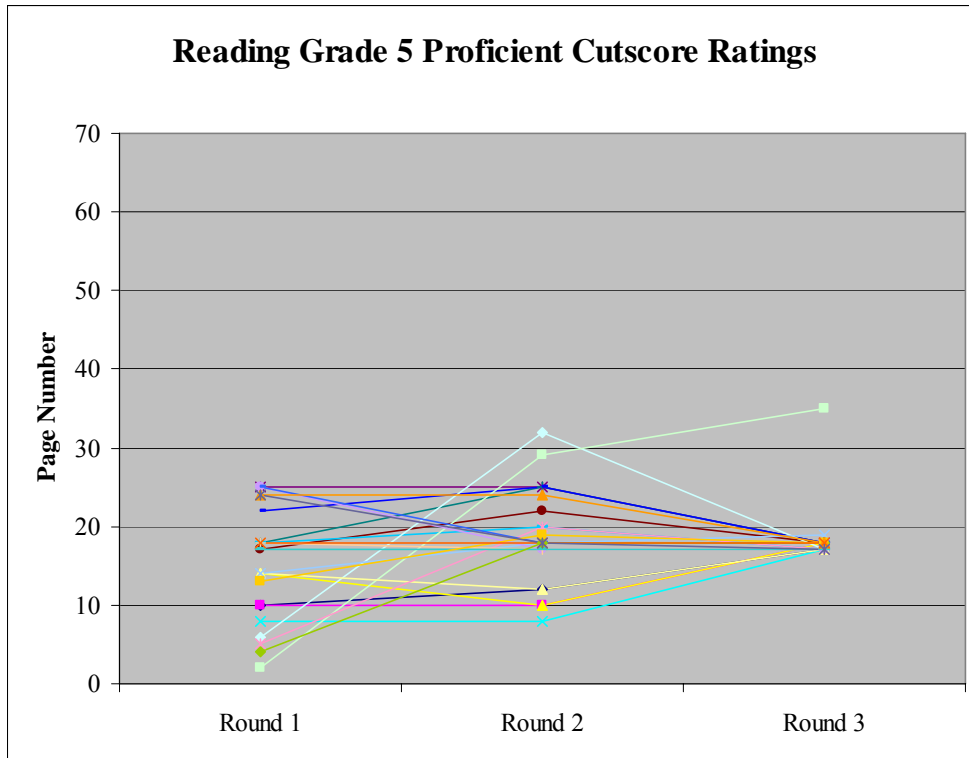


Reading Grade 4 Advanced Cutscore Ratings



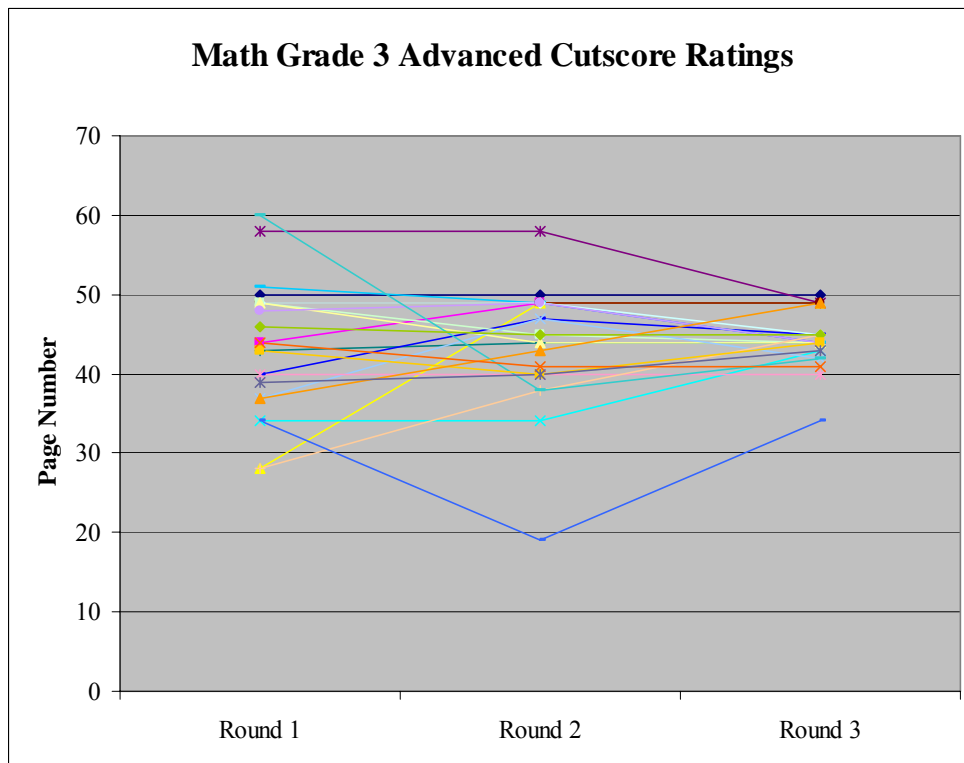
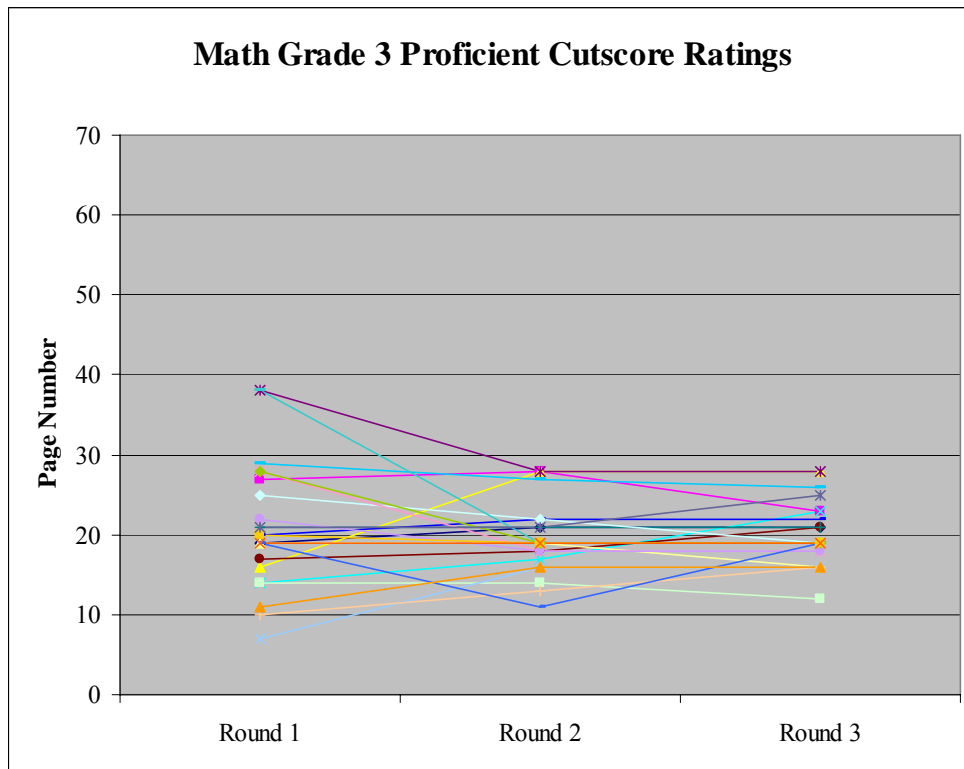
Appendix M

Individual Ratings across Rounds for Reading Grade 5



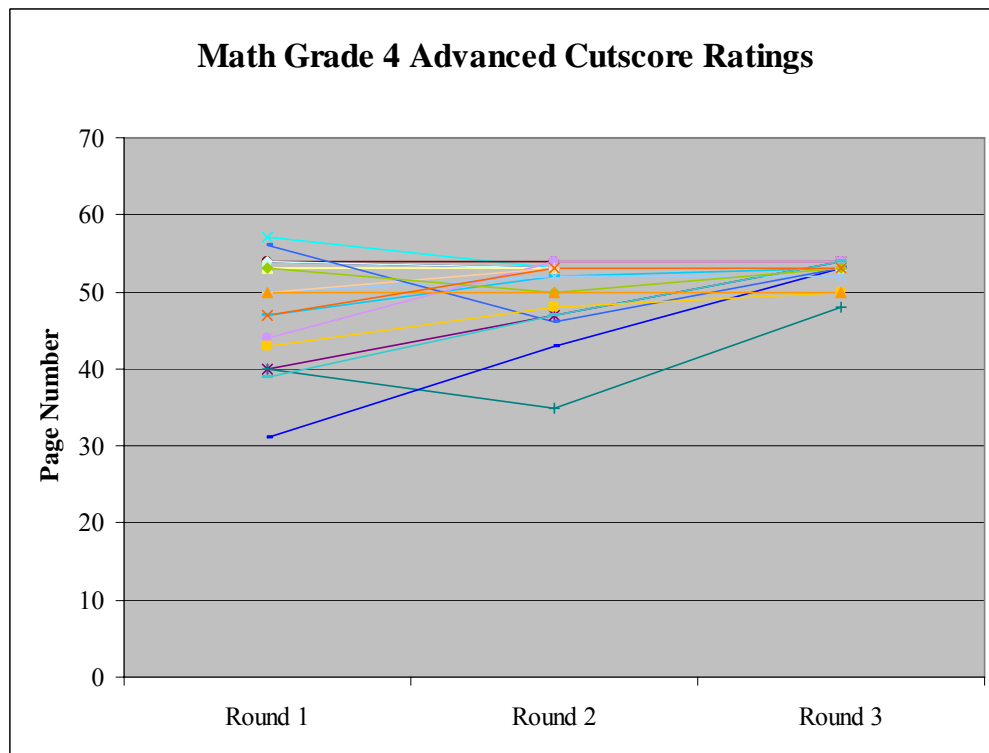
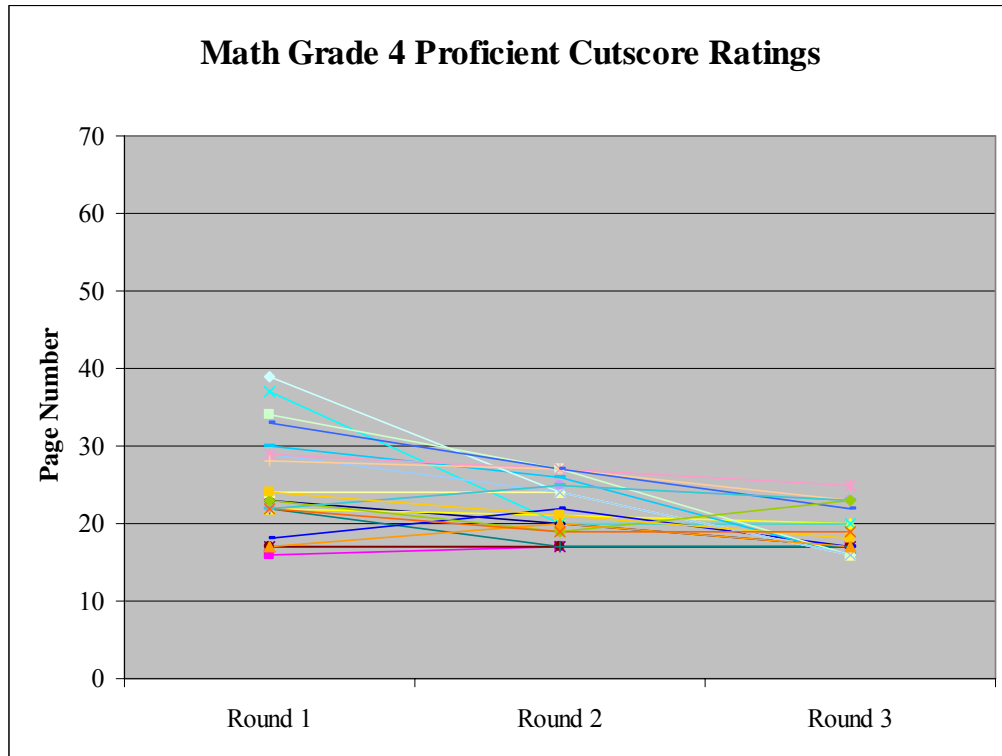
Appendix N

Individual Ratings across Rounds for Math Grade 3



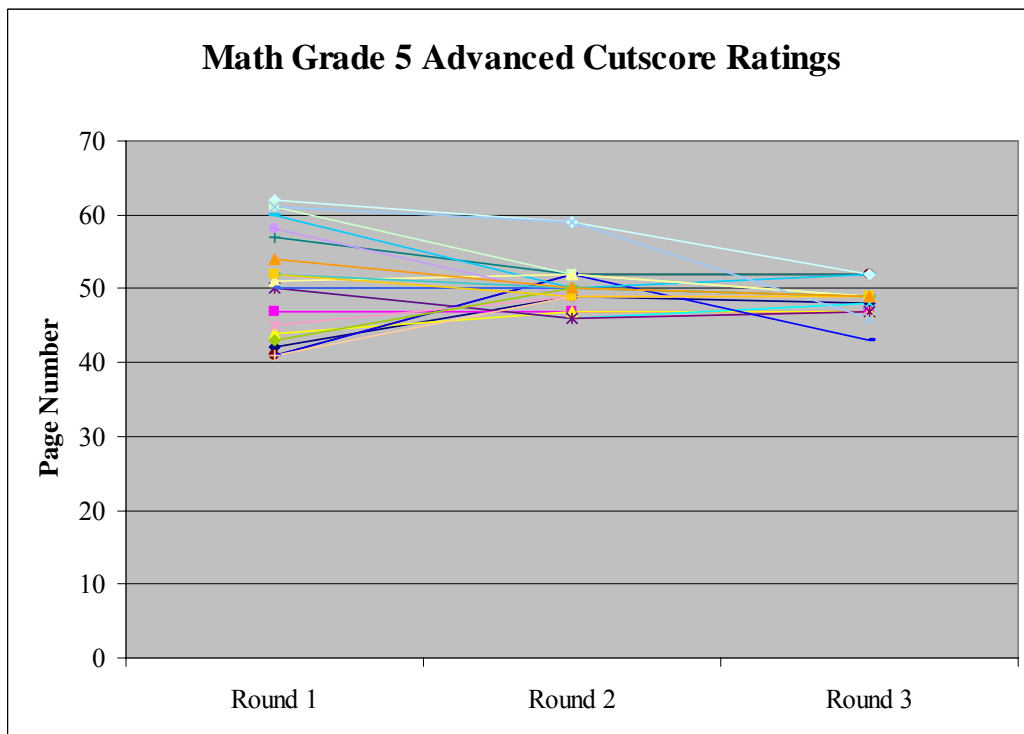
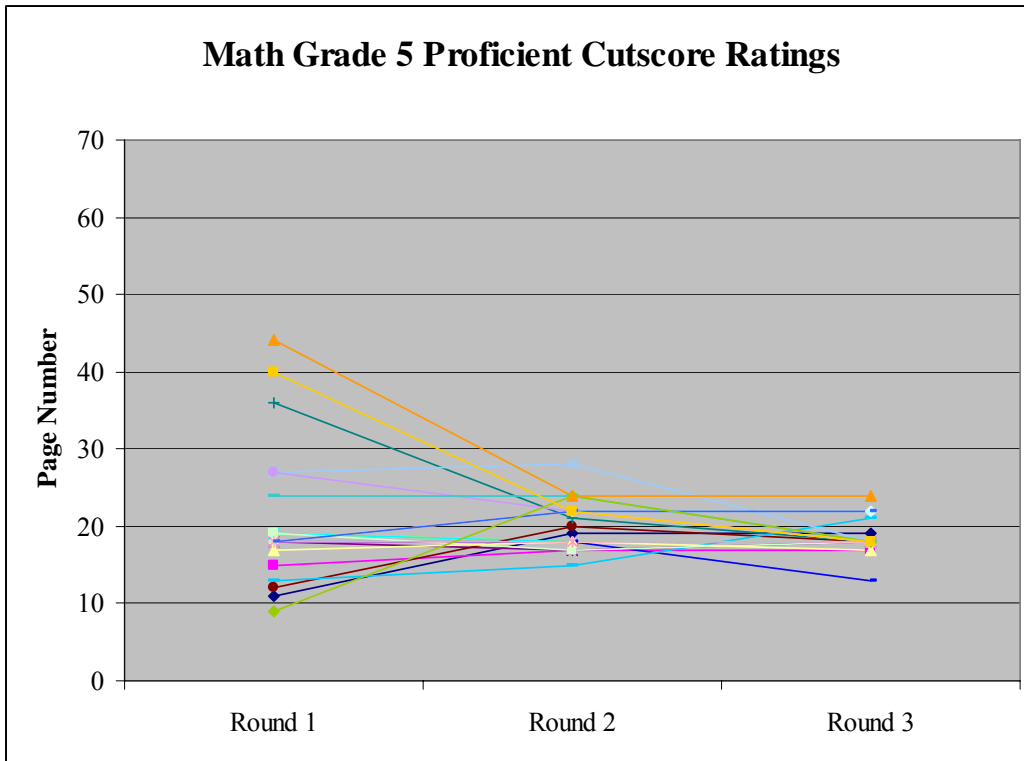
Appendix O

Individual Ratings across Rounds for Math Grade 4



Appendix P

Individual Ratings across Rounds for Math Grade 5



Appendix Q

Standard Error Bands for Reading Grade 3

Reading Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		0.46	1.26	
Participants Recommended Cut Point* + 3 SEs		56	69	+ 3 SEs
Percent of students in each Performance Level	66.3	23.4	10.3	
Participants Recommended Cut Point* + 2 SEs		56	68	+ 2 SEs
Percent of students in each Performance Level	66.3	23.4	10.3	
Participants Recommended Cut Point* + 1 SEs		55	66	+ 1 SEs
Percent of students in each Performance Level	66.3	20.4	13.3	
Participants Recommended Cut Point*		55	65	
Percent of students in each Performance Level	66.3	20.4	13.3	
Participants Recommended Cut Point* - 1 SEs		55	64	- 1 SEs
Percent of students in each Performance Level	66.3	17.0	16.7	
Participants Recommended Cut Point* - 2 SEs		54	62	- 2 SEs
Percent of students in each Performance Level	61.0	19.1	19.9	
Participants Recommended Cut Point* - 3 SEs		54	61	- 3 SEs
Percent of students in each Performance Level	61.0	19.1	19.9	
*Large Group Medians				

Reading Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		4.0	5.0	
Participants Recommended Cut Point* + 3 SEs		67	80	+ 3 SEs
Percent of students in each Performance Level	89.7	4.1	6.2	
Participants Recommended Cut Point* + 2 SEs		63	75	+ 2 SEs
Percent of students in each Performance Level	83.3	10.5	6.2	
Participants Recommended Cut Point* + 1 SEs		59	70	+ 1 SEs
Percent of students in each Performance Level	74.8	14.9	10.3	
Participants Recommended Cut Point*		55	65	
Percent of students in each Performance Level	66.3	20.4	13.3	
Participants Recommended Cut Point* - 1 SEs		51	60	- 1 SEs
Percent of students in each Performance Level	51.2	25.7	23.1	
Participants Recommended Cut Point* - 2 SEs		47	55	- 2 SEs
Percent of students in each Performance Level	37.2	29.1	33.7	
Participants Recommended Cut Point* - 3 SEs		43	50	- 3 SEs
Percent of students in each Performance Level	23.3	23.2	53.5	
*Large Group Medians				

Reading Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		4.03	5.16	
Participants Recommended Cut Point* + 3 SEs		67	80	+ 3 SEs
Percent of students in each Performance Level	89.7	4.1	6.2	
Participants Recommended Cut Point* + 2 SEs		63	75	+ 2 SEs
Percent of students in each Performance Level	83.3	10.5	6.2	
Participants Recommended Cut Point* + 1 SEs		59	70	+ 1 SEs
Percent of students in each Performance Level	74.8	14.9	10.3	
Participants Recommended Cut Point*		55	65	
Percent of students in each Performance Level	66.3	20.4	13.3	
Participants Recommended Cut Point* - 1 SEs		51	60	- 1 SEs
Percent of students in each Performance Level	51.2	25.7	23.1	
Participants Recommended Cut Point* - 2 SEs		47	55	- 2 SEs
Percent of students in each Performance Level	37.2	29.1	33.7	
Participants Recommended Cut Point* - 3 SEs		43	50	- 3 SEs
Percent of students in each Performance Level	23.3	23.2	53.5	
*Large Group Medians				

Appendix R
Standard Error Bands for Reading Grade 4

Reading Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		0.93	1.67	
Participants Recommended Cut Point* + 3 SEs		57	71	+ 3 SEs
Percent of students in each Performance Level	69.8	22.0	8.2	
Participants Recommended Cut Point* + 2 SEs		56	69	+ 2 SEs
Percent of students in each Performance Level	65.5	24.6	9.9	
Participants Recommended Cut Point* + 1 SEs		55	68	+ 1 SEs
Percent of students in each Performance Level	65.5	24.6	9.9	
Participants Recommended Cut Point*		54	66	
Percent of students in each Performance Level	61.7	25.9	12.4	
Participants Recommended Cut Point* - 1 SEs		53	64	- 1 SEs
Percent of students in each Performance Level	57.6	26.9	15.5	
Participants Recommended Cut Point* - 2 SEs		52	63	- 2 SEs
Percent of students in each Performance Level	52.7	28.5	18.8	
Participants Recommended Cut Point* - 3 SEs		51	61	- 3 SEs
Percent of students in each Performance Level	52.7	25.1	22.2	
*Large Group Medians				

Reading Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		5.0	5.0	
Participants Recommended Cut Point* + 3 SEs		69	81	+ 3 SEs
Percent of students in each Performance Level	90.1	6.7	3.2	
Participants Recommended Cut Point* + 2 SEs		64	76	+ 2 SEs
Percent of students in each Performance Level	84.5	11.6	3.9	
Participants Recommended Cut Point* + 1 SEs		59	71	+ 1 SEs
Percent of students in each Performance Level	73.8	18.0	8.2	
Participants Recommended Cut Point*		54	66	
Percent of students in each Performance Level	61.7	25.9	12.4	
Participants Recommended Cut Point* - 1 SEs		49	61	- 1 SEs
Percent of students in each Performance Level	41.0	36.8	22.2	
Participants Recommended Cut Point* - 2 SEs		44	56	- 2 SEs
Percent of students in each Performance Level	26.6	38.9	34.5	
Participants Recommended Cut Point* - 3 SEs		39	51	- 3 SEs
Percent of students in each Performance Level	14.1	38.6	47.3	
*Large Group Medians				

Reading Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		5.09	5.27	
Participants Recommended Cut Point* + 3 SEs		69	82	+ 3 SEs
Percent of students in each Performance Level	90.1	6.7	3.2	
Participants Recommended Cut Point* + 2 SEs		64	77	+ 2 SEs
Percent of students in each Performance Level	84.5	11.6	3.9	
Participants Recommended Cut Point* + 1 SEs		59	71	+ 1 SEs
Percent of students in each Performance Level	73.8	18.0	8.2	
Participants Recommended Cut Point*		54	66	
Percent of students in each Performance Level	61.7	25.9	12.4	
Participants Recommended Cut Point* - 1 SEs		49	61	- 1 SEs
Percent of students in each Performance Level	41.0	36.8	22.2	
Participants Recommended Cut Point* - 2 SEs		44	55	- 2 SEs
Percent of students in each Performance Level	26.6	38.9	34.5	
Participants Recommended Cut Point* - 3 SEs		39	50	- 3 SEs
Percent of students in each Performance Level	14.1	32.4	53.5	
*Large Group Medians				

Appendix S
Standard Error Bands for Reading Grade 5

Reading Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		0.97	1.74	
Participants Recommended Cut Point* + 3 SEs		56	74	+ 3 SEs
Percent of students in each Performance Level	67.2	28.6	4.2	
Participants Recommended Cut Point* + 2 SEs		55	72	+ 2 SEs
Percent of students in each Performance Level	62.0	32.1	5.9	
Participants Recommended Cut Point* + 1 SEs		54	71	+ 1 SEs
Percent of students in each Performance Level	62.0	32.1	5.9	
Participants Recommended Cut Point*		53	69	
Percent of students in each Performance Level	55.9	35.7	8.4	
Participants Recommended Cut Point* - 1 SEs		52	67	- 1 SEs
Percent of students in each Performance Level	50.5	35.7	13.8	
Participants Recommended Cut Point* - 2 SEs		51	66	- 2 SEs
Percent of students in each Performance Level	45.4	40.8	13.8	
Participants Recommended Cut Point* - 3 SEs		50	64	- 3 SEs
Percent of students in each Performance Level	45.4	38.4	16.2	
*Large Group Medians				

Reading Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		5.0	6.0	
Participants Recommended Cut Point* + 3 SEs		68	87	+ 3 SEs
Percent of students in each Performance Level	89.0	8.3	2.7	
Participants Recommended Cut Point* + 2 SEs		63	81	+ 2 SEs
Percent of students in each Performance Level	83.8	13.5	2.7	
Participants Recommended Cut Point* + 1 SEs		58	75	+ 1 SEs
Percent of students in each Performance Level	72.0	23.8	4.2	
Participants Recommended Cut Point*		53	69	
Percent of students in each Performance Level	55.9	35.7	8.4	
Participants Recommended Cut Point* - 1 SEs		48	63	- 1 SEs
Percent of students in each Performance Level	40.1	43.7	16.2	
Participants Recommended Cut Point* - 2 SEs		43	57	- 2 SEs
Percent of students in each Performance Level	13.4	53.8	32.8	
Participants Recommended Cut Point* - 3 SEs		38	51	- 3 SEs
Percent of students in each Performance Level	13.4	32.0	54.6	
*Large Group Medians				

Reading Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		5.09	6.25	
Participants Recommended Cut Point* + 3 SEs		68	88	+ 3 SEs
Percent of students in each Performance Level	89.0	8.3	2.7	
Participants Recommended Cut Point* + 2 SEs		63	81	+ 2 SEs
Percent of students in each Performance Level	83.8	13.5	2.7	
Participants Recommended Cut Point* + 1 SEs		58	75	+ 1 SEs
Percent of students in each Performance Level	72.0	23.8	4.2	
Participants Recommended Cut Point*		53	69	
Percent of students in each Performance Level	55.9	35.7	8.4	
Participants Recommended Cut Point* - 1 SEs		48	63	- 1 SEs
Percent of students in each Performance Level	40.1	43.7	16.2	
Participants Recommended Cut Point* - 2 SEs		43	57	- 2 SEs
Percent of students in each Performance Level	13.4	53.8	32.8	
Participants Recommended Cut Point* - 3 SEs		38	50	- 3 SEs
Percent of students in each Performance Level	13.4	32.0	54.6	
*Large Group Medians				

Appendix T
Standard Error Bands for Math Grade 3

Mathematics Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		0.99	0.81	
Participants Recommended Cut Point* + 3 SEs		58	69	+ 3 SEs
Percent of students in each Performance Level	71.3	17.7	11.0	
Participants Recommended Cut Point* + 2 SEs		57	69	+ 2 SEs
Percent of students in each Performance Level	68.0	21.0	11.0	
Participants Recommended Cut Point* + 1 SEs		56	68	+ 1 SEs
Percent of students in each Performance Level	64.1	24.9	11.0	
Participants Recommended Cut Point*		55	67	
Percent of students in each Performance Level	64.1	22.5	13.4	
Participants Recommended Cut Point* - 1 SEs		54	66	- 1 SEs
Percent of students in each Performance Level	61.0	23.4	15.6	
Participants Recommended Cut Point* - 2 SEs		53.0	65	- 2 SEs
Percent of students in each Performance Level	55.8	28.6	15.6	
Participants Recommended Cut Point* - 3 SEs		52	65	- 3 SEs
Percent of students in each Performance Level	52.4	32.0	15.6	
*Large Group Medians				

Mathematics Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		5	5	
Participants Recommended Cut Point* + 3 SEs		70	82	+ 3 SEs
Percent of students in each Performance Level	89.8	6.1	4.1	
Participants Recommended Cut Point* + 2 SEs		65	77	+ 2 SEs
Percent of students in each Performance Level	84.4	10.5	5.1	
Participants Recommended Cut Point* + 1 SEs		60	72	+ 1 SEs
Percent of students in each Performance Level	71.3	18.5	10.2	
Participants Recommended Cut Point*		55	67	
Percent of students in each Performance Level	64.1	22.5	13.4	
Participants Recommended Cut Point* - 1 SEs		50	62	- 1 SEs
Percent of students in each Performance Level	44.7	35.0	20.3	
Participants Recommended Cut Point* - 2 SEs		45.0	57.0	- 2 SEs
Percent of students in each Performance Level	25.2	42.8	32.0	
Participants Recommended Cut Point* - 3 SEs		40	52	- 3 SEs
Percent of students in each Performance Level	17.3	35.1	47.6	
*Large Group Medians				

Mathematics Grade 3				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		5.10	5.06	
Participants Recommended Cut Point* + 3 SEs		70	82	+ 3 SEs
Percent of students in each Performance Level	89.8	6.1	4.1	
Participants Recommended Cut Point* + 2 SEs		65	77	+ 2 SEs
Percent of students in each Performance Level	84.4	10.5	5.1	
Participants Recommended Cut Point* + 1 SEs		60	72	+ 1 SEs
Percent of students in each Performance Level	71.3	18.5	10.2	
Participants Recommended Cut Point*		55	67	
Percent of students in each Performance Level	64.1	22.5	13.4	
Participants Recommended Cut Point* - 1 SEs		50	62	- 1 SEs
Percent of students in each Performance Level	44.7	35.0	20.3	
Participants Recommended Cut Point* - 2 SEs		45.0	57.0	- 2 SEs
Percent of students in each Performance Level	25.2	42.8	32.0	
Participants Recommended Cut Point* - 3 SEs		40	52	- 3 SEs
Percent of students in each Performance Level	17.3	35.1	47.6	
*Large Group Medians				

Appendix U
Standard Error Bands for Math Grade 4

Mathematics Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		1.11	0.97	
Participants Recommended Cut Point* + 3 SEs		57	71	+ 3 SEs
Percent of students in each Performance Level	68.8	23.2	8.0	
Participants Recommended Cut Point* + 2 SEs		56	70	+ 2 SEs
Percent of students in each Performance Level	64.7	27.3	8.0	
Participants Recommended Cut Point* + 1 SEs		55	69	+ 1 SEs
Percent of students in each Performance Level	64.7	25.4	9.9	
Participants Recommended Cut Point*		54	68	
Percent of students in each Performance Level	61.6	28.5	9.9	
Participants Recommended Cut Point* - 1 SEs		53	67	- 1 SEs
Percent of students in each Performance Level	57.5	30.7	11.8	
Participants Recommended Cut Point* - 2 SEs		52	66	- 2 SEs
Percent of students in each Performance Level	53.4	32.1	14.5	
Participants Recommended Cut Point* - 3 SEs		51	65	- 3 SEs
Percent of students in each Performance Level	53.4	32.1	14.5	
*Large Group Medians				

Mathematics Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		4.0	5.0	
Participants Recommended Cut Point* + 3 SEs		66	78	+ 3 SEs
Percent of students in each Performance Level	85.5	7.7	6.8	
Participants Recommended Cut Point* + 2 SEs		62	78	+ 2 SEs
Percent of students in each Performance Level	80.9	12.3	6.8	
Participants Recommended Cut Point* + 1 SEs		58	73	+ 1 SEs
Percent of students in each Performance Level	72.6	20.6	6.8	
Participants Recommended Cut Point*		54	68	
Percent of students in each Performance Level	61.6	28.5	9.9	
Participants Recommended Cut Point* - 1 SEs		50	63	- 1 SEs
Percent of students in each Performance Level	49.0	34.0	17.0	
Participants Recommended Cut Point* - 2 SEs		46	58	- 2 SEs
Percent of students in each Performance Level	36.8	35.8	27.4	
Participants Recommended Cut Point* - 3 SEs		42	53	- 3 SEs
Percent of students in each Performance Level	18.9	38.6	42.5	
*Large Group Medians				

Mathematics Grade 4				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		4.15	5.09	
Participants Recommended Cut Point* + 3 SEs		66	78	+ 3 SEs
Percent of students in each Performance Level	85.5	7.7	6.8	
Participants Recommended Cut Point* + 2 SEs		62	78	+ 2 SEs
Percent of students in each Performance Level	80.9	12.3	6.8	
Participants Recommended Cut Point* + 1 SEs		58	73	+ 1 SEs
Percent of students in each Performance Level	72.6	20.6	6.8	
Participants Recommended Cut Point*		54	68	
Percent of students in each Performance Level	61.6	28.5	9.9	
Participants Recommended Cut Point* - 1 SEs		50	63	- 1 SEs
Percent of students in each Performance Level	49.0	34.0	17.0	
Participants Recommended Cut Point* - 2 SEs		46	58	- 2 SEs
Percent of students in each Performance Level	36.8	35.8	27.4	
Participants Recommended Cut Point* - 3 SEs		42	53	- 3 SEs
Percent of students in each Performance Level	18.9	38.6	42.5	
*Large Group Medians				

Appendix V
Standard Error Bands for Math Grade 5

Mathematics Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error (SE) cut score		0.96	1.09	
Participants Recommended Cut Point* + 3 SEs		61	74	+ 3 SEs
Percent of students in each Performance Level	78.0	15.0	7.0	
Participants Recommended Cut Point* + 2 SEs		60	73	+ 2 SEs
Percent of students in each Performance Level	74.6	18.4	7.0	
Participants Recommended Cut Point* + 1 SEs		59	72	+ 1 SEs
Percent of students in each Performance Level	74.6	17.2	8.2	
Participants Recommended Cut Point*		58	71	
Percent of students in each Performance Level	70.3	21.5	8.2	
Participants Recommended Cut Point* - 1 SEs		57	70	- 1 SEs
Percent of students in each Performance Level	66.9	23.0	10.1	
Participants Recommended Cut Point* - 2 SEs		56	69	- 2 SEs
Percent of students in each Performance Level	66.9	23.0	10.1	
Participants Recommended Cut Point* - 3 SEs		55	68	- 3 SEs
Percent of students in each Performance Level	63.0	24.2	12.8	
*Large Group Medians				

Mathematics Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
Standard Error of Measurement (CSEM)		5	6	
Participants Recommended Cut Point* + 3 SEs		73	89	+ 3 SEs
Percent of students in each Performance Level	93.0	6.2	0.8	
Participants Recommended Cut Point* + 2 SEs		68	83	+ 2 SEs
Percent of students in each Performance Level	87.2	10.8	2.0	
Participants Recommended Cut Point* + 1 SEs		63	77	+ 1 SEs
Percent of students in each Performance Level	80.5	15.5	4.0	
Participants Recommended Cut Point*		58	71	
Percent of students in each Performance Level	70.3	21.5	8.2	
Participants Recommended Cut Point* - 1 SEs		53	65	- 1 SEs
Percent of students in each Performance Level	54.5	28.2	17.3	
Participants Recommended Cut Point* - 2 SEs		48	59	- 2 SEs
Percent of students in each Performance Level	37.1	37.5	25.4	
Participants Recommended Cut Point* - 3 SEs		43	53	- 3 SEs
Percent of students in each Performance Level	22.1	32.4	45.5	
*Large Group Medians				

Mathematics Grade 5				
Recommended Cut Points*Plus/Minus Selected Standards Errors (SEs) of the Cut Scores				
	Basic	Proficient Scale Score	Advanced Scale Score	SE Calculations
SEM Combined (SEMcomb)		5.09	6.10	
Participants Recommended Cut Point* + 3 SEs		73	89	+ 3 SEs
Percent of students in each Performance Level	93.0	6.2	0.8	
Participants Recommended Cut Point* + 2 SEs		68	83	+ 2 SEs
Percent of students in each Performance Level	87.2	10.8	2.0	
Participants Recommended Cut Point* + 1 SEs		63	77	+ 1 SEs
Percent of students in each Performance Level	80.5	15.5	4.0	
Participants Recommended Cut Point*		58	71	
Percent of students in each Performance Level	70.3	21.5	8.2	
Participants Recommended Cut Point* - 1 SEs		53	65	- 1 SEs
Percent of students in each Performance Level	54.5	28.2	17.3	
Participants Recommended Cut Point* - 2 SEs		48	59	- 2 SEs
Percent of students in each Performance Level	37.1	37.5	25.4	
Participants Recommended Cut Point* - 3 SEs		43	53	- 3 SEs
Percent of students in each Performance Level	22.1	32.4	45.5	
*Large Group Medians				