New York State Testing Program

Bookmark Standard Setting Technical Report 2006

for

Grades 3, 4, 5, 6, 7, and 8 Mathematics

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New York State Education Department
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Executive Summary

Staff from CTB/McGraw-Hill conducted the New York Mathematics Standard Setting in Albany, New York, on July 17-21, 2006. The Bookmark Standard Setting Procedure (BSSP) was implemented to set standards for six grades: Grade 3-8 Mathematics. Participants in each grade participated in three or four rounds of activities in which they recommended three cut scores (*Partially Meeting Learning Standards, Meeting Learning Standards,* and *Meeting Learning Standards with Distinction*), which define four performance levels: *Not Meeting Learning Standards, Partially Meeting Learning Standards, Meeting Learning Standards,* and *Meeting Learning Standards with Distinction.*

Participants were recruited from across New York to recommend cut scores. Each grade had 26 participants. Within each grade, the New York State Education Department (NYSED) divided participants into four tables that were balanced in terms of relevant demographic characteristics (e.g., geographic location, school size).

Table 1 summarizes the cut scores and associated impact data recommended by participants in each grade in the final round (Round 3 or Round 4) of discussion and voting.

Table 1. Participant-recommended Cut Scores and Associated Impact Data Based on the Final Round

	Impact Data					
	(Round 3)	(Round 3)	(Round 4)	(Round 3)	(Round 3)	(Round 4)
Grade	**3**	**4**	**5**	**6**	**7**	**8**
Not Meeting	11.4%	14.8%	13.7%	29.4%	17.8%	26.3%
Partially Meeting	17.0%	24.3%	36.2%	27.4%	39.8%	26.4%
Meeting	54.6%	34.9%	31.0%	30.0%	27.0%	29.0%
Meeting with Distinction	17.0%	26.0%	19.1%	13.2%	15.4%	18.3%
***Meeting* and Above**	71.6%	60.9%	50.1%	43.2%	42.4%	47.3%
	Cut Scores					
Partially Meeting	410	463	513	581	617	680
Meeting	430	488	549	604	653	702
Meeting with Distinction	476	518	577	634	681	730

The impact data in Table 1 reflect the data that were shown to participants at the time of the workshop. The impact data are based on the Spring 2006 test administration.

Vertical Articulation Panel

Table 2 shows the cut scores and associated impact data for each grade resulting from the Vertical Articulation Panel. Grades 3 and 4 Table Leaders adjusted the *Meeting* cut score in Grade 3 and the *Meeting with Distinction* cut score in Grade 4. Grade 5 and 6 Table Leaders adjusted the *Partially Meeting* and *Meeting with Distinction* cut scores in Grade 5 and the *Partially Meeting* cut score in Grade 6. Grade 7 and 8 Table Leaders adjusted the *Partially Meeting* and *Meeting with Distinction* cut scores in Grade 7 and all of the cut scores in Grade 8.

Table 2. Cut Scores and Associated Impact Data from the Vertical Articulation Panel

Grade	3	4	5	6	7	8
Impact Data						
Not Meeting	11.4%	14.9%	15.5%	20.6%	20.4%	24.6%
Partially Meeting	25.0%	24.3%	34.4%	36.2%	37.3%	34.7%
Meeting	46.6%	45.9%	35.2%	30.0%	30.2%	28.4%
Meeting with Distinction	17.0%	15.0%	15.0%	13.2%	12.2%	12.3%
***Meeting* and Above**	63.6%	60.8%	50.2%	43.3%	42.4%	40.7%
Cut Scores						
Partially Meeting	410	463	515	573	621	678
Meeting	438	488	549	604	653	707
Meeting with Distinction	476	529	580	634	683	739

This report summarizes the results of the New York Mathematics Standard Setting. A round-by-round synopsis is included in Section B. The Master Agenda is included in Section C. The overheads presented to Table Leaders during training and orientation are included in Section D. In Section E, detailed results are presented of the participants' judgments for each grade. In Section F, estimates are given of the percentage of students in each performance level at plus/minus one, two, and three standard errors of the participants' recommended final round cut scores for each grade. Section G contains graphical representations of participants' judgments and standard errors. All training materials given to participants are provided in Section H. Section I contains the results of the participant evaluation of the New York Mathematics Standard Setting. In Section J, estimates are given of the percentage of students in each performance level at plus/minus one, two, and three standard errors of the recommendations from the Vertical Articulation Panel for each grade. Section K contains the memoranda for each grade from the Table Leaders on the Vertical Articulation Panel.

Section B

Standard Setting Overview

New York State Mathematics Standard Setting

Staff from CTB/McGraw-Hill conducted the New York State Mathematics Standard Setting in Albany, New York, on July 17-21, 2006. The Bookmark Standard Setting Procedure (BSSP) was implemented to set standards for six grades: Grade 3-8 Mathematics. Participants in each grade participated in three or four rounds of activities in which they recommended three cut scores (*Partially Meeting Learning Standards, Meeting Learning Standards,* and *Meeting Learning Standards with Distinction*), which define four performance levels: *Not Meeting Learning Standards, Partially Meeting Learning Standards, Meeting Learning Standards,* and *Meeting Learning Standards with Distinction.*

Participants were recruited from across New York to recommend cut scores. Each grade had 26 participants. Within each grade, the New York State Education Department (NYSED) divided participants into four tables that were balanced in terms of relevant demographic characteristics (e.g., geographic location, school size). The standard setting participants were involved in setting standards for two grades. The grade groups were Grades 3 and 4, Grades 5 and 6, and Grades 7 and 8.

The New York Mathematics Standard Setting consisted of training, orientation, three or four rounds of judgments, vertical articulation, and description writing. The standard setting lasted five days, with the first day devoted to Table Leader training, and the remaining four days for standard setting and description writing.

Bookmark Roles

CTB Staff

Karla Egan, Ph.D., worked with staff from NYSED to design, organize, and conduct the New York Mathematics Standard Setting. Dr. Egan is a CTB Research Scientist. Adele Brandstrom, CTB Standard Setting Specialist, coordinated the materials preparation for the workshop.

Prior to the New York Standard Setting, this team prepared all materials for the workshop. During the workshop, this team was responsible for facilitating the workshop, training participants, entering participant results into a database, and tracking secure materials. Following the workshop, this team prepared the standard setting technical report.

Joanna Tomkowicz, Ph.D., is the CTB Research Project Manager for the New York contract. She attended the standard setting and assisted with data presentations during the workshop. CTB Research Associate Kevin Fatica assisted with data entry and materials collection during the standard setting workshop.

Josh Becker is the CTB Program Manager for New York State Mathematics testing program. Mr. Becker attended the standard setting. Linda Gardner, a CTB Program Office Coordinator for New York, attended the standard setting. The Program Manager and Office Coodinator arranged the logistics for the standard setting.

Shelli Klein is the CTB Development Project Manager for the New York State testing program. She assisted Dr. Egan and Ms. Brandstrom in coordinating materials for the standard setting. She also oversaw the Group Leaders for the standard setting.

Group Leaders
Group Leaders administrated the standard setting for those major portions in which participants were working. In each grade, the Group Leader served as a facilitator and was in charge of time management, focusing the participants on the task at hand, and interacting with the participants. The Group Leader also facilitated large-group discussions and was in charge of security and data management. The Group Leader collected the rating forms from participants and communicated with CTB Research and NYSED staff. The Group Leaders did not vote. The Group Leaders for each grade group were provided by CTB and are listed in Table 1.

Table 1. Group Leaders for Each Grade Group

Grade Group	Group Leader
3/4	Marjorie Bryant
5/6	David Ratcliff
7/8	Julie Smiley

Table Leaders
Each table in a grade had a Table Leader. Their primary role was to monitor the group discourse, which included keeping their groups focused on the tasks, facilitating discussions, and maintaining the schedule.

Participants
NYSED invited 26 participants per grade group from across New York to recommend cut scores for the NYSTP in Mathematics. Participants used their expertise and insight to help set performance standards and were full, voting members of their standard setting committees. Table 2 shows the number of participants in each grade group.

Table 2. Number of Participants in Each Grade Group

Grade Group	Number of Participants
3/4	26
5/6	26
7/8	26

Within each grade group NYSED divided participants into four tables that were balanced in terms of relevant demographic characteristics (e.g., geographic location, school size).

Following the standard setting, participants completed evaluations from which demographic information about the participants was summarized. Table 3 and Table 4 show the educational background and work experience, respectively, of the participants in each grade group, as self-reported on participant evaluations. Section I contains the results of the participant evaluation of the New York Mathematics Standard Setting.

Table 3. Educational Background of Participants in Each Grade Group

Grade Group	N	Bachelor's	Master's	Doctorate
Overall	**78**	**2.6%**	**96.2%**	**1.3%**
3/4	26	7.7%	92.3%	0.0%
5/6	26	0.0%	100.0%	0.0%
7/8	26	0.0%	96.2%	3.8%

Table 4. Number of Years in Current Profession of Participants in Each Grade Group

Grade Group	N	1-5	6-10	11-15	16-20	21+
Overall	**78**	**15.4%**	**20.5%**	**19.2%**	**11.5%**	**33.3%**
3/4	26	7.7%	15.4%	30.8%	7.7%	38.5%
5/6	26	19.2%	23.1%	11.5%	15.4%	30.8%
7/8	26	19.2%	23.1%	15.4%	11.5%	30.8%

Bookmark Materials

Ordered Item Booklets

The Ordered Item Booklets (OIBs) were comprised of items from the Spring 2006. The items were ordered according to their scale location using response probability of 0.67. Table 5 lists the number of score points in each OIB by grade.

Table 5. Number of Score Points in Ordered Item Booklets by Grade

Grade	Number of Score Points in OIB
3	64
4	82
5	62
6	68
7	65
8	88

Item Maps

The item maps summarize the material in the OIB. The item maps consisted of nine columns: the first column indicated the item's order of difficulty; the second column, the location; the third column, the test and session from which the item was taken; the fourth column, the item number on the test; the fifth column, the content strand that the item measures; the sixth column, the item type (MC for a multiple-choice item and CR for a constructed-response item); and the seventh column the score key (correct response for a multiple-choice item and score points for a constructed-response item). Participants filled in

the final two columns as they studied the items in the OIB. The first of these columns asks, "What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?" The second of these columns asks "Why is this item more difficult than the preceding items?"

Standard Setting: Day 1

Table Leader Training

Table Leaders were trained on the first day of the New York Mathematics Standard Setting. David Abrams, Assistant Commissioner, welcomed participants, provided a brief introduction to the week, overviewed the history of the testing program and described the review procedures that would follow the standard setting. Karla Egan, Ph.D., CTB Research Scientist, provided Table Leaders with an overview of standard setting and trained them specifically on the Bookmark Standard Setting Procedure (BSSP). Participants were given a synopsis of each day's activities as well as their responsibilities each day. The Master Agenda is included in Section C, and the training overheads presented to the Table Leaders are included in Section D.

The Table Leaders then participated in a mock standard setting using a sample OIB. This sample OIB is included in Section H. During the mock standard setting, the Table Leaders practiced all activities that would occur in each round of the BSSP. The Group Leaders acted as Table Leaders during the mock standard setting to demonstrate the type of behavior expected of Table Leaders.

Draft Target Student Definitions

CTB Group Leaders then lead their groups in discussions of the knowledge, skills, and abilities expected of the Target Students for *Partially Meeting Learning Standards*, *Meeting Learning Standards*, and *Meeting Learning Standards with Distinction*. A Target Student is a student whose performance is equivalent to the minimum score required for entry into a particular performance level. Table Leaders were directed to use the New York State Mathematics Testing Program Guidance Pre-March/Post March documents to develop the Target Student definitions. Table Leaders created the first draft of the Target Student definitions for both of the grades in which they were to work.

Standard Setting: Day 2

Orientation

Staff from the NYSED and CTB welcomed the participants to the New York Mathematics Standard Setting. David Abrams, Assistant Commissioner, welcomed participants, provided a brief introduction to the week, overviewed the history of the testing program and described the review procedures that would follow the standard setting. Dr. Egan provided an overview of standard setting and introduced the BSSP to all participants. Participants were trained on the use of their OIBs and item maps. The training overheads are included in Section D.

Participants then moved into their breakout rooms. Participants worked on two grade levels during the standard setting. One group worked on Grades 3 and 4, another group worked on Grades 5 and 6, and the remaining group worked on Grades 7 and 8. Each grade group worked in a separate room.

The workshop was structured so participants first worked on Grades 4, 6, and 8. Once standards were set for these grades, participants then set standards for Grades 3, 5, and 7.

Standard Setting Implementation for Grades 4, 6, and 8

Take the Test
Participants spent approximately one hour taking the test for their respective grades.

Study Constructed-response Items
The Group Leader overviewed the constructed-response items, their scoring rubrics, and anchor papers, focusing on the knowledge, skills, and abilities required to achieve each score point.

Discuss Target Student Definitions
The Group Leader in each grade lead a discussion of the knowledge, skills, and abilities expected of the Target Students for *Partially Meeting Learning Standards, Meeting Learning Standards,* and *Meeting Learning Standards with Distinction.*

Study Items in the Ordered Item Booklet
Participants at each table studied the items in the Ordered Item booklet (OIB) in terms of what each item measures and why it is more difficult than the items preceding it.

Standard Setting: Day 3

Complete Study of the Items in the Ordered Item Booklet
All groups completed the study of the items in their OIBs at the beginning of Day 3.

Bookmark Training
Participants were given training materials and three explanations of bookmark placement. The training materials titled "Bookmark Placement" and "Frequently Asked Questions about Bookmark Placement" were read aloud. The first explanation of bookmark placement demonstrated the mechanics: participants were instructed that all items preceding the bookmark define the knowledge, skills, and abilities that a *just Meeting* student, for example, is expected to know. The second explanation of bookmark placement was more conceptual in that participants were instructed to examine each item in terms of its content and to make a judgment about the type of content that a student would need to know in order to be considered *just Meeting.* The final explanation discussed the relationship between the bookmarks and the scale scores. The bookmark training materials are included in Section H.

The participants were tested on their understanding of bookmark placement with a short check set. The check set questions and the results are presented in Table 6 and Table 7, respectively. Participants were then given the correct answers for the check set, as well as explanations of those answers. The check set (and the graphic that appears with it) is included in Section H.

Table 6. Questions in the Check Set that Followed Bookmark Training

	Question
1.	Which items does a student need to master to just make it into the *Meeting* performance level?
2.	If a student mastered only items 1 through 5, in which performance level would this student be?
3.	Suppose a student mastered items 1 through 10. Which performance level is this student in?
4.	For students who are classified as *Meeting*, with at least what likelihood will they be able to answer item 10?
5.	Will the items BEFORE the *Meeting* bookmark be more or less difficult to answer than the items AFTER the bookmark or about the same?

Table 7. Percent of Participants with Correct Answer on Check Set by Grade Group

	Grade Group			
	3/4	**5/6**	**7/8**	**Total**
N	26	26	26	78
Question 1	92%	100%	96.2%	96.2%
Question 2	76%	85.2%	88.5%	83.3%
Question 3	96%	92.6%	100%	96.2%
Question 4	100%	100%	100%	100%
Question 5	100%	92.6%	100%	97.4%

Round 1

Once participants demonstrated that they understood bookmark placement, they placed their Round 1 bookmarks for *Partially Meeting Learning Standards, Meeting Learning Standards*, and *Meeting Learning Standards with Distinction*, while keeping in mind their Target Student definitions and the New York State Mathematics Testing Program Guidance Pre-March/Post March documents, Participants were instructed that bookmark placement is always an individual activity. Participants were further instructed to place Bookmarks based on how students should perform (as opposed to how they are currently performing) in accordance with NYSED policy.

Item Response Theory Training

Approximately one hour following Bookmark training, Dr. Joanna Tomkowicz provided an hour training session on Item Response Theory (IRT). During this training, the fundamentals of IRT were covered, including the statistical models used to place students and items on the same scale. The overheads Dr. Tomkowicz presented may be found in Section H.

Round 2
During Round 2, participants discussed their bookmark placements in small groups at their tables. Participants were instructed to discuss those items for which there was disagreement at their table; thus, they discussed the range of items between the lowest and highest bookmarks for each performance level. After the discussion, participants again placed their bookmarks. Participants were reminded that bookmark placement is an individual activity.

Round 3
At the beginning of Round 3, Dr. Karla Egan and an NYSED representative presented participants with impact data based on their Round 2 bookmarks. Participants were also shown impact data from the other grade groups. For example, Grade 8 participants were shown impact data from Grades 4 and 6. Since the three groups worked at different paces, the impact data were sometimes based on Round 1 results. In addition, participants were shown historical impact data for Grades 4 and 8. CTB answered process-related questions, and NYSED answered all policy-related questions concerning the impact data. It was emphasized to the participants that the impact data were being presented as a "reality check." Once discussion involving the impact data was complete, the Group Leaders facilitated discussion among participants on their bookmark placements. After the discussion, participants again placed their bookmarks. Participants were reminded that bookmark placement is an individual activity.

Standard Setting: Day 4

Standard Setting Implementation for Grades 3, 5, and 7

On Day 4, participants began the standard setting process for the second set of grades. Participants engaged in all Round 1 activities, including taking the test, studying the CR items and scoring guides, reviewing the Target Student definitions, and studying the OIB. Dr. Egan re-oriented participants to the task of Bookmark placement.

Participants placed their Rounds 1, 2, and 3 bookmarks on Day 4. The rounds were implemented as described previously for the first set of grades.

Standard Setting: Day 5

At the beginning of the day, the Round 3 recommendations were shared with participants. Following this presentation, the Grade 5/6 group decided to engage in a fourth round of voting for the Grade 5 test, and the Grade 7/8 group decided to engage in a fourth round of voting for the Grade 8 test. The other grade group was given the option to engage in a Round 4, but declined, stating their satisfaction with their Round 3 bookmarks.

Round 4
During the fourth round, participants in the Grade 3/4 and Grade 7/8 groups engaged in a large group discussion about their tests. Once they completed this discussion, they placed their bookmarks for Grade 5 and Grade 8.

Final Participant Recommendations
Participants were shown their final median bookmarks and associated impact data. Table 8 shows the participant-recommended cut scores and associated impact data based on the final round. Tables showing these cut scores adjusted for 1, 2, or 3 standard errors of measurement, standard errors of the cut score, and combined standard errors are included in Section F. Detailed results of the standard setting are in shown Section E. Graphical representations of participants' judgments are presented in Section G.

Table 8. Participant-recommended Cut Scores and Associated Impact Data Based on the Final Round

	Impact Data					
	(Round 3)	(Round 3)	(Round 4)	(Round 3)	(Round 3)	(Round 4)
Grade	**3**	**4**	**5**	**6**	**7**	**8**
Not Meeting	11.4%	14.8%	13.7%	29.4%	17.8%	26.3%
Partially Meeting	17.0%	24.3%	36.2%	27.4%	39.8%	26.4%
Meeting	54.6%	34.9%	31.0%	30.0%	27.0%	29.0%
Meeting with Distinction	17.0%	26.0%	19.1%	13.2%	15.4%	18.3%
***Meeting* and Above**	71.6%	60.9%	50.1%	43.2%	42.4%	47.3%
	Cut Scores					
Partially Meeting	410	463	513	581	617	680
Meeting	430	488	549	604	653	702
Meeting with Distinction	476	518	577	634	681	730

Evaluations
Following the presentation of final results, participants were asked to complete an evaluation of the New York State Mathematics Standard Setting. The results are included in Section I.

Orientation to Descriptor Writing
CTB Development led each grade group through an orientation to descriptor writing. Participants wrote performance-level descriptors detailing the knowledge, skills, and abilities needed to be classified in each performance level. Following Orientation to Descriptor Writing, Table Leaders met in a separate room to engage in the Vertical Articulation Panel.

Vertical Articulation Panel
Once all groups had given their final recommendations, the Table Leaders from each grade group were convened to examine the articulation of impact data across the grades. The stated purpose of this group was to examine the impact data and to recommend changes to cut scores so that the impact data would be well-articulated across all grades. During the Orientation to the standard setting, all participants had been informed of the multi-step nature of standard setting and of the need for well-articulated data. Participants were informed that the Table Leaders would convene to smooth the cut scores.

During the vertical articulation process, the Table Leaders were directed to smooth the data beginning with the percentage of students *Meeting* and Above. They then smoothed the *Not Meeting* level, followed by the *Meeting with Distinction* level.

Grade 3 and 4 Table Leaders adjusted the *Meeting* cut score in Grade 3 and adjusted the *Meeting with Distinction* cut score in Grade 4. Grade 5 and 6 Table Leaders adjusted the *Partially Meeting* and *Meeting with Distinction* cut scores in Grade 5 and the *Partially Meeting* cut score in Grade 6. Grade 7 and 8 Table Leaders adjusted the *Partially Meeting* and *Meeting with Distinction* cut scores in Grade 7 and all of the cut scores in Grade 8.

Table 9 shows the cut scores developed by the Vertical Articulation Panel, as well as the associated impact data. Tables showing these cut scores adjusted for 1, 2, or 3 standard errors of measurement are included in Section J. Memoranda written by the Vertical Articulation Panel are included in Section K.

Table 9. Cut Scores and Associated Impact Data from the Vertical Articulation Panel

	Impact Data					
Grade	**3**	**4**	**5**	**6**	**7**	**8**
Not Meeting	11.4%	14.9%	15.5%	20.6%	20.4%	24.6%
Partially Meeting	25.0%	24.3%	34.4%	36.2%	37.3%	34.7%
Meeting	46.6%	45.9%	35.2%	30.0%	30.2%	28.4%
Meeting with Distinction	17.0%	15.0%	15.0%	13.2%	12.2%	12.3%
***Meeting* and Above**	63.6%	60.8%	50.2%	43.3%	42.4%	40.7%
	Cut Scores					
Partially Meeting	410	463	515	573	621	678
Meeting	438	488	549	604	653	707
Meeting with Distinction	476	529	580	634	683	739

Effectiveness of Training

An indication of the effectiveness of training may be found in the participants' answers to statements and questions on the evaluations. Table 10 shows the percentage of participants who agreed or disagreed that they understood how to place a bookmark. All participants agreed or strongly agreed that they understood how to place their bookmarks. Table 11 summarizes the percentage of participants who agreed or disagreed that bookmark training made the task of bookmark placement clear. Almost all participants agreed or strongly agreed that the task of bookmark placement was clear. Table 12 summarizes the percentage of participants in each grade who agreed or disagreed that the training materials were helpful. Almost all participants agreed or strongly agreed that the training materials were helpful. Table 13 shows the percentage of participants who agreed or disagreed that the Bookmark Procedure was described well. Almost all participants agreed or strongly agreed that the Bookmark Procedure was well described. Table 14 shows the percentage of participants who agreed or disagreed that the goals of the procedure were clear. Most participants agreed or strongly agreed that the goals of the process were clear.

Table 10. Participants' Agreement/Disagreement with the Statement, "I understood how to place my bookmarks."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**78**	**0.0%**	**0.0%**	**0.0%**	**43.6%**	**56.4%**
3/4	26	0.0%	0.0%	0.0%	50.0%	50.0%
5/6	26	0.0%	0.0%	0.0%	42.3%	57.7%
7/8	26	0.0%	0.0%	0.0%	38.5%	61.5%

Table 11. Participants' Agreement/Disagreement with the Statement, "The training on Bookmark placement made the task clear to me."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**77**	**0.0%**	**0.0%**	**1.3%**	**44.2%**	**54.5%**
3/4	25	0.0%	0.0%	4.0%	36.0%	60.0%
5/6	26	0.0%	0.0%	0.0%	50.0%	50.0%
7/8	26	0.0%	0.0%	0.0%	46.2%	53.8%

Table 12. Participants' Agreement/Disagreement with the Statement, "The training materials were helpful."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**78**	**0.0%**	**0.0%**	**5.1%**	**51.3%**	**43.6%**
3/4	26	0.0%	0.0%	0.0%	53.8%	46.2%
5/6	26	0.0%	0.0%	3.8%	57.7%	38.5%
7/8	26	0.0%	0.0%	11.5%	42.3%	46.2%

Table 13. Participants' Agreement/Disagreement with the Statement, "The Bookmark Standard Setting Procedure was well described."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**78**	**0.0%**	**0.0%**	**1.3%**	**42.3%**	**56.4%**
3/4	26	0.0%	0.0%	0.0%	34.6%	65.4%
5/6	26	0.0%	0.0%	3.8%	46.2%	50.0%
7/8	26	0.0%	0.0%	0.0%	46.2%	53.8%

Table 14. Participants' Agreement/Disagreement with the Statement, "The goals for this procedure were clear."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**76**	**0.0%**	**0.0%**	**3.9%**	**46.1%**	**50.0%**
3/4	25	0.0%	0.0%	0.0%	48.0%	52.0%
5/6	25	0.0%	0.0%	8.0%	48.0%	44.0%
7/8	26	0.0%	0.0%	3.8%	42.3%	53.8%

Perceived Validity

Another indication of the successfulness of the standard setting may be found in the participants' perceived validity of the BSSP itself. Table 15 shows the percentage of participants who agreed/disagreed that the Bookmark procedure produced valid cut scores. Most participants agreed or strongly agreed that the Bookmark Procedure produced valid cut scores. Table 16 shows that the participants' satisfaction with their group's final recommendations. Most participants agreed or strongly agreed that they were satisfied with their group's final recommendations.

Table 15. Participants' Agreement/Disagreement with the Statement, "I am confident that the Bookmark Procedure produced valid standards."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**78**	**1.3%**	**1.3%**	**11.5%**	**62.8%**	**23.1%**
3/4	26	0.0%	0.0%	7.7%	76.9%	15.4%
5/6	26	0.0%	0.0%	11.5%	53.8%	34.6%
7/8	26	3.8%	3.8%	15.4%	57.7%	19.2%

Table 16. Participants' Agreement/Disagreement with the Statement, "Overall, I was satisfied with my group's final bookmarks."

Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall	**76**	**1.3%**	**1.3%**	**1.3%**	**46.1%**	**50.0%**
3/4	26	0.0%	0.0%	0.0%	38.5%	61.5%
5/6	25	0.0%	0.0%	4.0%	48.0%	48.0%
7/8	25	4.0%	4.0%	0.0%	52.0%	40.0%

Quality Control Procedures

The CTB Standard Setting Team adheres to many quality control procedures to foster the accuracy of the materials used and the results presented during the standard setting. Prior to the workshop, the Standard Setting Team cross-checks the ordering of items in the Ordered Item Booklets, the accuracy of the information in the Item Maps, and the accuracy of the Microsoft Excel macros and Bookmark Pro software used to generate results and impact data. During the workshop, all data is scanned. Any results that appear to be questionable are further investigated by the Standard Setting Project Manager, in consultation with the Standard Setting Team and CTB Research staff.

Section C

Master Agenda

Master Agenda

New York State Testing Program
Grades 3 through 8 Mathematics

Bookmark Standard Setting Workshop

July 17 – 21, 2006
Albany, New York

Welcome to the Bookmark Standard Setting Workshop for the New York State Testing Program for Grades 3 through 8 Mathematics!

The New York State Education Department and CTB/McGraw-Hill would like to thank you for your time and expertise during this important process.

Please use this agenda during the workshop. If you have any questions or concerns, please contact a member of the CTB Standard Setting Team.

Monday, July 17

Welcome! Table Leader Training

8:00 AM **Table Leader registration and continental breakfast** ******Empire Room******
Please check in at the reception area to sign a non-disclosure agreement, get your nametag, and collect any other information.

9:00 AM **Welcome and Program Overview** ******Empire Room******
The NYSED welcomes Table Leaders, introduces key staff, and provides an overview of the New York State Testing Program and Standard Setting.

9:30 PM **Table Leader training**
CTB trains Table Leaders on the Bookmark Standard Setting Procedure and their roles and responsibilities during the workshop.

12:00 PM **Lunch** ******Ashley's******

1:00 PM **Target Student descriptions**
Table Leaders engage in structured discussions about the knowledge, skills, and abilities they expect to be demonstrated by students in each performance level.

4:00 PM **Ordered Item Booklets & Item Maps for the NYS MathematicsStandard Setting**
Table Leaders are introduced to the materials that will be used.

4:45 PM **Secure materials collection**
The Group Leader facilitates collection of the test materials from all participants.

- Table Leaders supervise the collection of secure materials at their tables. See the "Secure Materials" page in this agenda for more information.
- Table Leaders audit materials at one other table. After all secure materials are accounted for, participants are dismissed by the Group Leader.

5:00 PM **Table Leader dismissal**

Tuesday, July 18

Opening Session & Bookmark Activities for Grades 4, 6, and 8

7:30 AM **Registration and continental breakfast** ******Empire Room******
Participants check in at the reception table. Table Leaders need not register again.

8:00 AM **Opening session** ******Empire Room******
The NYSED formally welcomes all participants, introduces key staff, and provides an overview of the New York State Mathematics Testing Program and Standard Setting.

8:30 AM **General training**
CTB provides a brief introduction to the Bookmark Standard Setting Procedure. After this session, participants break into their assigned grade groups.

Breakout Rooms: ***Grades 3 & 4: Salon F*** ***Grades 5 & 6: Salon G*** ***Grades 7 & 8: Salon H***

9:15 AM **Take the operational test for Grade 4, 6, or 8**
Participants sign out secure materials. Participants take the operational test under conditions similar to those experienced by students.

- Ensure that all participants at your table write their name on ***each*** piece of their secure materials. Secure materials are printed on colored paper.
- Although some discussion about individual test items is normal, focus your participants away from prolonged debate and toward taking the test.
- Use the provided index cards to record comments about test items.

10:15 AM **Study constructed-response items**
The Group Leader provides an overview of the constructed-response items and their scoring rubrics and anchor papers, focusing on the knowledge, skills, and abilities required to achieve each score point.

10:45 AM **Target Student discussion**
The group discusses the knowledge, skills, and abilities expected of students in each performance level.

11:30 AM **Begin discussion of each item in the Ordered Item Booklet (OIB)**
Facilitate a discussion among everyone at your table of each of the items in the OIB. Start with the first item, and discuss each item in turn, focusing on what each item measures and what makes it harder than the previous items. Participants record these details on their Item Maps.

- Remember to use the index cards, as necessary.
- Ensure that each participant at your table has a chance to speak.

12:00 PM **Lunch** ****** Salon E******

1:00 PM **Continue discussion of each item in the OIB**

4:45 PM **Secure materials collection and audit**
The Group Leader facilitates collection of the test materials from all participants.

- Table Leaders supervise the collection of secure materials at their tables. See the "Secure Materials" page in this agenda for more information.
- Table Leaders audit materials at one other table. After all secure materials are accounted for, participants are dismissed by the Group Leader.

4:50 PM **Table Leader debrief**
Table Leaders discuss the events of the day and plans for the next day with the Group Leader.

5:00 PM **Table Leader dismissal**

Wednesday, July 19
Discussion & Bookmark Ratings for Grades 4, 6, and 8

7:30 AM **Continental breakfast** ******Empire Room******

8:00 AM **Orientation to bookmark placement and Round 1 ratings** ******Empire Room******
A member of the CTB Standard Setting Team introduces bookmark placement, explaining how bookmarks are placed and what bookmarks mean. After this brief presentation, a short checkset is given and discussed, followed immediately by Round 1 bookmark placement.

- See "Bookmark Placement" and "Frequently Asked Questions" for more info.
- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them, ensuring that each participant has made a single, unambiguous rating for each bookmark.
- Fill out your orange sheet and begin Round 2 discussions.
- Give your participants' rating forms to the Group Leader.

9:30 AM **Discuss Round 1 as a table**
Use the orange sheet to lead a discussion about the ratings made at your table.

10:30 AM **Round 2 ratings**
After your Round 1 discussion, begin Round 2 bookmark placement.

- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them.
- You need *not* complete another orange sheet.

11:00 AM **IRT Training** ******Empire Room******
A CTB Research Scientist will provide an overview of Item Response Theory (IRT). IRT is the family of statistical procedures underlying the scoring for the NYSTP.

12:00 PM **Lunch** ******Salon E******

1:00 PM **Discuss Round 2 as a large group**
The Group Leader presents a summary of the voting from each table to the entire group. Afterwards, s/he leads a discussion with the entire group of each bookmark, similar to the table-level discussions of Round 2.

2:30 PM **Round 3 ratings**
The Group Leader directs all participants to make their Round 3 bookmark placements.

- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them.
- You need *not* complete another orange sheet.

3:00 PM **Presentation of final recommendations**
A summary of the Round 3 voting is presented to the entire group.

3:15 PM **Take the operational test for Grade 3, 5, or 7**

Participants sign out secure materials. Participants take the operational test under conditions similar to those experienced by students.

- Ensure that all participants at your table write their name on ***each*** piece of their secure materials. Secure materials are printed on colored paper.
- Although some discussion about individual test items is normal, focus your participants away from prolonged debate and toward taking the test.
- Use the provided index cards to record comments about test items.

4:15 PM **Study constructed-response items**

The Group Leader provides an overview of the constructed-response items and their scoring rubrics and anchor papers, focusing on the knowledge, skills, and abilities required to achieve each score point.

4:45 PM **Secure materials collection and audit**

The Group Leader facilitates collection of the test materials from all participants.

- Table Leaders supervise the collection of secure materials at their tables. See the "Secure Materials" page in this agenda for more information.
- Table Leaders audit materials at one other table. After all secure materials are accounted for, participants are dismissed by the Group Leader.

4:50 PM **Table Leader debrief**

Table Leaders discuss the events of the day and plans for the next day with the Group Leader.

5:00 PM **Table Leader dismissal**

Thursday, July 20
Discussion & Bookmark Ratings for Grades 3, 5, and 7

7:30 AM **Continental breakfast** ******Empire Room******

8:00 AM **Target Student discussion**
The group discusses the knowledge, skills, and abilities expected of students in each performance level.

9:30 AM **Begin discussion of each item in the Ordered Item Booklet (OIB)**
Facilitate a discussion among everyone at your table of each of the items in the OIB. Start with the first item, and discuss each item in turn, focusing on what each item measures and what makes it harder than the previous items. Participants record these details on their Item Maps.

- Remember to use the index cards, as necessary.
- Ensure that each participant at your table has a chance to speak.

12:00 PM **Lunch** ******Salon E******

1:00 PM **Continue discussion of each item in the OIB**

2:00 PM **Round 1 ratings**
After studying your OIB, begin Round 1 bookmark placement.

- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them.
- Complete orange sheet.

2:30 PM **Discuss Round 1 as a table**
Use the orange sheet to lead a discussion about the ratings made at your table.

3:30 PM **Round 2 ratings**
After your Round 1 discussion, begin Round 2 bookmark placement.

- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them.
- You need *not* complete another orange sheet.

4:00 PM **Discuss Round 2 as a large group**
The Group Leader presents a summary of the voting from each table to the entire group. Afterwards, s/he leads a discussion with the entire group of each bookmark, similar to the table-level discussions of Round 2.

4:45 PM **Secure materials collection and audit**
The Group Leader facilitates collection of the test materials from all participants.

- Table Leaders supervise the collection of secure materials at their tables. See the "Secure Materials" page in this agenda for more information.
- Table Leaders audit materials at one other table. After all secure materials are accounted for, participants are dismissed by the Group Leader.

4:50 PM **Table Leader debrief**
Table Leaders discuss the events of the day and plans for the next day with the Group Leader.

5:00 PM **Table Leader dismissal**

Friday, July 21

Bookmark Ratings for Grades 3, 5, and 7 & Description Writing

7:30 AM **Continental breakfast** ******Empire Room******

8:00 AM **Conclude discussions and Round 3 ratings**
The Group Leader directs all participants to make their Round 3 bookmark placements.

- Remind participants that bookmark placement is always an individual activity.
- Collect your participants' rating forms as they complete them.
- You need *not* complete another orange sheet.

9:00 AM **Presentation of final recommendations**
A summary of the Round 3 voting is presented to the entire group.

9:15 AM **Evaluations**
Each participant completes a standard setting evaluation.

9:30 AM **Performance level descriptor writing training**

- The Group Leader presents instructions for writing a first draft of the long performance level descriptors.
- *Within each breakout room, participants will be divided into two groups to write descriptors for each grade.*

10:00 AM **Table Leaders meet for cross-grade smoothing**

- The rest of the participants will draft the performance level descriptors.
- Once Table Leaders are finished with the smoothing discussion, they will join the other participants in drafting the performance level descriptors.

10:00 AM **Performance level descriptors, first draft**

- Your group will receive a listing of the items you will work with.
- Your group's descriptors should synthesize the knowledge, skills, and abilities needed to respond successfully to each item in to each performance level.

12:00 PM **Lunch** ******Salon E******

1:00 PM **Performance level descriptors, second draft**
Each group presents its draft to the entire group and receives comments.

2:30 PM **Performance level descriptors, final draft**
Each group writes its final draft of the performance-level descriptors.

4:45 PM **Secure materials collection and audit**
The Group Leader facilitates collection of the test materials from all participants.

- Table Leaders supervise the collection of secure materials at their tables. See the "Secure Materials" page in this agenda for more information.
- Table Leaders audit materials at one other table. After all secure materials are accounted for, participants are dismissed by the Group Leader.

5:00 PM **Table Leader dismissal**

The New York State Education Department and CTB thank you for your time and participation!

Why do we do Secure Materials Collection?

A thorough collection of secure test materials protects both the reliability of the testing program and the substantial monetary investment in the assessment. A structured method of collection has been established to effectively gather all secure material at the workshop. Each day as you facilitate secure materials collection at your table, refer to this guide for instructions and suggestions.

During the collection, participants should place each secure item, one at a time, in a pile on the table in front of them. After the process, each participant will have a single stack of materials, each stacked in the same way as everyone else in the room. Please follow these steps to facilitate the process.

How do I do Secure Materials Collection?

1. Get the attention of all the participants at your table. Discourage any side conversations or inattention.

2. Using the list provided, call out each item, one at a time, and watch participants place that item on their stack. Discourage participants from moving ahead. Ensure that participants have placed the item in their stack before moving on.

3. Proceed through the list until each piece of secure material has been collected. Direct participants to place a rubber band around their stack when completed.

4. If any participants wish to leave additional items with their materials overnight, encourage them to place it beneath their stack, inside the rubber band.

5. Table Leaders will audit the secure materials at one other table.

6. Once you have supervised the collection of secure materials and are satisfied that all items have been collected, inform the Group Leader.

7. The collected materials are stored overnight and will be available in the morning.

What should I expect from Secure Materials Collection?

Generally, secure materials collection goes smoothly. If you have any questions about the collection process, or if you have a concern about test security at the standard setting workshop, please contact your Group Leader or a member of the CTB Standard Setting Team.

Section D

Training Overheads

Setting the Standard

New York State Testing Program
Mathematics

Grades 3-8

General Training

CTB Standard Setting Team

- Karla Egan
- Joanna Tomkowicz
- Adele Brandstrom
- Kevin Fatica
- Shelli Klein
- Marjorie Bryant
- David Ratcliff
- Julie Smiley
- Josh Becker
- Linda Gardner

Orientation

- Overview standard setting
- Discuss committee roles
- Overview Bookmark
  - Explain key features of the Bookmark procedure
- Overview Agenda

Standard Setting Overview

- *What is standard setting?*
  - A process that lets experts make judgments about the content that the students who are *Meeting Learning Standards* should know.
    - Also, *Meeting with Distinction*, *Partially Meeting,* and *Not Meeting* students.

Standard Setting Overview

- *Why do standard setting*?
  - The New York State Learning Standards define what students are tested on.
    - These are things students *should* be able to do.
    - New York has established Learning Standards for grades 3 through 8 in Mathematics.
  - Performance standards define what students *can do* in each performance level.
    - You will actively discuss your expectations of the Target Student in each performance level.

Standard Setting Overview

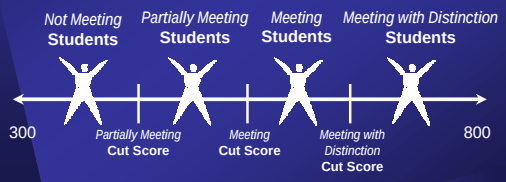
- *Performance Levels*
  - Specify the knowledge, skills and abilities a student needs to know in order to be classified as *Not Meeting*, *Partially Meeting*, *Meeting* and *Meeting with Distinction*.

Standard Setting Overview

- *How do we set our standards?*
  - ~~Percentages~~
    - Arbitrary
    - Test-specific
    - Do not consider content
  - Content
    - Uses pre-established Learning Standards
    - Considers educational objectives
  - Bookmark Standard Setting Procedure

Standard Setting Overview

- *Purpose of the Standard Setting*
  - Allows cut scores to be set on the test scale
  - The test scale represents the ability of students

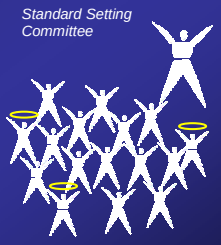


Standard Setting Overview

- *Purpose of the Standard Setting*
  - You will set a cut score on the test scale.
  - Students who meet or exceed the cut score will have enough knowledge, skills and abilities to be classified in a given performance level on the NYSTP.
  - Decisions will be based on the New York Learning Standards.

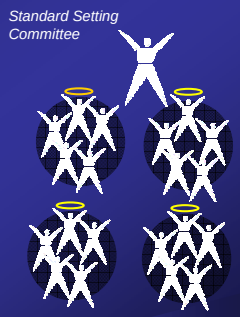
Committee Roles

- Group Leaders
- Table Leaders
- Participants
- NYSED
- CTB



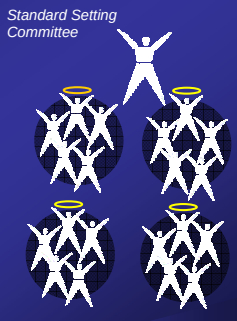
Committee Roles

- Group Leader
  - Facilitator
    - Participants stay focused on task
    - Participants interact with their own group
    - Participants finish in a timely manner
    - Leads discussion
  - Materials collection
    - Secure materials



Committee Roles

- Table Leaders
  - Lead discussion at the table
  - Standard setters
- Participants
  - Standard setters



Bookmark Standard Setting Procedure

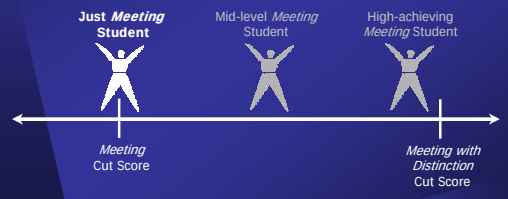
- Content-based method
- Round 1
  - Study test items
  - Make ratings without discussion
- Round 2
  - Discuss ratings in a small group
- Round 3
  - Discuss ratings in a large group

Bookmark Standard Setting Procedure

- Key features
  - Target Student
  - Ordered Item Booklet
  - Item map
  - Bookmarks
  - Impact data

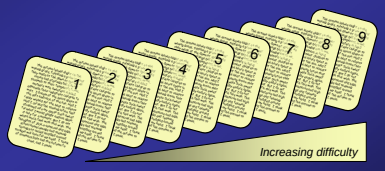
Bookmark Standard Setting Procedure

- Target Student
  - The student who has just made it into a performance level
  - This is the student for whom cut scores are being established



Bookmark Standard Setting Procedure

- Ordered Item Booklet
  - Items ordered based on student performance
    - Easiest item is first
    - Most difficult item is last



Bookmark Standard Setting Procedure

Order of difficulty (easy to hard)	Location	Form	Item No.	Item Type	Score Key	Content Strand *	What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?	Why is this item more difficult than the preceding items?
1	220	12	1	MC	2	1		N/A
2	225	9	4	MC	3	4		
3	229	9	3	MC	2	5		
4	240	12	2	MC	4	1		
5	241	12	4	MC	2	4		
6	256	12	7	CR	1/2	1		
7	262	9	5	MC	1	1		
8	282	12	7	CR	2/2	1		
9	303	9	6	MC	2	2		
10	321	9	8	MC	2	2		
11	401	9	9	MC	3	4		

* 1 = Number Sense, Properties, & Operations; 2 = Measurement; 3 = Geometry; 4 = Data Analysis, Statistics, & Probability; 5 = Algebra & Functions

Ordered Item 1

1

1. Kitty is taking a trip on which she plans to drive 300 miles each day. Her trip is 1,723 miles long. She has already driven 849 miles. How much farther must she drive?
   A. 574 miles
   B. 874 miles
   C. 1,423 miles
   D. 2,872 miles

Item Map

Subtraction, operations, eliminate extra info

Print Name:

Order of difficulty (easy to hard)	Location	Form	Item No.	Item Type	Correct Key	Content Strand *	What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?	Why is this item more difficult than the preceding items?
1	220	12	1	MC	B	1		N/A
2	225	9	4	MC	C	4		
3	229	9	3	MC	B	5		
4	240	12	2	MC	D	1		
5	241	12	4	MC	B	4		
6	256	12	7	CR	1/2	1		
7	262	9	5	MC	A	1		
8	282	12	7	CR	2/2	1		
9	303	9	6	MC	B	2		
10	321	9	8	MC	B	2		
11	401	9	9	MC	C	4		

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Ordered Item 2

2

CARTONS OF EGGS SOLD LAST MONTH

Farm A ❍ ❍ ❍ ❍

Farm B ❍ ❍ ❍ ❍ ❍ ❍

Farm C ❍ ❍ ❍

Each ❍ = 100 Cartons

4. According to the graph how many cartons of eggs were sold altogether by farms A, B, and C last month?

A. 13

B. 130

C. 1,300

D. 13,000

6
Score Point
1 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

6 scoring guide

SOLUTION:

For one day, the sum is $1.75. For 5 days, the sum is $8.75. Therefore, he should ask his mother for nine one-dollars bills (or 1 $5 bill and 4 $1 bills) .

Answer may be given pictorially.

Note: No explanation is asked for, so paper could have a small error, such as copying a number incorrectly and still get a score of 2, provided method and answer are correct.

SCORING GUIDE:

0 Incorrect response -- includes $1.75 or $2; also $975 or $875.00

(1) $8.75 or 875
OR
One day is $1.75 so he needs $2 each day, so $10 for a week
(picture of $10 bill is acceptable)
OR
correct method but rounded down to $8 (this requires work to be shown)
OR
correct method but small error and incorrect response of $7 to $11, inclusive

2 Correct response

6 anchor

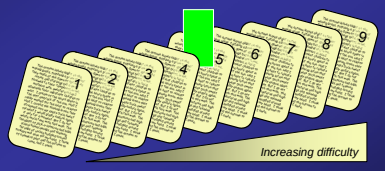
7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days? $8.75

8
Score Point
2 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

Bookmark Standard Setting Procedure

- Bookmark
  - Separates content the borderline *Meets* student is expected to master from the content that is more than enough.



Bookmark Standard Setting Procedure

- Impact data
  - Percent of students in each performance level
  - Presented in Round 3

Not Meeting	*Partially Meeting*	*Meeting*	*Meeting with Distinction*
0.0%	0.0%	0.0%	0.0%

Bookmark Standard Setting Procedure

Day 1: Table Leader Training

- Table Leaders
  - Participants who receive extra training to help facilitate process in rooms
- Training
  - Mock Bookmark
  - Target Student descriptors
    - Student who has just entered a particular performance level
    - Based on content standards and generic performance levels
    - Purpose: Focus you on the type of student for whom you will be setting a cut score.

Bookmark Standard Setting Procedure

Day 2: Orientation, Round 1 Activities

- Orientation
  - Welcome and introduction by NYSED
  - CTB will overview process

Grades 4, 6, and 8 begin standard setting activities

- Round 1 Activities
  - Take test
  - Target Student discussions
  - Study anchor papers/scoring guides
  - Study Ordered Item Booklet

Bookmark Standard Setting Procedure

Day 3: Bookmark Training, Rounds 2 & 3

- Bookmark Training
  - Participants will spend 1 hour learning how to set a Bookmark
  - Round 1 Bookmark placement
- Round 2
  - Participants will discuss Round 1 Bookmark placements in tables
  - Round 2 Bookmark placement

Bookmark Standard Setting Procedure

Day 3: Bookmark Training, Rounds 2 & 3 (cont.)

- Round 3
  - Participants will be shown three types of impact data
    - Impact data will be based on Round 2 recommendations
    - 2005 impact data
    - Cross-grade impact data
  - Participants will discuss Round 2 Bookmark placements as large group
  - Round 3 Bookmark placement

Day 4: Rounds 1, 2, & 3

Day 4: Rounds 1, 2, & 3

Grades 3, 5, and 7 start standard setting activities

- Round 1
  - Same as before
- Round 2
  - Same as before
- Round 3
  - Same as before
- Evaluation

Day 5: Round 4, Description Writing

- Description Writing
  - Participants will summarize the knowledge, skills, and abilities demonstrated by students in each performance level
- Vertical Articulation Panel
  - Table Leaders will engage in a cross-grade discussion to smooth data

Questions?

- Thank you for your participation!

Setting the Standard

New York State Testing Program
Mathematics

Grades 3-8

Table Leader Training

CTB Standard Setting Team

- Karla Egan
- Joanna Tomkowicz
- Adele Brandstrom
- Kevin Fatica
- Shelli Klein
- Marjorie Bryant
- David Ratcliff
- Julie Smiley
- Josh Becker
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Table Leader Training

- Overview standard setting
- Discuss committee roles
- Overview Bookmark
  - Explain key features of the Bookmark procedure
  - Overview Agenda
  - Participate in a mock Bookmark
- Discuss Target Students
- Overview the Vertical Articulation Panel
- Review grade-specific Bookmark materials

Standard Setting Overview

- *What is standard setting?*
  - A process that lets experts make judgments about the content that the students who are *Meeting Learning Standards* should know.
    - Also, *Meeting with Distinction*, *Partially Meeting,* and *Not Meeting* students.

Standard Setting Overview

- *Why do standard setting*?
  - The New York State Learning Standards define what students are tested on.
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Standard Setting Overview

- *Performance Levels*
  - Specify the knowledge, skills and abilities a student needs to know in order to be classified as *Not Meeting*, *Partially Meeting*, *Meeting* and *Meeting with Distinction*.

Standard Setting Overview

- *How do we set our standards?*
  - ~~Percentages~~
    - Arbitrary
    - Test-specific
    - Do not consider content
  - Content
    - Uses pre-established Learning Standards
    - Considers educational objectives
  - Bookmark Standard Setting Procedure

Standard Setting Overview

- *Purpose of the Standard Setting*
  - Allows cut scores to be set on the test scale
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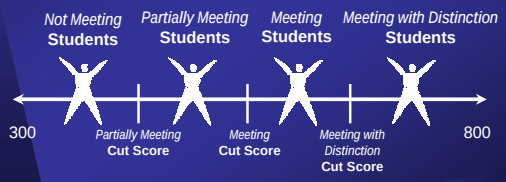

Standard Setting Overview

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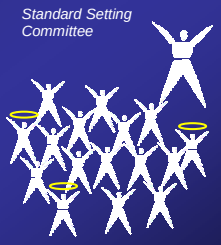
  - Decisions will be based on the New York Learning Standards.

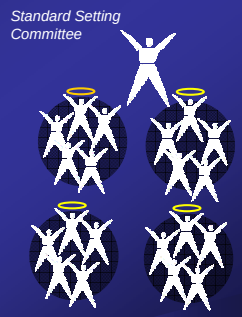
Committee Roles

- Group Leaders
- Table Leaders
- Participants
- NYSED
- CTB



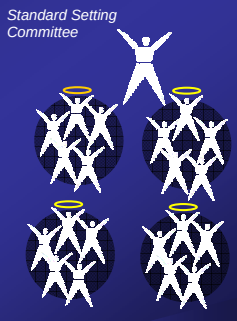
Committee Roles

- Group Leader
  - Facilitator
    - Participants stay focused on task
    - Participants interact with their own group
    - Participants finish in a timely manner
    - Leads discussion
  - Materials collection
    - Secure materials



Committee Roles

- Table Leaders
  - Lead discussion at the table
  - Standard setters
- Participants
  - Standard setters



Bookmark Standard Setting Procedure

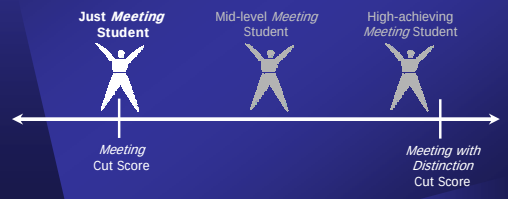
- Content-based method
- Round 1
  - Study test items
  - Make ratings without discussion
- Round 2
  - Discuss ratings in a small group
- Round 3
  - Discuss ratings in a large group

Bookmark Standard Setting Procedure

- Key features
  - Target Student
  - Ordered Item Booklet
  - Item map
  - Bookmarks
  - Impact data

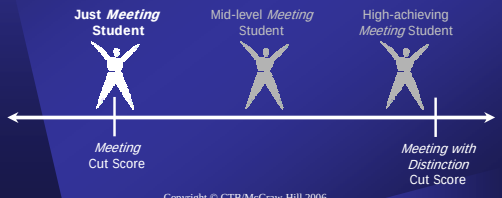
Bookmark Standard Setting Procedure

- Target Student
  - The student who has just made it into a performance level
  - This is the student for whom cut scores are being established



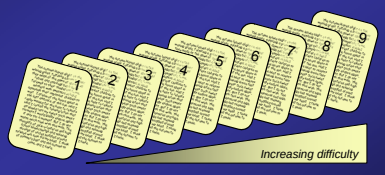
Bookmark Standard Setting Procedure

- You will develop descriptions of the Target Student in each performance level.
  - NYS Learning Standards
  - Just *Meeting*, just *Meeting with Distinction*, just *Partially Meeting*



Bookmark Standard Setting Procedure

- Ordered Item Booklet
  - Items ordered based on student performance
    - Easiest item is first
    - Most difficult item is last



Bookmark Standard Setting Procedure

Order of difficulty (easy to hard)	Location	Form	Item No.	Item Type	Score Key	Content Strand *	What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?	Why is this item more difficult than the preceding items?
1	220	12	1	MC	2	1		N/A
2	225	9	4	MC	3	4		
3	229	9	3	MC	2	5		
4	240	12	2	MC	4	1		
5	241	12	4	MC	2	4		
6	256	12	7	CR	1/2	1		
7	262	9	5	MC	1	1		
8	282	12	7	CR	2/2	1		
9	303	9	6	MC	2	2		
10	321	9	8	MC	2	2		
11	401	9	9	MC	3	4		

* 1 = Number Sense, Properties, & Operations; 2 = Measurement; 3 = Geometry; 4 = Data Analysis, Statistics, & Probability; 5 = Algebra & Functions

Ordered Item 1

1

1. Kitty is taking a trip on which she plans to drive 300 miles each day. Her trip is 1,723 miles long. She has already driven 849 miles. How much farther must she drive?
   A. 574 miles
   B. 874 miles
   C. 1,423 miles
   D. 2,872 miles

Item Map

Subtraction, operations, eliminate extra info

Print Name:

Order of difficulty (easy to hard)	Location	Form	Item No.	Item Type	Corr Key	Content Strand*	What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?	Why is this item more difficult than the preceding items?
1	220	12	1	MC	B	1		N/A
2	225	9	4	MC	C	4		
3	229	9	3	MC	B	5		
4	240	12	2	MC	D	1		
5	241	12	4	MC	B	4		
6	256	12	7	CR	1/2	1		
7	262	9	5	MC	A	1		
8	282	12	7	CR	2/2	1		
9	303	9	6	MC	B	2		
10	321	9	8	MC	B	2		
11	401	9	9	MC	C	4		

* 1 = Number Sense, Properties, & Operations; 2 = Measurement; 3 = Geometry; 4 = Data Analysis, Statistics, & Probability; 5 = Algebra & Functions

Ordered Item 2

2

CARTONS OF EGGS SOLD LAST MONTH

Farm A ❍ ❍ ❍ ❍
Farm B ❍ ❍ ❍ ❍ ❍ ❍
Farm C ❍ ❍ ❍
Each ❍ = 100 Cartons

4. According to the graph how many cartons of eggs were sold altogether by farms A, B, and C last month?
   A. 13
   B. 130
   C. 1,300
   D. 13,000

6
Score Point
1 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

6 scoring guide

SOLUTION:

For one day, the sum is $1.75. For 5 days, the sum is $8.75. Therefore, he should ask his mother for nine one-dollars bills (or 1 $5 bill and 4 $1 bills) .

Answer may be given pictorially.

Note: No explanation is asked for, so paper could have a small error, such as copying a number incorrectly and still get a score of 2, provided method and answer are correct.

SCORING GUIDE:

0 Incorrect response -- includes $1.75 or $2; also $975 or $875.00

(1) $8.75 or 875
OR
One day is $1.75 so he needs $2 each day, so $10 for a week
(picture of $10 bill is acceptable)
OR
correct method but rounded down to $8 (this requires work to be shown)
OR
correct method but small error and incorrect response of $7 to $11, inclusive

2 Correct response

6 anchor

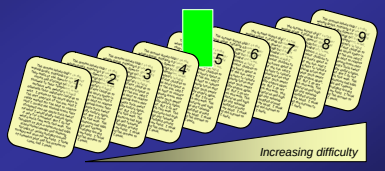
7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days? $8.75

8
Score Point
2 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

Bookmark Standard Setting Procedure

- Bookmark
  - Separates content the borderline *Meets* student is expected to master from the content that is more than enough.



Bookmark Standard Setting Procedure

- Impact data
  - Percent of students in each performance level
  - Presented in Round 3

Not Meeting	*Partially Meeting*	*Meeting*	*Meeting with Distinction*
0.0%	0.0%	0.0%	0.0%

Bookmark Standard Setting Procedure

Day 1: Table Leader Training

- Table Leaders
  - Participants who receive extra training to help facilitate process in rooms
- Training
  - Mock Bookmark
  - Target Student descriptors
    - Student who has just entered a particular performance level
    - Based on content standards and generic performance levels
    - Purpose: Focus you on the type of student for whom you will be setting a cut score.

Bookmark Standard Setting Procedure

Day 2: Orientation, Round 1 Activities

- Orientation
  - Welcome and introduction by NYSED
  - CTB will overview process

Grades 4, 6, and 8 begin standard setting activities

- Round 1 Activities
  - Take test
  - Target Student discussions
  - Study anchor papers/scoring guides
  - Study Ordered Item Booklet

Bookmark Standard Setting Procedure

Day 3: Bookmark Training, Rounds 2 & 3

- Bookmark Training
  - Participants will spend 1 hour learning how to set a Bookmark
  - Round 1 Bookmark placement
- Round 2
  - Participants will discuss Round 1 Bookmark placements in tables
  - Round 2 Bookmark placement

Bookmark Standard Setting Procedure

Day 3: Bookmark Training, Rounds 2 & 3 (cont.)

- Round 3
  - Participants will be shown three types of impact data
    - Impact data will be based on Round 2 recommendations
    - 2005 impact data
    - Cross-grade impact data
  - Participants will discuss Round 2 Bookmark placements as large group
  - Round 3 Bookmark placement

Day 4: Rounds 1, 2, & 3

Day 4: Rounds 1, 2, & 3

Grades 3, 5, and 7 start standard setting activities

- Round 1
  - Same as before
- Round 2
  - Same as before
- Round 3
  - Same as before
- Evaluation

Day 5: Round 4, Description Writing

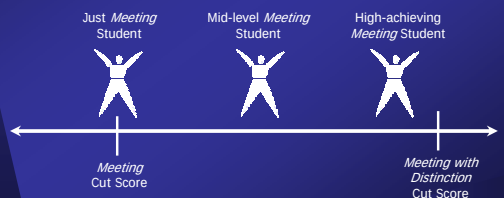
- Description Writing
  - Participants will summarize the knowledge, skills, and abilities demonstrated by students in each performance level
- Vertical Articulation Panel
  - Table Leaders will engage in a cross-grade discussion to smooth data

Mock Standard Setting

- 2 Performance Levels
  - *Meeting*
  - *Not Meeting*
- 11 item test
  - Grade 4 Mathematics test

Target Student

- We want to describe the skills held in *common* by *all* these students
  - These are the skills of the just *Meeting* student

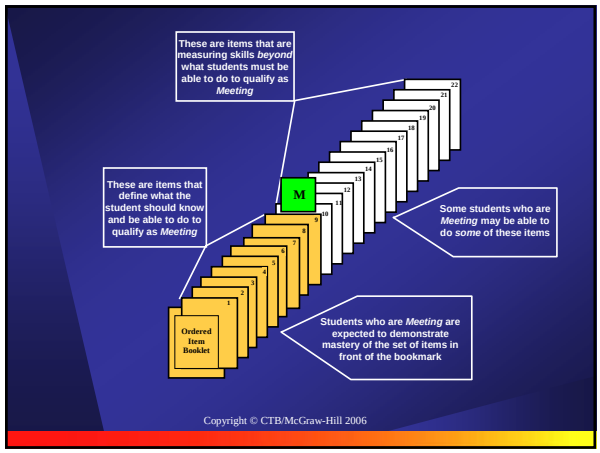


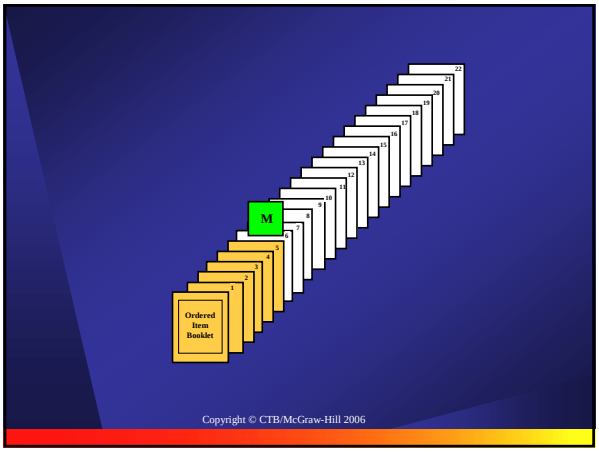
Bookmark Placement

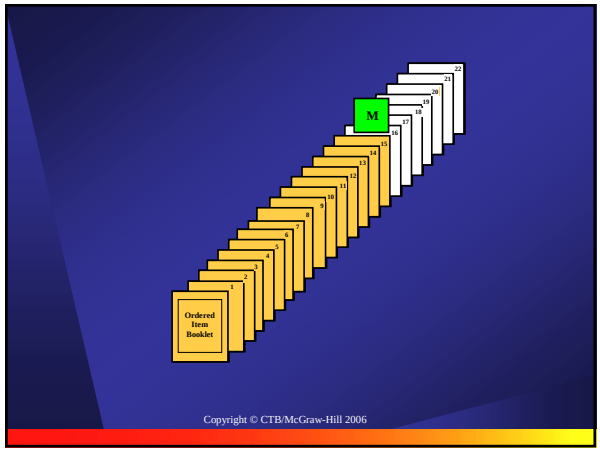
- Items preceding the Bookmark reflect content that all *Meeting* students should master
  - MC items: *Meeting* students should most likely know the correct responses
  - CR items: *Meeting* students should most likely obtain that score point

Bookmark Placement

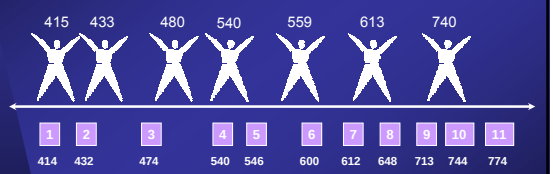
- Find a range of items in which you think the Bookmark falls.
- Locate the point where you believe the Bookmark should be placed.
- Bookmark meaning:
  - The items before the bookmark have been mastered by the Target students.
  - The Target students have demonstrated sufficient skills to infer that they are *Meeting the Learning Standards.*







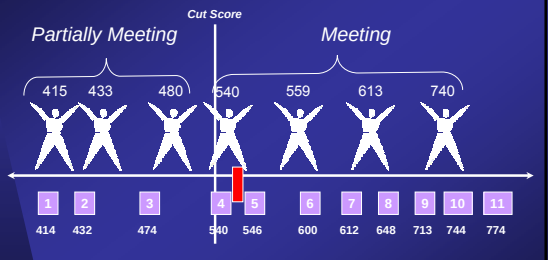
Test Scale



Items ordered by difficulty.

Students ordered by ability.

The Bookmark & the Cut Score



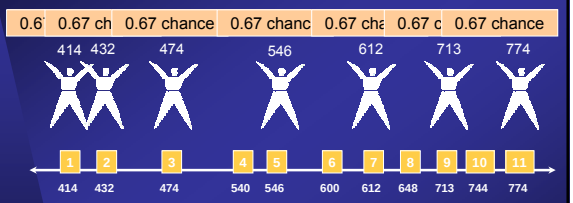
The bookmark separates items.

The cut score separates students.

Mastery

- Students show mastery when they have at least a 2/3 chance of answering an item correctly.
  - The decision to use 2/3 is based on research.

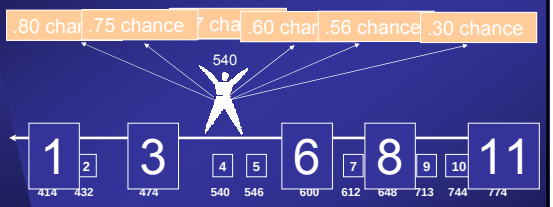
Item Location



Location is an indication of difficulty.

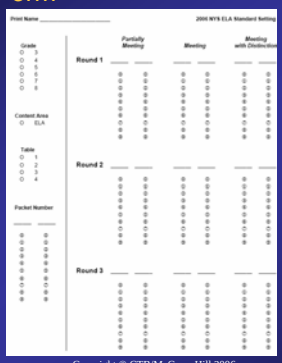
Location represents the ability level necessary to have a .67 chance of answering the item correctly.

Mastery and the Target Student



A student right at the cut score will have at least a 2/3 chance of answering the items correctly at and below the cut score.

Rating Form



Rating Form

Print Name _____ 2006 NYS ELA Standard Setting

Grade: O 3 O 4 O 5 O 6 O 7 O 8

Content Area: O ELA

Table: O 1

	Partially Meeting		Meeting		Meeting with Distinction	
Round 1	____	____	____	____	____	____

Rating Form

Packet number is located in the upper right hand corner of your materials.

Packet Number

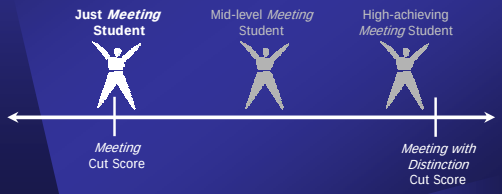
Round 3 Sample Results

	Partially Meeting Bookmark	*Meeting* Bookmark	*Meeting w/ Distinction* Bookmark
Table 1	3	11	34
Table 2	5	17	37
Table 3	3	14	34
Table 4	7	13	36
Median	4	14	34

Impact Data: estimated percent of students in each achievement level based on the current Large Group median			
Not Meeting	*Partially Meeting*	*Meeting*	*Meeting w/ Distinction*
0.0%	0.0%	0.0%	0.0%

Target Student Discussion

- The student who has just made it into a performance level
  - Just *Meeting*, just *Meeting with Distinction*, and just *Partially Meeting* students
- Refer to New York Learning Standards



Standard 1: Students will read, write, listen, and speak for **information and understanding.**

PM M
- Locate and use library media resources to acquire information, with assistance

MwD
- Read unfamiliar texts to collect data, facts, and ideas

M
- Read and understand written directions

PM
- Locate information in a text that is needed to solve a problem

M MwD
- Identify main ideas and supporting details in informational texts

PM M
- Recognize and use organizational features, such as table of contents, indexes, page numbers, and chapter headings/subheadings, to locate information, with assistance

Vertical Articulation Panel

- Purpose:
  - Table Leaders will discuss final recommendations from standard setting
  - Examine impact data for logical progression grade to grade
  - Adjust cut scores to allow for logical progression of impact data across grades

Questions?

- Thank you for your participation!

Setting the Standard

New York State Testing Program
Mathematics

Grades 3-8

Bookmark Training

Bookmark Placement

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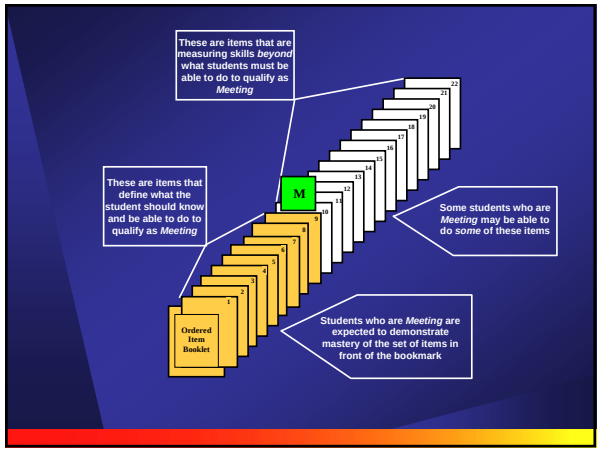

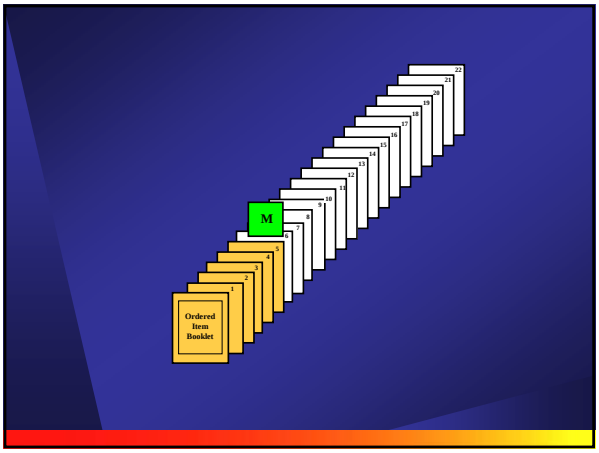

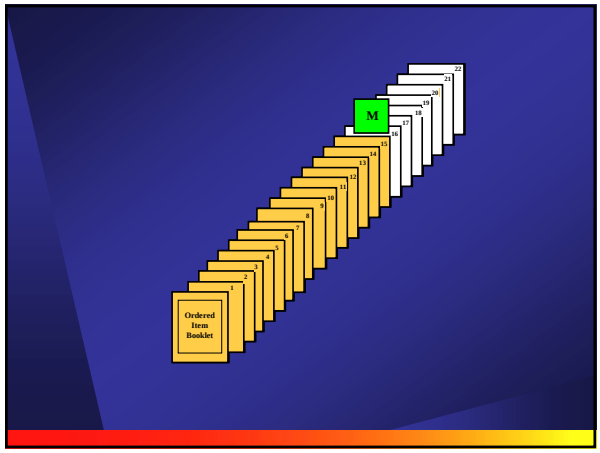

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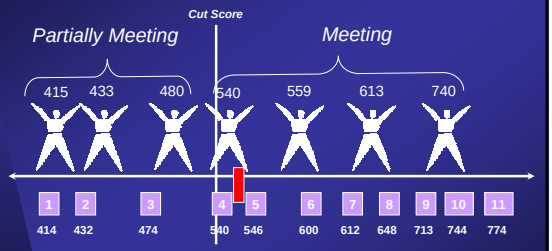

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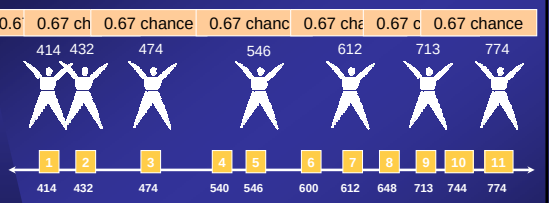

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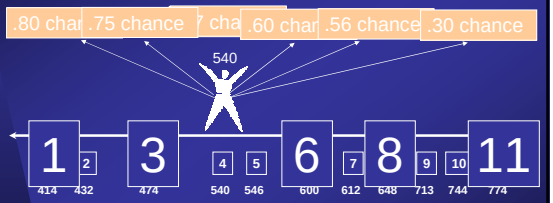

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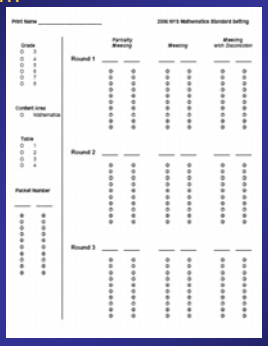

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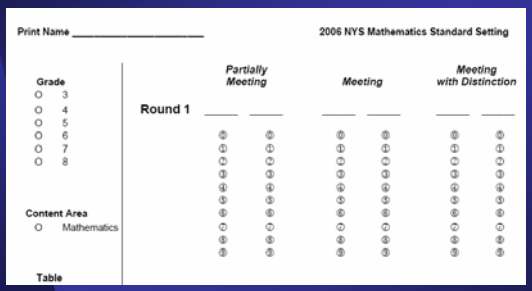

Print Name _____ 2006 NYS Mathematics Standard Setting

Grade: O 3 O 4 O 5 O 6 O 7 O 8

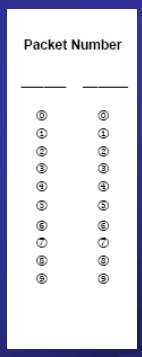
Content Area: O Mathematics

Table

Round 1 — Partially Meeting | Meeting | Meeting with Distinction

Rating Form

Packet number is located in the upper right hand corner of your materials.



Target Student

- The student who has just made it into a performance level
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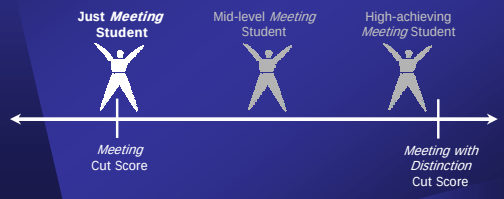
- Refer to New York Learning Standards



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0.0%	0.0%	0.0%	0.0%

Questions?

- Thank you for your participation!

An Introduction to Item Response Theory

CTB Research
July 2007

Goals of the training session

1. Introduce the basics of Item Response Theory (IRT)
2. Present why and how IRT is applied to state educational assessments

Item Response Theory

- Heart of the theory:
  - A mathematical model of how examinees with different ability levels should respond to an item
- Item response refers to :
  - The right or wrong answer to a multiple-choice (MC) item
  - Full or partial credit on a constructed-response (CR) item

Advantages of IRT

- Allows us to compare the performance of examinees who have taken different tests
- Allows us to build parallel test forms item by item
- Allows precise item analysis and test construction
- Allows constructed-response and multiple-choice items to be placed on the same scale
- Is a reliable scoring procedure
- Allows us to place items and students on the same scale

Who uses IRT?

- Majority of state-wide testing programs
  - Overseen by expert technical advisors
  - Used in past and current NYS assessment programs
- National Assessment of Educational Progress (NAEP)
- Computer adaptive tests (e.g., GRE)

Difference between Classical Statistics and IRT Statistics (Why use IRT?)

- Classical Statistics
  - Sample-dependent
  - Treat each item equally when scoring
- IRT Statistics
  - Sample-independent
  - Weight each item according to the item information/discrimination
  - Allow comparison of scores from two tests

Item Parameters: The Three-Parameter (3PL) Logistic IRT Model

- a-parameter (Discrimination)
- b-parameter (Difficulty)
- c-parameter (Guessing)

What do the item parameters tell us?

- a-parameter
  - The discrimination parameter indicates the degree to which an item differentiates between low- and high-performing students.
  - The discrimination parameter indicates how much information is provided by an item at a particular ability level.

What do the item parameters tell us?

- b-parameter
  - The item difficulty describes the location of the item on an ability scale. The more difficult the item, the further the curve is to the right.
  - When there is no guessing, b is the ability level for which the probability of a correct answer is 0.50, halfway between 0 to 1 on the vertical axis.

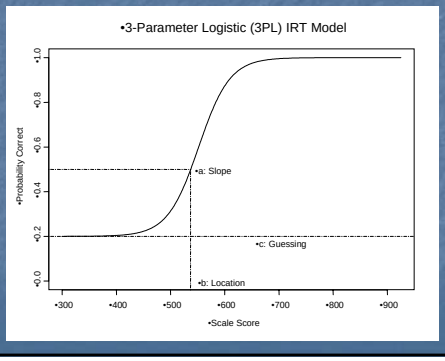
More about Location

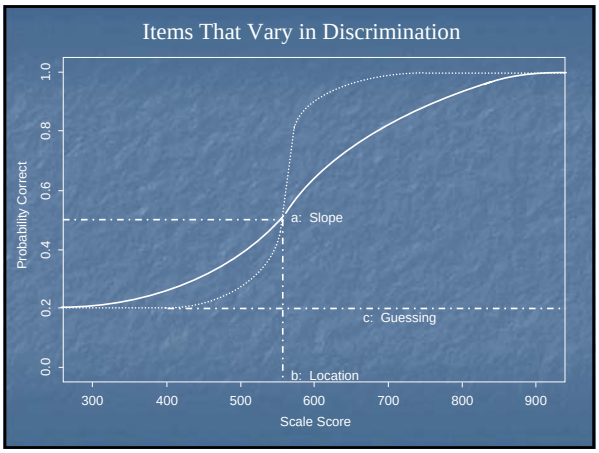
- Location is the IRT index for item difficulty. It also indicates the level of student ability. Item difficulty and student ability are measured on the same scale.
- Item location is found at the point where the item gives the most information about a student's ability.
- The larger the location value, the more difficult the item. The larger the location value, the higher the student ability.

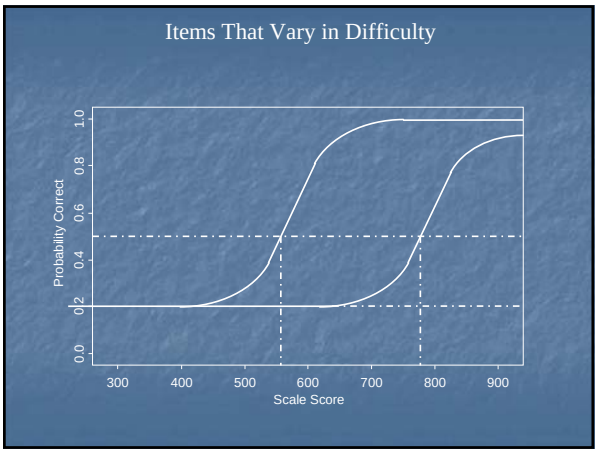
What do the item parameters tell us?

- c-parameter
  - An adjustment factor to account for the fact that students can guess the correct answer to a multiple-choice item

Item Characteristic Curve (ICC)

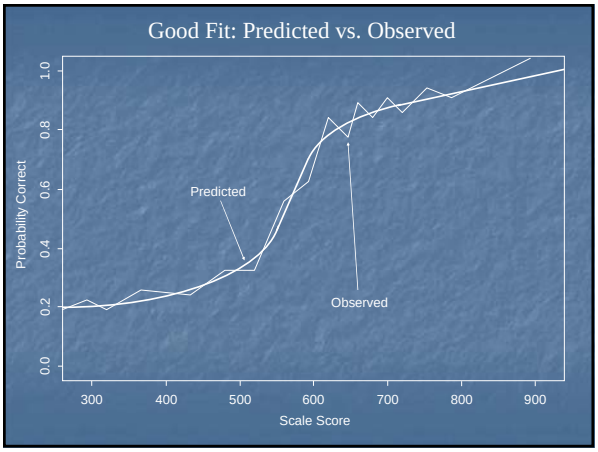


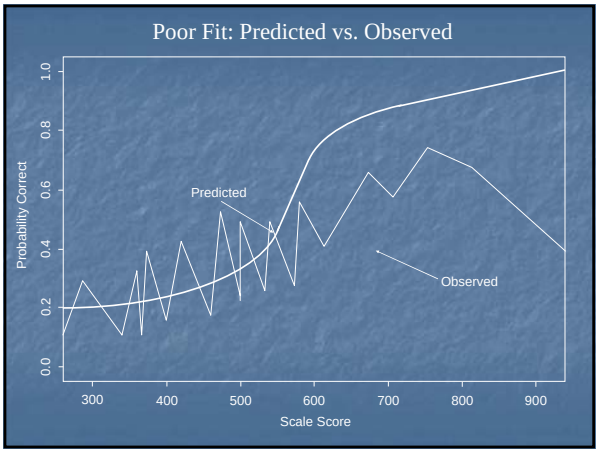




Evaluating IRT predictions against student data

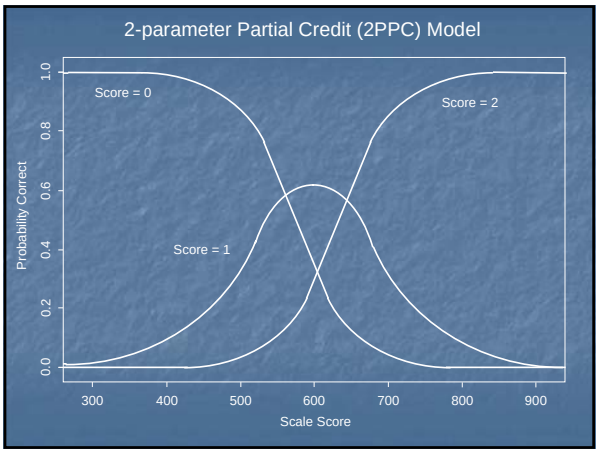
- Model to Data Fit: Item fit is evaluated by comparing students' predicted and observed responses to items.





IRT & Constructed-response Items

- 2-parameter Partial Credit Model (2PPC)
- Same basic assumptions
  - Guessing is negligible

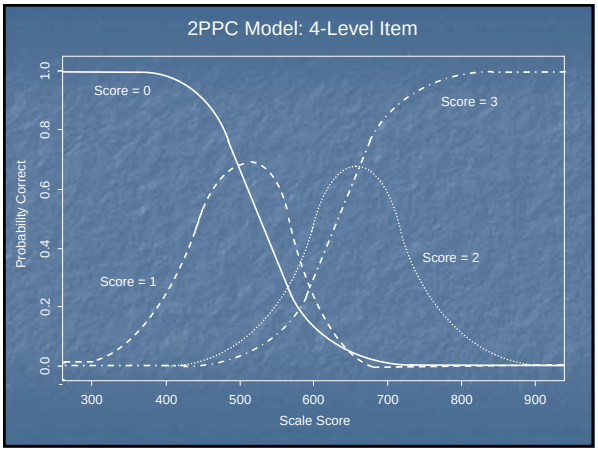


Item Parameters (2PPC Model)

- f-parameter (Acceleration)
  - Common to all score levels
  - Is not the same as the discrimination parameter
  - Refers to the speed at which the probability for successive levels changes

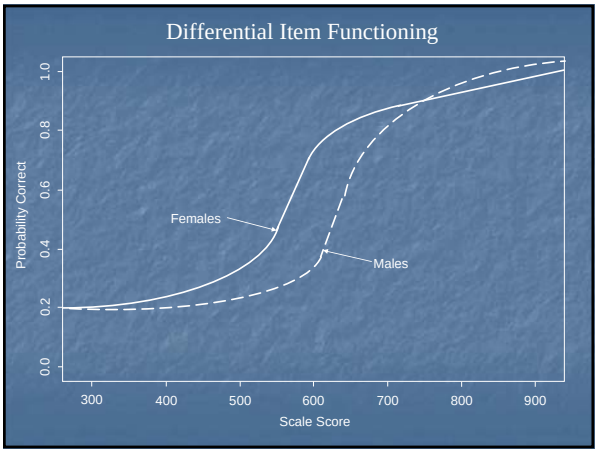
Item Parameters (2PPC Model)

- g-parameter (Threshold)
  - Marks the transition points on the ability scale where the most likely score shifts from one score point to the next score point
  - There are n-1 gamma parameters for an n-level CR item



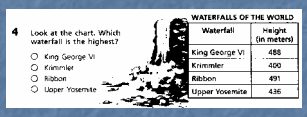
IRT Item Statistic helps identify potentially biased items

- Differential Item Functioning
  - In addition to content review, we look at bias in terms of differential item functioning (DIF).
  - If the item parameters are estimated for two different groups and they are significantly different from each other, DIF has been detected.
  - Possible sources include gender, ethnicity, socio-economic status, computer vs. paper-and-pencil testing, etc.

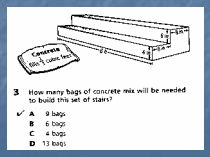


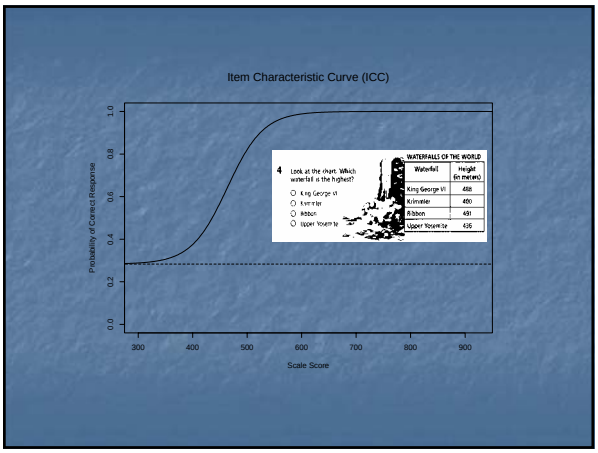
IRT – Item and Ability Scale

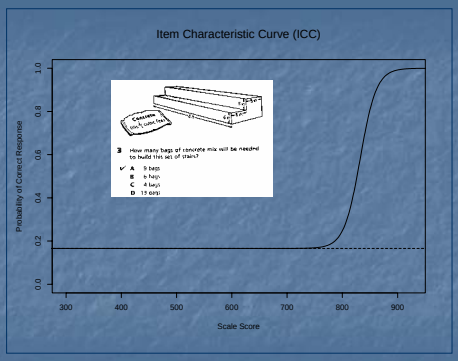
Is this question easy or difficult?



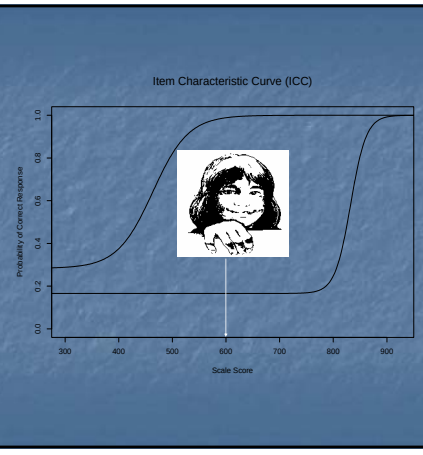
How about this one?

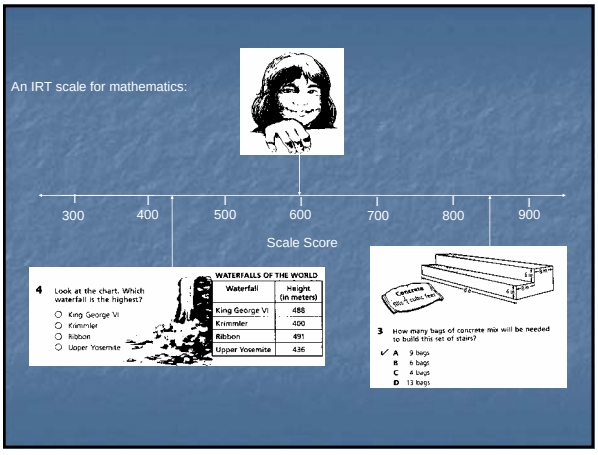






Is this student meeting the standards?





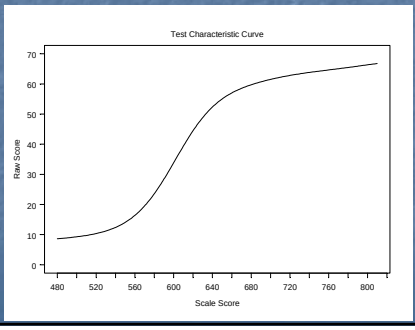
Test Characteristic Curve

- Sum of the Item Characteristic Curves
- Map of the relationship between raw score & scale score

Estimating Student Ability

- Number-correct scoring (Raw Score to Scale Score) is used in NYSTP 3-8
  - Takes into account how many score points a student earns on a test
  - Is easy to understand (students with the same raw score on a given test will receive the same scale score)

Raw Score to Scale Score (RS–SS) Conversion Table



Why we need RS-SS tables?

- Different tables every year
- Raw scores are not comparable across administrations
- Scale scores are comparable across administrations
- Test equating allows for test difficulty adjustment and scale score comparability

Using Scale Scores

- Students can be placed on an ability scale
- Students can be classified into performance levels (once cut points are established)
- Longitudinal comparisons can be made
- Performance of sub-groups can be compared

Section E

Detailed Results of the Standard Setting

New York State Mathematics Standard Setting Grade 3
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	12	36	61
1	2	14	31	63
1	3	16	33	58
1	4	15	32	58
1	5	22	36	62
1	6	19	32	51
1	7	10	46	60
2	8	17	30	55
2	9	16	33	55
2	10	15	39	52
2	11	17	33	51
2	12	22	36	56
2	13	20	49	60
3	14	22	36	52
3	15	33	51	58
3	16	23	41	58
3	17	6	22	58
3	18	15	31	58
3	19	16	38	58
4	20	30	48	63
4	21	16	42	53
4	22	19	33	55
4	23	24	46	56
4	24	25	36	51
4	25	10	39	58
4	26	19	42	51

Overall	Median	17	36	58
	Minimum	6	22	51
	Maximum	33	51	63
	SD	6.01	6.81	3.79

New York State Mathematics Standard Setting Grade 3
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	395	421	476
1	2	399	418	480
1	3	404	420	458
1	4	404	419	458
1	5	409	421	476
1	6	407	419	443
1	7	391	431	474
2	8	404	418	452
2	9	404	420	452
2	10	404	424	448
2	11	404	420	443
2	12	409	421	456
2	13	407	441	474
3	14	409	421	448
3	15	420	443	458
3	16	410	424	458
3	17	381	409	458
3	18	404	418	458
3	19	404	422	458
4	20	418	438	480
4	21	404	427	448
4	22	407	420	452
4	23	411	431	456
4	24	411	421	443
4	25	391	424	458
4	26	407	427	443

Overall	Median	404	421	458
	Minimum	381	409	443
	Maximum	420	443	480
	SD	8.26	7.57	11.71

New York State Mathematics Standard Setting Grade 3
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	15	33	60
Median	2	17	34.5	55
Median	3	19	37	58
Median	4	19	42	55
Median	Overall	17	36	58
Minimum	1	10	31	51
Minimum	2	15	30	51
Minimum	3	6	22	52
Minimum	4	10	33	51
Minimum	Overall	6	22	51
Maximum	1	22	46	63
Maximum	2	22	49	60
Maximum	3	33	51	58
Maximum	4	30	48	63
Maximum	Overall	33	51	63
SD	1	4.08	5.18	4.00
SD	2	2.64	6.77	3.19
SD	3	9.11	9.73	2.45
SD	4	6.55	5.30	4.27
SD	Overall	6.01	6.81	3.79

Overall	Median	17	36	58
	Minimum	6	22	51
	Maximum	33	51	63
	SD	6.01	6.81	3.79

New York State Mathematics Standard Setting Grade 3
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	404	420	474
Median	2	404	421	452
Median	3	407	422	458
Median	4	407	427	452
Median	Overall	404	421	458
Minimum	1	391	418	443
Minimum	2	404	418	443
Minimum	3	381	409	448
Minimum	4	391	420	443
Minimum	Overall	381	409	443
Maximum	1	409	431	480
Maximum	2	409	441	474
Maximum	3	420	443	458
Maximum	4	418	438	480
Maximum	Overall	420	443	480
SD	1	6.55	4.42	13.64
SD	2	2.16	8.56	10.67
SD	3	12.99	11.20	4.08
SD	4	8.35	6.20	12.76
SD	Overall	8.26	7.57	11.71

Overall	Median	404	421	458
	Minimum	381	409	443
	Maximum	420	443	480
	SD	8.26	7.57	11.71

New York State Mathematics Standard Setting Grade 3
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	15	33	60
2	17	34.5	55
3	19	37	58
4	19	42	55
Overall	17	36	58

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	9.9	9.5	40.0	40.6

New York State Mathematics Standard Setting Grade 3
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	16	39	61
1	2	14	33	61
1	3	13	33	62
1	4	16	36	61
1	5	18	36	62
1	6	16	33	59
1	7	10	33	61
2	8	17	40	56
2	9	17	39	56
2	10	29	46	61
2	11	17	42	59
2	12	17	36	56
2	13	17	42	56
3	14	22	36	58
3	15	24	36	58
3	16	23	41	58
3	17	21	31	58
3	18	23	31	58
3	19	23	38	58
4	20	16	42	55
4	21	16	42	57
4	22	19	39	58
4	23	21	46	58
4	24	26	38	51
4	25	20	42	58
4	26	19	42	58

Overall	Median	17.5	38.5	58
	Minimum	10	31	51
	Maximum	29	46	62
	SD	4.23	4.28	2.47

New York State Mathematics Standard Setting Grade 3
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	404	424	476
1	2	399	420	476
1	3	398	420	476
1	4	404	421	476
1	5	407	421	476
1	6	404	420	472
1	7	391	420	476
2	8	404	424	456
2	9	404	424	456
2	10	417	431	476
2	11	404	427	472
2	12	404	421	456
2	13	404	427	456
3	14	409	421	458
3	15	411	421	458
3	16	410	424	458
3	17	409	418	458
3	18	410	418	458
3	19	410	422	458
4	20	404	427	452
4	21	404	427	458
4	22	407	424	458
4	23	409	431	458
4	24	414	422	443
4	25	407	427	458
4	26	407	427	458

Overall	Median	404	422	458
	Minimum	391	418	443
	Maximum	417	431	476
	SD	5.22	3.58	9.52

New York State Mathematics Standard Setting Grade 3
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	16	33	61
Median	2	17	41	56
Median	3	23	36	58
Median	4	19	42	58
Median	Overall	17.5	38.5	58
Minimum	1	10	33	59
Minimum	2	17	36	56
Minimum	3	21	31	58
Minimum	4	16	38	51
Minimum	Overall	10	31	51
Maximum	1	18	39	62
Maximum	2	29	46	61
Maximum	3	24	41	58
Maximum	4	26	46	58
Maximum	Overall	29	46	62
SD	1	2.63	2.36	1.00
SD	2	4.90	3.37	2.16
SD	3	1.03	3.94	0.00
SD	4	3.41	2.57	2.64
SD	Overall	4.23	4.28	2.47

Overall	Median	17.5	38.5	58
	Minimum	10	31	51
	Maximum	29	46	62
	SD	4.23	4.28	2.47

New York State Mathematics Standard Setting Grade 3
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	404	420	476
Median	2	404	426	456
Median	3	410	421	458
Median	4	407	427	458
Median	Overall	404	422	458
Minimum	1	391	420	472
Minimum	2	404	421	456
Minimum	3	409	418	458
Minimum	4	404	422	443
Minimum	Overall	391	418	443
Maximum	1	407	424	476
Maximum	2	417	431	476
Maximum	3	411	424	458
Maximum	4	414	431	458
Maximum	Overall	417	431	476
SD	1	5.42	1.46	1.51
SD	2	5.31	3.44	9.38
SD	3	0.75	2.34	0.00
SD	4	3.41	2.82	5.74
SD	Overall	5.22	3.58	9.52

Overall	Median	404	422	458
	Minimum	391	418	443
	Maximum	417	431	476
	SD	5.22	3.58	9.52

New York State Mathematics Standard Setting Grade 3 Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	16	33	61
2	17	41	56
3	23	36	58
4	19	42	58
Overall	17.5	38.5	58

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	9.9	9.5	40.0	40.6

New York State Mathematics Standard Setting Grade 3
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	25	47	65
1	2	17	45	63
1	3	22	46	63
1	4	19	45	62
1	5	25	42	65
1	6	16	44	62
1	7	16	50	63
2	8	23	50	65
2	9	22	49	65
2	10	30	50	62
2	11	24	52	64
2	12	17	44	64
2	13	23	50	65
3	14	22	36	63
3	15	24	47	62
3	16	23	41	62
3	17	17	39	63
3	18	23	37	61
3	19	23	38	62
4	20	30	44	58
4	21	16	48	58
4	22	9	44	58
4	23	24	46	60
4	24	28	40	54
4	25	24	46	60
4	26	19	42	58

Overall	Median	23	45	62
	Minimum	9	36	54
	Maximum	30	52	65
	SD	4.77	4.36	2.79

New York State Mathematics Standard Setting Grade 3
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	411	435	499
1	2	404	430	480
1	3	409	431	480
1	4	407	430	476
1	5	411	427	499
1	6	404	428	476
1	7	404	443	480
2	8	410	443	499
2	9	409	441	499
2	10	418	443	476
2	11	411	448	487
2	12	404	428	487
2	13	410	443	499
3	14	409	421	480
3	15	411	435	476
3	16	410	424	476
3	17	404	424	480
3	18	410	422	476
3	19	410	422	476
4	20	418	428	458
4	21	404	438	458
4	22	390	428	458
4	23	411	431	474
4	24	416	424	450
4	25	411	431	474
4	26	407	427	458

Overall	Median	410	430	476
	Minimum	390	421	450
	Maximum	418	448	499
	SD	5.56	7.74	13.84

New York State Mathematics Standard Setting Grade 3
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	19	45	63
Median	2	23	50	64.5
Median	3	23	38.5	62
Median	4	24	44	58
Median	Overall	23	45	62
Minimum	1	16	42	62
Minimum	2	17	44	62
Minimum	3	17	36	61
Minimum	4	9	40	54
Minimum	Overall	9	36	54
Maximum	1	25	50	65
Maximum	2	30	52	65
Maximum	3	24	47	63
Maximum	4	30	48	60
Maximum	Overall	30	52	65
SD	1	4.00	2.51	1.25
SD	2	4.17	2.71	1.17
SD	3	2.53	3.98	0.75
SD	4	7.30	2.69	2.00
SD	Overall	4.77	4.36	2.79

Overall	Median	23	45	62
	Minimum	9	36	54
	Maximum	30	52	65
	SD	4.77	4.36	2.79

New York State Mathematics Standard Setting Grade 3
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	407	430	480
Median	2	410	443	493
Median	3	410	423	476
Median	4	411	428	458
Median	Overall	410	430	476
Minimum	1	404	427	476
Minimum	2	404	428	476
Minimum	3	404	421	476
Minimum	4	390	424	450
Minimum	Overall	390	421	450
Maximum	1	411	443	499
Maximum	2	418	448	499
Maximum	3	411	435	480
Maximum	4	418	438	474
Maximum	Overall	418	448	499
SD	1	3.24	5.48	10.21
SD	2	4.50	6.78	9.47
SD	3	2.53	5.20	2.07
SD	4	9.34	4.43	9.07
SD	Overall	5.56	7.74	13.84

Overall	Median	410	430	476
	Minimum	390	421	450
	Maximum	418	448	499
	SD	5.56	7.74	13.84

New York State Mathematics Standard Setting Grade 3 Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	19	45	63
2	23	50	64.5
3	23	38.5	62
4	24	44	58
Overall	23	45	62

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	11.4	17.0	54.6	17.0

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	8	24	67
1	6	17	40	68
1	7	8	15	80
1	8	19	39	60
1	9	21	55	70
1	10	17	32	65
1	27	16	38	54
2	1	22	49	72
2	11	24	68	80
2	12	8	18	54
2	13	33	55	72
2	14	23	50	67
2	15	24	50	70
3	4	33	63	77
3	16	32	50	77
3	17	35	55	74
3	18	25	63	77
3	19	28	48	61
3	20	19	41	71
4	2	10	36	50
4	21	8	37	56
4	22	21	38	60
4	23	6	12	26
4	24	22	32	59
4	25	8	24	40
4	26	13	32	41

Overall	Median	20	39.5	67
	Minimum	6	12	26
	Maximum	35	68	80
	SD	8.79	14.93	13.37

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	447	464	508
1	6	461	482	510
1	7	447	460	540
1	8	462	480	505
1	9	463	498	512
1	10	461	474	507
1	27	460	480	495
2	1	463	490	518
2	11	464	510	540
2	12	447	461	495
2	13	476	498	518
2	14	463	491	508
2	15	464	491	512
3	4	476	505	529
3	16	474	491	529
3	17	476	498	521
3	18	465	505	529
3	19	471	490	505
3	20	462	484	514
4	2	452	477	491
4	21	447	477	500
4	22	463	480	505
4	23	440	455	468
4	24	463	474	504
4	25	447	464	482
4	26	456	474	484

Overall	Median	463	480	508
	Minimum	440	455	468
	Maximum	476	510	540
	SD	9.92	14.96	17.25

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	17	38	67
Median	2	23.5	50	71
Median	3	30	52.5	75.5
Median	4	10	32	50
Median	Overall	20	39.5	67
Minimum	1	8	15	54
Minimum	2	8	18	54
Minimum	3	19	41	61
Minimum	4	6	12	26
Minimum	Overall	6	12	26
Maximum	1	21	55	80
Maximum	2	33	68	80
Maximum	3	35	63	77
Maximum	4	22	38	60
Maximum	Overall	35	68	80
SD	1	5.15	12.78	8.14
SD	2	8.07	16.48	8.59
SD	3	5.96	8.73	6.27
SD	4	6.48	9.28	12.43
SD	Overall	8.79	14.93	13.37

Overall	Median	20	39.5	67
	Minimum	6	12	26
	Maximum	35	68	80
	SD	8.79	14.93	13.37

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	461	480	508
Median	2	464	491	515
Median	3	473	495	525
Median	4	452	474	491
Median	Overall	463	480	508
Minimum	1	447	460	495
Minimum	2	447	461	495
Minimum	3	462	484	505
Minimum	4	440	455	468
Minimum	Overall	440	455	468
Maximum	1	463	498	540
Maximum	2	476	510	540
Maximum	3	476	505	529
Maximum	4	463	480	505
Maximum	Overall	476	510	540
SD	1	7.09	12.59	13.90
SD	2	9.24	16.17	14.84
SD	3	5.92	8.60	9.97
SD	4	8.66	8.89	13.56
SD	Overall	9.92	14.96	17.25

Overall	Median	463	480	508
	Minimum	440	455	468
	Maximum	476	510	540
	SD	9.92	14.96	17.25

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	17	38	67
2	23.5	50	71
3	30	52.5	75.5
4	10	32	50
Overall	20	39.5	67

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	14.8	14.7	34.2	36.3

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	8	25	72
1	6	17	44	73
1	7	19	42	82
1	8	17	37	60
1	9	19	46	70
1	10	17	33	63
1	27	16	46	74
2	1	22	50	72
2	11	26	44	64
2	12	22	50	72
2	13	22	50	72
2	14	19	47	72
2	15	22	50	72
3	4	26	59	77
3	16	26	50	71
3	17	26	55	74
3	18	25	51	67
3	19	25	51	71
3	20	25	41	71
4	2	13	38	55
4	21	12	33	60
4	22	20	36	60
4	23	13	33	55
4	24	20	36	59
4	25	14	27	44
4	26	13	36	55

Overall	Median	19.5	44	71
	Minimum	8	25	44
	Maximum	26	59	82
	SD	5.15	8.72	8.63

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	447	465	518
1	6	461	487	518
1	7	462	486	549
1	8	461	477	505
1	9	462	488	512
1	10	461	476	505
1	27	460	488	521
2	1	463	491	518
2	11	468	487	506
2	12	463	491	518
2	13	463	491	518
2	14	462	489	518
2	15	463	491	518
3	4	468	504	529
3	16	468	491	514
3	17	468	498	521
3	18	465	491	508
3	19	465	491	514
3	20	465	484	514
4	2	456	480	498
4	21	455	476	505
4	22	463	477	505
4	23	456	476	498
4	24	463	477	504
4	25	459	470	487
4	26	456	477	498

Overall	Median	462	487	514
	Minimum	447	465	487
	Maximum	468	504	549
	SD	4.75	8.89	12.05

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	17	42	72
Median	2	22	50	72
Median	3	25.5	51	71
Median	4	13	36	55
Median	Overall	19.5	44	71
Minimum	1	8	25	60
Minimum	2	19	44	64
Minimum	3	25	41	67
Minimum	4	12	27	44
Minimum	Overall	8	25	44
Maximum	1	19	46	82
Maximum	2	26	50	72
Maximum	3	26	59	77
Maximum	4	20	38	60
Maximum	Overall	26	59	82
SD	1	3.76	7.83	7.30
SD	2	2.23	2.51	3.27
SD	3	0.55	6.01	3.37
SD	4	3.46	3.63	5.56
SD	Overall	5.15	8.72	8.63

Overall	Median	19.5	44	71
	Minimum	8	25	44
	Maximum	26	59	82
	SD	5.15	8.72	8.63

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	461	486	518
Median	2	463	491	518
Median	3	467	491	514
Median	4	456	477	498
Median	Overall	462	487	514
Minimum	1	447	465	505
Minimum	2	462	487	506
Minimum	3	465	484	508
Minimum	4	455	470	487
Minimum	Overall	447	465	487
Maximum	1	462	488	549
Maximum	2	468	491	518
Maximum	3	468	504	529
Maximum	4	463	480	505
Maximum	Overall	468	504	549
SD	1	5.40	8.72	14.96
SD	2	2.16	1.67	4.90
SD	3	1.64	6.91	7.31
SD	4	3.45	3.02	6.37
SD	Overall	4.75	8.89	12.05

Overall	Median	462	487	514
	Minimum	447	465	487
	Maximum	468	504	549
	SD	4.75	8.89	12.05

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	17	42	72
2	22	50	72
3	25.5	51	71
4	13	36	55
Overall	19.5	44	71

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	14.8	22.2	33.4	29.6

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	15	50	74
1	6	17	46	76
1	7	22	42	82
1	8	19	39	65
1	9	15	46	74
1	10	20	33	72
1	27	16	46	74
2	1	22	50	72
2	11	29	50	68
2	12	18	50	72
2	13	22	50	72
2	14	22	50	72
2	15	22	50	72
3	4	26	59	77
3	16	26	50	72
3	17	25	50	71
3	18	24	50	71
3	19	19	38	74
3	20	22	41	71
4	2	18	41	60
4	21	12	36	60
4	22	22	41	65
4	23	22	44	71
4	24	22	44	69
4	25	14	27	50
4	26	22	50	72

Overall	Median	22	46	72
	Minimum	12	27	50
	Maximum	29	59	82
	SD	4.06	6.83	6.27

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	3	460	491	521
1	6	461	488	527
1	7	463	486	549
1	8	462	480	507
1	9	460	488	521
1	10	463	476	518
1	27	460	488	521
2	1	463	491	518
2	11	472	491	510
2	12	461	491	518
2	13	463	491	518
2	14	463	491	518
2	15	463	491	518
3	4	468	504	529
3	16	468	491	518
3	17	465	491	514
3	18	464	491	514
3	19	462	480	521
3	20	463	484	514
4	2	461	484	505
4	21	455	477	505
4	22	463	484	507
4	23	463	487	514
4	24	463	487	512
4	25	459	470	491
4	26	463	491	518

Overall	Median	463	488	518
	Minimum	455	470	491
	Maximum	472	504	549
	SD	3.27	6.50	10.35

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	17	46	74
Median	2	22	50	72
Median	3	24.5	50	71.5
Median	4	22	41	65
Median	Overall	22	46	72
Minimum	1	15	33	65
Minimum	2	18	50	68
Minimum	3	19	38	71
Minimum	4	12	27	50
Minimum	Overall	12	27	50
Maximum	1	22	50	82
Maximum	2	29	50	72
Maximum	3	26	59	77
Maximum	4	22	50	72
Maximum	Overall	29	59	82
SD	1	2.69	5.67	5.05
SD	2	3.56	0.00	1.63
SD	3	2.73	7.51	2.42
SD	4	4.30	7.28	7.82
SD	Overall	4.06	6.83	6.27

Overall	Median	22	46	72
	Minimum	12	27	50
	Maximum	29	59	82
	SD	4.06	6.83	6.27

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	461	488	521
Median	2	463	491	518
Median	3	465	491	516
Median	4	463	484	507
Median	Overall	463	488	518
Minimum	1	460	476	507
Minimum	2	461	491	510
Minimum	3	462	480	514
Minimum	4	455	470	491
Minimum	Overall	455	470	491
Maximum	1	463	491	549
Maximum	2	472	491	518
Maximum	3	468	504	529
Maximum	4	463	491	518
Maximum	Overall	472	504	549
SD	1	1.38	5.31	12.80
SD	2	3.92	0.00	3.27
SD	3	2.53	8.18	5.96
SD	4	3.06	7.10	8.73
SD	Overall	3.27	6.50	10.35

Overall	Median	463	488	518
	Minimum	455	470	491
	Maximum	472	504	549
	SD	3.27	6.50	10.35

New York State Mathematics Standard Setting Grade 4 Mathematics
Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	17	46	74
2	22	50	72
3	24.5	50	71.5
4	22	41	65
Overall	22	46	72

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	14.8	24.3	34.9	26.0

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	14	25	47
1	15	11	27	46
1	16	11	32	49
1	17	17	43	52
1	18	14	25	47
1	19	7	16	45
1	20	8	30	49
2	1	18	34	54
2	2	11	25	46
2	3	10	22	50
2	4	22	45	59
2	5	10	30	46
2	6	19	32	53
3	21	17	32	55
3	22	20	37	56
3	23	10	47	53
3	24	14	30	49
3	25	17	37	48
3	26	6	34	49
4	7	20	33	47
4	8	20	37	56
4	9	21	34	56
4	10	20	30	47
4	11	18	37	56
4	12	19	36	52
4	13	20	37	53

Overall	Median	17	32.5	49.5
	Minimum	6	16	45
	Maximum	22	47	59
	SD	4.86	6.94	4.01

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	507	534	561
1	15	497	538	560
1	16	497	545	567
1	17	513	557	575
1	18	507	534	561
1	19	479	512	559
1	20	479	540	567
2	1	524	549	579
2	2	497	534	560
2	3	495	530	568
2	4	530	559	590
2	5	495	540	560
2	6	525	545	577
3	21	513	545	581
3	22	527	553	581
3	23	495	561	577
3	24	507	540	567
3	25	513	553	566
3	26	478	549	567
4	7	527	547	561
4	8	527	553	581
4	9	530	549	581
4	10	527	540	561
4	11	524	553	581
4	12	525	552	575
4	13	527	553	577

Overall	Median	513	545	567
	Minimum	478	512	559
	Maximum	530	561	590
	SD	16.91	10.65	9.24

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	11	27	47
Median	2	14.5	31	51.5
Median	3	15.5	35.5	51
Median	4	20	36	53
Median	Overall	17	32.5	49.5
Minimum	1	7	16	45
Minimum	2	10	22	46
Minimum	3	6	30	48
Minimum	4	18	30	47
Minimum	Overall	6	16	45
Maximum	1	17	43	52
Maximum	2	22	45	59
Maximum	3	20	47	56
Maximum	4	21	37	56
Maximum	Overall	22	47	59
SD	1	3.55	8.24	2.34
SD	2	5.29	8.04	5.05
SD	3	5.18	5.98	3.44
SD	4	0.95	2.67	4.04
SD	Overall	4.86	6.94	4.01

Overall	Median	17	32.5	49.5
	Minimum	6	16	45
	Maximum	22	47	59
	SD	4.86	6.94	4.01

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	497	538	561
Median	2	511	543	573
Median	3	510	551	572
Median	4	527	552	577
Median	Overall	513	545	567
Minimum	1	479	512	559
Minimum	2	495	530	560
Minimum	3	478	540	566
Minimum	4	524	540	561
Minimum	Overall	478	512	559
Maximum	1	513	557	575
Maximum	2	530	559	590
Maximum	3	527	561	581
Maximum	4	530	553	581
Maximum	Overall	530	561	590
SD	1	13.56	13.64	5.74
SD	2	16.94	10.53	11.84
SD	3	16.99	7.28	7.28
SD	4	1.89	4.83	9.08
SD	Overall	16.91	10.65	9.24

Overall	Median	513	545	567
	Minimum	478	512	559
	Maximum	530	561	590
	SD	16.91	10.65	9.24

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	11	27	47
2	14.5	31	51.5
3	15.5	35.5	51
4	20	36	53
Overall	17	32.5	49.5

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	13.7	29.5	29.4	27.4

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	11	25	47
1	15	11	26	46
1	16	11	27	48
1	17	11	27	47
1	18	11	25	47
1	19	11	21	46
1	20	8	25	47
2	1	18	35	54
2	2	21	33	50
2	3	17	27	52
2	4	20	44	55
2	5	18	30	53
2	6	20	32	53
3	21	17	36	53
3	22	17	37	53
3	23	17	35	53
3	24	17	35	56
3	25	17	37	53
3	26	17	36	53
4	7	20	35	56
4	8	20	35	56
4	9	20	34	56
4	10	20	35	56
4	11	20	37	56
4	12	20	37	56
4	13	20	37	56

Overall	Median	17	35	53
	Minimum	8	21	46
	Maximum	21	44	56
	SD	3.95	5.43	3.68

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	497	534	561
1	15	497	537	560
1	16	497	538	566
1	17	497	538	561
1	18	497	534	561
1	19	497	530	560
1	20	479	534	561
2	1	524	549	579
2	2	530	547	568
2	3	513	538	575
2	4	527	557	581
2	5	524	540	577
2	6	527	545	577
3	21	513	552	577
3	22	513	553	577
3	23	513	549	577
3	24	513	549	581
3	25	513	553	577
3	26	513	552	577
4	7	527	549	581
4	8	527	549	581
4	9	527	549	581
4	10	527	549	581
4	11	527	553	581
4	12	527	553	581
4	13	527	553	581

Overall	Median	513	549	577
	Minimum	479	530	560
	Maximum	530	557	581
	SD	13.92	7.87	8.43

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	11	25	47
Median	2	19	32.5	53
Median	3	17	36	53
Median	4	20	35	56
Median	Overall	17	35	53
Minimum	1	8	21	46
Minimum	2	17	27	50
Minimum	3	17	35	53
Minimum	4	20	34	56
Minimum	Overall	8	21	46
Maximum	1	11	27	48
Maximum	2	21	44	55
Maximum	3	17	37	56
Maximum	4	20	37	56
Maximum	Overall	21	44	56
SD	1	1.13	2.04	0.69
SD	2	1.55	5.82	1.72
SD	3	0.00	0.89	1.22
SD	4	0.00	1.25	0.00
SD	Overall	3.95	5.43	3.68

Overall	Median	17	35	53
	Minimum	8	21	46
	Maximum	21	44	56
	SD	3.95	5.43	3.68

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	497	534	561
Median	2	526	546	577
Median	3	513	552	577
Median	4	527	549	581
Median	Overall	513	549	577
Minimum	1	479	530	560
Minimum	2	513	538	568
Minimum	3	513	549	577
Minimum	4	527	549	581
Minimum	Overall	479	530	560
Maximum	1	497	538	566
Maximum	2	530	557	581
Maximum	3	513	553	581
Maximum	4	527	553	581
Maximum	Overall	530	557	581
SD	1	6.80	2.89	2.07
SD	2	5.91	6.81	4.49
SD	3	0.00	1.86	1.63
SD	4	0.00	2.14	0.00
SD	Overall	13.92	7.87	8.43

Overall	Median	513	549	577
	Minimum	479	530	560
	Maximum	530	557	581
	SD	13.92	7.87	8.43

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	11	25	47
2	19	32.5	53
3	17	36	53
4	20	35	56
Overall	17	35	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	13.7	36.2	31.0	19.1

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	11	25	47
1	15	11	26	46
1	16	11	27	48
1	17	11	32	47
1	18	11	25	47
1	19	11	21	46
1	20	8	25	47
2	1	18	35	54
2	2	21	29	50
2	3	17	27	52
2	4	20	44	55
2	5	18	30	53
2	6	20	32	53
3	21	17	32	53
3	22	17	32	53
3	23	13	30	53
3	24	17	32	53
3	25	17	32	53
3	26	17	32	53
4	7	15	27	47
4	8	15	31	56
4	9	19	35	56
4	10	20	32	56
4	11	17	35	47
4	12	20	37	53
4	13	20	37	53

Overall	Median	17	32	53
	Minimum	8	21	46
	Maximum	21	44	56
	SD	3.76	4.83	3.44

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	497	534	561
1	15	497	537	560
1	16	497	538	566
1	17	497	545	561
1	18	497	534	561
1	19	497	530	560
1	20	479	534	561
2	1	524	549	579
2	2	530	538	568
2	3	513	538	575
2	4	527	557	581
2	5	524	540	577
2	6	527	545	577
3	21	513	545	577
3	22	513	545	577
3	23	507	540	577
3	24	513	545	577
3	25	513	545	577
3	26	513	545	577
4	7	510	538	561
4	8	510	544	581
4	9	525	549	581
4	10	527	545	581
4	11	513	549	561
4	12	527	553	577
4	13	527	553	577

Overall	Median	513	545	577
	Minimum	479	530	560
	Maximum	530	557	581
	SD	13.13	6.71	8.34

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	11	25	47
Median	2	19	31	53
Median	3	17	32	53
Median	4	19	35	53
Median	Overall	17	32	53
Minimum	1	8	21	46
Minimum	2	17	27	50
Minimum	3	13	30	53
Minimum	4	15	27	47
Minimum	Overall	8	21	46
Maximum	1	11	32	48
Maximum	2	21	44	55
Maximum	3	17	32	53
Maximum	4	20	37	56
Maximum	Overall	21	44	56
SD	1	1.13	3.29	0.69
SD	2	1.55	6.11	1.72
SD	3	1.63	0.82	0.00
SD	4	2.31	3.64	4.04
SD	Overall	3.76	4.83	3.44

Overall	Median	17	32	53
	Minimum	8	21	46
	Maximum	21	44	56
	SD	3.76	4.83	3.44

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	497	534	561
Median	2	526	543	577
Median	3	513	545	577
Median	4	525	549	577
Median	Overall	513	545	577
Minimum	1	479	530	560
Minimum	2	513	538	568
Minimum	3	507	540	577
Minimum	4	510	538	561
Minimum	Overall	479	530	560
Maximum	1	497	545	566
Maximum	2	530	557	581
Maximum	3	513	545	577
Maximum	4	527	553	581
Maximum	Overall	530	557	581
SD	1	6.80	4.73	2.07
SD	2	5.91	7.50	4.49
SD	3	2.45	2.04	0.00
SD	4	8.38	5.38	9.15
SD	Overall	13.13	6.71	8.34

Overall	Median	513	545	577
	Minimum	479	530	560
	Maximum	530	557	581
	SD	13.13	6.71	8.34

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	11	25	47
2	19	31	53
3	17	32	53
4	19	35	53
Overall	17	32	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	13.7	29.5	37.6	19.2

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 4 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	17	32	53
1	15	14	32	49
1	16	17	33	53
1	17	17	32	49
1	18	17	30	49
1	19	11	21	46
1	20	8	27	49
2	1	18	34	54
2	2	20	34	50
2	3	20	32	53
2	4	20	44	54
2	5	20	35	53
2	6	20	32	53
3	21	17	36	53
3	22	20	37	53
3	23	14	30	53
3	24	17	35	53
3	25	20	37	53
3	26	17	35	53
4	7	20	33	53
4	8	20	35	56
4	9	20	36	56
4	10	17	35	53
4	11	17	35	53
4	12	20	37	53
4	13	20	37	53

Overall	Median	17.5	34.5	53
	Minimum	8	21	46
	Maximum	20	44	56
	SD	3.06	4.10	2.28

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 4 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	14	513	545	577
1	15	507	545	567
1	16	513	547	577
1	17	513	545	567
1	18	513	540	567
1	19	497	530	560
1	20	479	538	567
2	1	524	549	579
2	2	527	549	568
2	3	527	545	577
2	4	527	557	579
2	5	527	549	577
2	6	527	545	577
3	21	513	552	577
3	22	527	553	577
3	23	507	540	577
3	24	513	549	577
3	25	527	553	577
3	26	513	549	577
4	7	527	547	577
4	8	527	549	581
4	9	527	552	581
4	10	513	549	577
4	11	513	549	577
4	12	527	553	577
4	13	527	553	577

Overall	Median	513	549	577
	Minimum	479	530	560
	Maximum	527	557	581
	SD	11.55	5.88	5.38

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 4 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	17	32	49
Median	2	20	34	53
Median	3	17	35.5	53
Median	4	20	35	53
Median	Overall	17.5	34.5	53
Minimum	1	8	21	46
Minimum	2	18	32	50
Minimum	3	14	30	53
Minimum	4	17	33	53
Minimum	Overall	8	21	46
Maximum	1	17	33	53
Maximum	2	20	44	54
Maximum	3	20	37	53
Maximum	4	20	37	56
Maximum	Overall	20	44	56
SD	1	3.64	4.28	2.50
SD	2	0.82	4.49	1.47
SD	3	2.26	2.61	0.00
SD	4	1.46	1.40	1.46
SD	Overall	3.06	4.10	2.28

Overall	Median	17.5	34.5	53
	Minimum	8	21	46
	Maximum	20	44	56
	SD	3.06	4.10	2.28

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 4 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	513	545	567
Median	2	527	549	577
Median	3	513	551	577
Median	4	527	549	577
Median	Overall	513	549	577
Minimum	1	479	530	560
Minimum	2	524	545	568
Minimum	3	507	540	577
Minimum	4	513	547	577
Minimum	Overall	479	530	560
Maximum	1	513	547	577
Maximum	2	527	557	579
Maximum	3	527	553	577
Maximum	4	527	553	581
Maximum	Overall	527	557	581
SD	1	12.91	5.97	6.12
SD	2	1.22	4.38	4.12
SD	3	8.33	4.93	0.00
SD	4	6.83	2.36	1.95
SD	Overall	11.55	5.88	5.38

Overall	Median	513	549	577
	Minimum	479	530	560
	Maximum	527	557	581
	SD	11.55	5.88	5.38

New York State Mathematics Standard Setting Grade 5 Mathematics
Round 4 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	17	32	49
2	20	34	53
3	17	35.5	53
4	20	35	53
Overall	17.5	34.5	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	13.7	36.2	31.0	19.1

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	16	24	45
1	20	16	44	51
1	21	16	32	58
1	22	17	35	57
1	23	15	45	59
1	24	12	32	45
1	28	19	31	51
2	4	15	33	52
2	14	8	19	47
2	15	16	25	47
2	16	15	22	49
2	17	17	47	54
2	18	16	40	57
3	3	17	35	58
3	8	17	32	50
3	9	19	40	56
3	10	16	33	47
3	11	15	24	49
3	12	17	33	45
4	2	16	33	66
4	7	23	39	62
4	13	18	27	60
4	19	16	40	54
4	25	21	35	55
4	26	14	35	49
4	27	13	36	56

Overall	Median	16	33	53
	Minimum	8	19	45
	Maximum	23	47	66
	SD	2.81	7.07	5.68

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	581	593	617
1	20	581	615	629
1	21	581	603	636
1	22	585	605	634
1	23	578	617	636
1	24	572	603	617
1	28	588	601	629
2	4	578	603	629
2	14	564	588	620
2	15	581	593	620
2	16	578	592	623
2	17	585	620	632
2	18	581	609	634
3	3	585	605	636
3	8	585	603	628
3	9	588	609	634
3	10	581	603	620
3	11	578	593	623
3	12	585	603	617
4	2	581	603	657
4	7	592	608	641
4	13	587	596	636
4	19	581	609	632
4	25	590	605	632
4	26	578	605	623
4	27	575	605	634

Overall	Median	581	603	630
	Minimum	564	588	617
	Maximum	592	620	657
	SD	5.86	7.65	9.16

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	16	32	51
Median	2	15.5	29	50.5
Median	3	17	33	49.5
Median	4	16	35	56
Median	Overall	16	33	53
Minimum	1	12	24	45
Minimum	2	8	19	47
Minimum	3	15	24	45
Minimum	4	13	27	49
Minimum	Overall	8	19	45
Maximum	1	19	45	59
Maximum	2	17	47	57
Maximum	3	19	40	58
Maximum	4	23	40	66
Maximum	Overall	23	47	66
SD	1	2.12	7.48	5.91
SD	2	3.27	10.97	4.05
SD	3	1.33	5.19	5.12
SD	4	3.64	4.28	5.65
SD	Overall	2.81	7.07	5.68

Overall	Median	16	33	53
	Minimum	8	19	45
	Maximum	23	47	66
	SD	2.81	7.07	5.68

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	581	603	629
Median	2	580	598	626
Median	3	585	603	626
Median	4	581	605	634
Median	Overall	581	603	630
Minimum	1	572	593	617
Minimum	2	564	588	620
Minimum	3	578	593	617
Minimum	4	575	596	623
Minimum	Overall	564	588	617
Maximum	1	588	617	636
Maximum	2	585	620	634
Maximum	3	588	609	636
Maximum	4	592	609	657
Maximum	Overall	592	620	657
SD	1	5.08	8.28	8.24
SD	2	7.25	12.19	6.15
SD	3	3.56	5.28	7.66
SD	4	6.35	4.24	10.56
SD	Overall	5.86	7.65	9.16

Overall	Median	581	603	630
	Minimum	564	588	617
	Maximum	592	620	657
	SD	5.86	7.65	9.16

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	16	32	51
2	15.5	29	50.5
3	17	33	49.5
4	16	35	56
Overall	16	33	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	29.4	24.4	30.1	16.1

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	16	35	49
1	20	14	32	48
1	21	16	34	58
1	22	16	34	56
1	23	15	33	59
1	24	16	34	49
1	28	16	34	55
2	4	15	32	54
2	14	17	25	47
2	15	16	25	47
2	16	15	24	56
2	17	15	27	53
2	18	15	34	56
3	3	9	35	60
3	8	19	35	60
3	9	19	35	60
3	10	19	35	60
3	11	19	35	60
3	12	19	35	60
4	2	19	35	60
4	7	19	35	58
4	13	19	35	56
4	19	19	35	56
4	25	19	35	55
4	26	19	35	56
4	27	19	36	57

Overall	Median	16.5	35	56
	Minimum	9	24	47
	Maximum	19	36	60
	SD	2.42	3.54	4.31

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	581	605	623
1	20	578	603	622
1	21	581	604	636
1	22	581	604	634
1	23	578	603	636
1	24	581	604	623
1	28	581	604	632
2	4	578	603	632
2	14	585	593	620
2	15	581	593	620
2	16	578	593	634
2	17	578	596	630
2	18	578	604	634
3	3	564	605	636
3	8	588	605	636
3	9	588	605	636
3	10	588	605	636
3	11	588	605	636
3	12	588	605	636
4	2	588	605	636
4	7	588	605	636
4	13	588	605	634
4	19	588	605	634
4	25	588	605	632
4	26	588	605	634
4	27	588	605	634

Overall	Median	581	605	634
	Minimum	564	593	620
	Maximum	588	605	636
	SD	5.76	4.01	5.53

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	16	34	55
Median	2	15	26	53.5
Median	3	19	35	60
Median	4	19	35	56
Median	Overall	16.5	35	56
Minimum	1	14	32	48
Minimum	2	15	24	47
Minimum	3	9	35	60
Minimum	4	19	35	55
Minimum	Overall	9	24	47
Maximum	1	16	35	59
Maximum	2	17	34	56
Maximum	3	19	35	60
Maximum	4	19	36	60
Maximum	Overall	19	36	60
SD	1	0.79	0.95	4.65
SD	2	0.84	4.17	4.17
SD	3	4.08	0.00	0.00
SD	4	0.00	0.38	1.68
SD	Overall	2.42	3.54	4.31

Overall	Median	16.5	35	56
	Minimum	9	24	47
	Maximum	19	36	60
	SD	2.42	3.54	4.31

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	581	604	632
Median	2	578	595	631
Median	3	588	605	636
Median	4	588	605	634
Median	Overall	581	605	634
Minimum	1	578	603	622
Minimum	2	578	593	620
Minimum	3	564	605	636
Minimum	4	588	605	632
Minimum	Overall	564	593	620
Maximum	1	581	605	636
Maximum	2	585	604	634
Maximum	3	588	605	636
Maximum	4	588	605	636
Maximum	Overall	588	605	636
SD	1	1.46	0.69	6.48
SD	2	2.88	5.18	6.62
SD	3	9.80	0.00	0.00
SD	4	0.00	0.00	1.38
SD	Overall	5.76	4.01	5.53

Overall	Median	581	605	634
	Minimum	564	593	620
	Maximum	588	605	636
	SD	5.76	4.01	5.53

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	16	34	55
2	15	26	53.5
3	19	35	60
4	19	35	56
Overall	16.5	35	56

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	29.4	27.4	30.0	13.2

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	9	21	45
1	20	14	29	44
1	21	16	34	58
1	22	16	34	56
1	23	15	33	59
1	24	14	29	45
1	28	14	27	52
2	4	14	32	55
2	14	17	28	49
2	15	16	25	52
2	16	16	25	57
2	17	15	29	53
2	18	15	35	56
3	3	7	35	58
3	8	18	35	58
3	9	19	35	60
3	10	16	33	56
3	11	17	35	60
3	12	16	35	58
4	2	19	35	59
4	7	19	36	58
4	13	19	35	56
4	19	19	35	56
4	25	17	35	55
4	26	16	35	52
4	27	19	36	58

Overall	Median	16	34.5	56
	Minimum	7	21	44
	Maximum	19	36	60
	SD	2.89	4.13	4.61

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	564	590	617
1	20	578	599	615
1	21	581	604	636
1	22	581	604	634
1	23	578	603	636
1	24	578	599	617
1	28	578	596	629
2	4	578	603	632
2	14	585	597	623
2	15	581	593	629
2	16	581	593	634
2	17	578	599	630
2	18	578	605	634
3	3	564	605	636
3	8	587	605	636
3	9	588	605	636
3	10	581	603	634
3	11	585	605	636
3	12	581	605	636
4	2	588	605	636
4	7	588	605	636
4	13	588	605	634
4	19	588	605	634
4	25	585	605	632
4	26	581	605	629
4	27	588	605	636

Overall	Median	581	604	634
	Minimum	564	590	615
	Maximum	588	605	636
	SD	6.38	4.50	6.43

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	14	29	52
Median	2	15.5	28.5	54
Median	3	16.5	35	58
Median	4	19	35	56
Median	Overall	16	34.5	56
Minimum	1	9	21	44
Minimum	2	14	25	49
Minimum	3	7	33	56
Minimum	4	16	35	52
Minimum	Overall	7	21	44
Maximum	1	16	34	59
Maximum	2	17	35	57
Maximum	3	19	35	60
Maximum	4	19	36	59
Maximum	Overall	19	36	60
SD	1	2.38	4.69	6.58
SD	2	1.05	3.95	2.94
SD	3	4.32	0.82	1.51
SD	4	1.25	0.49	2.36
SD	Overall	2.89	4.13	4.61

Overall	Median	16	34.5	56
	Minimum	7	21	44
	Maximum	19	36	60
	SD	2.89	4.13	4.61

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	578	599	629
Median	2	580	598	631
Median	3	583	605	636
Median	4	588	605	634
Median	Overall	581	604	634
Minimum	1	564	590	615
Minimum	2	578	593	623
Minimum	3	564	603	634
Minimum	4	581	605	629
Minimum	Overall	564	590	615
Maximum	1	581	604	636
Maximum	2	585	605	634
Maximum	3	588	605	636
Maximum	4	588	605	636
Maximum	Overall	588	605	636
SD	1	5.84	5.09	9.62
SD	2	2.79	5.01	4.13
SD	3	8.83	0.82	0.82
SD	4	2.70	0.00	2.61
SD	Overall	6.38	4.50	6.43

Overall	Median	581	604	634
	Minimum	564	590	615
	Maximum	588	605	636
	SD	6.38	4.50	6.43

New York State Mathematics Standard Setting Grade 6 Mathematics
Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	14	29	52
2	15.5	28.5	54
3	16.5	35	58
4	19	35	56
Overall	16	34.5	56

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	29.4	27.4	30.0	13.2

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	17	40	54
1	2	15	31	55
1	3	15	28	52
1	4	10	26	47
1	5	17	40	52
1	25	17	30	50
2	6	14	33	54
2	7	14	31	57
2	8	15	33	50
2	9	12	28	54
2	10	18	31	55
2	11	10	30	43
2	26	17	40	58
3	12	25	40	53
3	13	12	30	61
3	14	9	27	51
3	15	20	34	47
3	16	13	31	53
3	17	16	39	54
3	24	15	33	47
4	18	13	31	53
4	19	11	28	54
4	20	13	31	51
4	21	20	45	56
4	22	16	32	51
4	23	14	22	52

Overall	Median	15	31	53
	Minimum	9	22	43
	Maximum	25	45	61
	SD	3.53	5.30	3.80

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	635	671	691
1	2	628	654	693
1	3	628	653	681
1	4	614	652	676
1	5	635	671	681
1	25	635	654	680
2	6	626	660	691
2	7	626	654	694
2	8	628	660	680
2	9	614	653	691
2	10	638	654	693
2	11	614	654	676
2	26	635	671	698
3	12	650	671	683
3	13	614	654	708
3	14	612	652	680
3	15	640	660	676
3	16	617	654	683
3	17	632	669	691
3	24	628	660	676
4	18	617	654	683
4	19	614	653	691
4	20	617	654	680
4	21	640	676	693
4	22	632	658	680
4	23	626	644	681

Overall	Median	628	654	683
	Minimum	612	644	676
	Maximum	650	676	708
	SD	10.43	8.15	8.14

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	16	30.5	52
Median	2	14	31	54
Median	3	15	33	53
Median	4	13.5	31	52.5
Median	Overall	15	31	53
Minimum	1	10	26	47
Minimum	2	10	28	43
Minimum	3	9	27	47
Minimum	4	11	22	51
Minimum	Overall	9	22	43
Maximum	1	17	40	55
Maximum	2	18	40	58
Maximum	3	25	40	61
Maximum	4	20	45	56
Maximum	Overall	25	45	61
SD	1	2.71	6.06	2.88
SD	2	2.75	3.82	5.10
SD	3	5.35	4.72	4.79
SD	4	3.15	7.56	1.94
SD	Overall	3.53	5.30	3.80

Overall	Median	15	31	53
	Minimum	9	22	43
	Maximum	25	45	61
	SD	3.53	5.30	3.80

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	632	654	681
Median	2	626	654	691
Median	3	628	660	683
Median	4	622	654	682
Median	Overall	628	654	683
Minimum	1	614	652	676
Minimum	2	614	653	676
Minimum	3	612	652	676
Minimum	4	614	644	680
Minimum	Overall	612	644	676
Maximum	1	635	671	693
Maximum	2	638	671	698
Maximum	3	650	671	708
Maximum	4	640	676	693
Maximum	Overall	650	676	708
SD	1	8.18	9.20	6.74
SD	2	9.28	6.45	7.96
SD	3	14.23	7.51	11.25
SD	4	10.21	10.62	5.82
SD	Overall	10.43	8.15	8.14

Overall	Median	628	654	683
	Minimum	612	644	676
	Maximum	650	676	708
	SD	10.43	8.15	8.14

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	16	30.5	52
2	14	31	54
3	15	33	53
4	13.5	31	52.5
Overall	15	31	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	28.7	28.9	30.2	12.2

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	15	40	52
1	2	15	31	52
1	3	15	30	52
1	4	15	29	52
1	5	15	30	52
1	25	15	31	52
2	6	14	33	54
2	8	18	33	54
2	9	12	28	54
2	10	17	31	54
2	11	14	30	51
2	26	17	37	55
3	12	22	39	53
3	13	12	27	51
3	14	13	27	51
3	15	20	38	52
3	16	13	31	54
3	17	15	40	54
3	24	12	32	55
4	18	13	28	53
4	19	13	28	53
4	20	13	31	53
4	21	10	30	51
4	22	13	32	53
4	23	13	29	52

Overall	Median	14	31	53
	Minimum	10	27	51
	Maximum	22	40	55
	SD	2.65	3.96	1.23

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	628	671	681
1	2	628	654	681
1	3	628	654	681
1	4	628	653	681
1	5	628	654	681
1	25	628	654	681
2	6	626	660	691
2	8	638	660	691
2	9	614	653	691
2	10	635	654	691
2	11	626	654	680
2	26	635	666	693
3	12	644	669	683
3	13	614	652	680
3	14	617	652	680
3	15	640	668	681
3	16	617	654	691
3	17	628	671	691
3	24	614	658	693
4	18	617	653	683
4	19	617	653	683
4	20	617	654	683
4	21	614	654	680
4	22	617	658	683
4	23	617	653	681

Overall	Median	626	654	683
	Minimum	614	652	680
	Maximum	644	671	693
	SD	9.11	6.45	4.95

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	15	30.5	52
Median	2	15.5	32	54
Median	3	13	32	53
Median	4	13	29.5	53
Median	Overall	14	31	53
Minimum	1	15	29	52
Minimum	2	12	28	51
Minimum	3	12	27	51
Minimum	4	10	28	51
Minimum	Overall	10	27	51
Maximum	1	15	40	52
Maximum	2	18	37	55
Maximum	3	22	40	55
Maximum	4	13	32	53
Maximum	Overall	22	40	55
SD	1	0.00	4.07	0.00
SD	2	2.34	3.10	1.37
SD	3	4.07	5.56	1.57
SD	4	1.22	1.63	0.84
SD	Overall	2.65	3.96	1.23

Overall	Median	14	31	53
	Minimum	10	27	51
	Maximum	22	40	55
	SD	2.65	3.96	1.23

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	628	654	681
Median	2	631	657	691
Median	3	617	658	683
Median	4	617	654	683
Median	Overall	626	654	683
Minimum	1	628	653	681
Minimum	2	614	653	680
Minimum	3	614	652	680
Minimum	4	614	653	680
Minimum	Overall	614	652	680
Maximum	1	628	671	681
Maximum	2	638	666	693
Maximum	3	644	671	693
Maximum	4	617	658	683
Maximum	Overall	644	671	693
SD	1	0.00	7.03	0.00
SD	2	8.90	5.08	4.72
SD	3	12.68	8.48	5.83
SD	4	1.22	1.94	1.33
SD	Overall	9.11	6.45	4.95

Overall	Median	626	654	683
	Minimum	614	652	680
	Maximum	644	671	693
	SD	9.11	6.45	4.95

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	15	30.5	52
2	15.5	32	54
3	13	32	53
4	13	29.5	53
Overall	14	31	53

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	25.8	31.8	30.2	12.2

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	13	31	52
1	2	15	28	52
1	3	15	28	52
1	4	13	27	47
1	5	15	30	52
1	25	15	30	51
2	6	13	31	53
2	7	13	27	51
2	8	15	28	50
2	9	12	28	54
2	10	17	31	54
2	11	10	30	51
2	26	17	33	58
3	12	21	35	53
3	13	9	27	51
3	14	13	27	51
3	15	16	34	54
3	16	13	28	52
3	17	12	32	54
3	24	13	27	53
4	18	13	28	53
4	19	12	27	53
4	20	13	28	53
4	21	14	30	51
4	22	13	28	53
4	23	12	27	51

Overall	Median	13	28	52
	Minimum	9	27	47
	Maximum	21	35	58
	SD	2.38	2.34	1.93

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	1	617	654	681
1	2	628	653	681
1	3	628	653	681
1	4	617	652	676
1	5	628	654	681
1	25	628	654	680
2	6	617	654	683
2	7	617	652	680
2	8	628	653	680
2	9	614	653	691
2	10	635	654	691
2	11	614	654	680
2	26	635	660	698
3	12	640	661	683
3	13	612	652	680
3	14	617	652	680
3	15	632	660	691
3	16	617	653	681
3	17	614	658	691
3	24	617	652	683
4	18	617	653	683
4	19	614	652	683
4	20	617	653	683
4	21	626	654	680
4	22	617	653	683
4	23	614	652	680

Overall	Median	617	653	681
	Minimum	612	652	676
	Maximum	640	661	698
	SD	8.22	2.73	4.95

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	15	29	52
Median	2	13	30	53
Median	3	13	28	53
Median	4	13	28	53
Median	Overall	13	28	52
Minimum	1	13	27	47
Minimum	2	10	27	50
Minimum	3	9	27	51
Minimum	4	12	27	51
Minimum	Overall	9	27	47
Maximum	1	15	31	52
Maximum	2	17	33	58
Maximum	3	21	35	54
Maximum	4	14	30	53
Maximum	Overall	21	35	58
SD	1	1.03	1.55	2.00
SD	2	2.61	2.14	2.71
SD	3	3.76	3.56	1.27
SD	4	0.75	1.10	1.03
SD	Overall	2.38	2.34	1.93

Overall	Median	13	28	52
	Minimum	9	27	47
	Maximum	21	35	58
	SD	2.38	2.34	1.93

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	628	654	681
Median	2	617	654	683
Median	3	617	653	683
Median	4	617	653	683
Median	Overall	617	653	681
Minimum	1	617	652	676
Minimum	2	614	652	680
Minimum	3	612	652	680
Minimum	4	614	652	680
Minimum	Overall	612	652	676
Maximum	1	628	654	681
Maximum	2	635	660	698
Maximum	3	640	661	691
Maximum	4	626	654	683
Maximum	Overall	640	661	698
SD	1	5.68	0.82	2.00
SD	2	9.55	2.63	7.20
SD	3	10.48	4.08	4.85
SD	4	4.42	0.75	1.55
SD	Overall	8.22	2.73	4.95

Overall	Median	617	653	681
	Minimum	612	652	676
	Maximum	640	661	698
	SD	8.22	2.73	4.95

New York State Mathematics Standard Setting Grade 7 Mathematics
Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	15	29	52
2	13	30	53
3	13	28	53
4	13	28	53
Overall	13	28	52

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	17.8	39.8	27.0	15.4

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 1 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	16	33	64
1	6	21	43	73
1	7	8	33	67
1	8	10	34	45
1	9	13	47	73
1	10	13	35	57
2	3	16	44	79
2	11	24	53	72
2	12	15	41	78
2	13	21	56	79
2	14	21	59	76
2	15	16	41	62
2	16	25	38	76
3	2	29	53	79
3	17	21	47	77
3	23	28	60	68
3	24	41	68	79
3	25	32	63	77
3	26	9	35	79
3	27	12	41	73
4	1	25	40	65
4	18	16	45	72
4	19	19	40	70
4	20	13	49	63
4	21	46	69	79
4	22	16	41	54

Overall	Median	17.5	43.5	73
	Minimum	8	33	45
	Maximum	46	69	79
	SD	9.29	10.67	8.90

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 1 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	688	696	719
1	6	692	705	729
1	7	671	696	722
1	8	675	696	706
1	9	680	707	729
1	10	680	699	714
2	3	688	706	738
2	11	692	711	728
2	12	685	704	737
2	13	692	713	738
2	14	692	716	730
2	15	688	704	717
2	16	693	702	730
3	2	694	711	738
3	17	692	707	731
3	23	694	716	722
3	24	704	722	738
3	25	696	717	731
3	26	671	699	738
3	27	679	704	729
4	1	693	702	719
4	18	688	706	728
4	19	690	702	727
4	20	680	708	717
4	21	707	725	738
4	22	688	704	713

Overall	Median	688	705	729
	Minimum	671	696	706
	Maximum	707	725	738
	SD	8.81	7.73	8.94

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	13	34.5	65.5
Median	2	21	44	76
Median	3	28	53	77
Median	4	17.5	43	67.5
Median	Overall	17.5	43.5	73
Minimum	1	8	33	45
Minimum	2	15	38	62
Minimum	3	9	35	68
Minimum	4	13	40	54
Minimum	Overall	8	33	45
Maximum	1	21	47	73
Maximum	2	25	59	79
Maximum	3	41	68	79
Maximum	4	46	69	79
Maximum	Overall	46	69	79
SD	1	4.59	5.99	10.74
SD	2	4.07	8.38	6.05
SD	3	11.33	12.08	4.12
SD	4	12.21	11.18	8.57
SD	Overall	9.29	10.67	8.90

Overall	Median	17.5	43.5	73
	Minimum	8	33	45
	Maximum	46	69	79
	SD	9.29	10.67	8.90

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	680	698	721
Median	2	692	706	730
Median	3	694	711	731
Median	4	689	705	723
Median	Overall	688	705	729
Minimum	1	671	696	706
Minimum	2	685	702	717
Minimum	3	671	699	722
Minimum	4	680	702	713
Minimum	Overall	671	696	706
Maximum	1	692	707	729
Maximum	2	693	716	738
Maximum	3	704	722	738
Maximum	4	707	725	738
Maximum	Overall	707	725	738
SD	1	7.85	4.96	8.93
SD	2	3.00	5.32	7.54
SD	3	11.18	8.07	6.02
SD	4	8.94	8.73	9.11
SD	Overall	8.81	7.73	8.94

Overall	Median	688	705	729
	Minimum	671	696	706
	Maximum	707	725	738
	SD	8.81	7.73	8.94

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 1 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	13	34.5	65.5
2	21	44	76
3	28	53	77
4	17.5	43	67.5
Overall	17.5	43.5	73

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	34.5	21.5	25.7	18.3

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 2 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	13	38	67
1	6	13	38	67
1	7	13	33	67
1	8	13	38	67
1	9	13	42	68
1	10	13	38	67
2	3	17	46	79
2	11	24	46	72
2	12	21	49	74
2	13	21	41	79
2	14	21	45	75
2	15	16	41	74
2	16	25	41	76
3	2	29	53	77
3	17	20	41	77
3	23	28	56	72
3	24	41	68	79
3	25	33	67	79
3	26	14	41	79
3	27	14	45	74
4	1	15	41	70
4	18	15	43	71
4	19	15	41	71
4	20	15	43	71
4	21	15	43	71
4	22	15	43	71

Overall	Median	15	42.5	72
	Minimum	13	33	67
	Maximum	41	68	79
	SD	7.24	8.22	4.31

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 2 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	680	702	722
1	6	680	702	722
1	7	680	696	722
1	8	680	702	722
1	9	680	704	722
1	10	680	702	722
2	3	688	707	738
2	11	692	707	728
2	12	692	708	729
2	13	692	704	738
2	14	692	706	730
2	15	688	704	729
2	16	693	704	730
3	2	694	711	731
3	17	691	704	731
3	23	694	713	728
3	24	704	722	738
3	25	696	722	738
3	26	681	704	738
3	27	681	706	729
4	1	685	704	727
4	18	685	705	728
4	19	685	704	728
4	20	685	705	728
4	21	685	705	728
4	22	685	705	728

Overall	Median	685	704	728
	Minimum	680	696	722
	Maximum	704	722	738
	SD	6.41	5.74	5.24

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	13	38	67
Median	2	21	45	75
Median	3	28	53	77
Median	4	15	43	71
Median	Overall	15	42.5	72
Minimum	1	13	33	67
Minimum	2	16	41	72
Minimum	3	14	41	72
Minimum	4	15	41	70
Minimum	Overall	13	33	67
Maximum	1	13	42	68
Maximum	2	25	49	79
Maximum	3	41	68	79
Maximum	4	15	43	71
Maximum	Overall	41	68	79
SD	1	0.00	2.86	0.41
SD	2	3.30	3.18	2.64
SD	3	10.08	11.42	2.75
SD	4	0.00	1.03	0.41
SD	Overall	7.24	8.22	4.31

Overall	Median	15	42.5	72
	Minimum	13	33	67
	Maximum	41	68	79
	SD	7.24	8.22	4.31

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	680	702	722
Median	2	692	706	730
Median	3	694	711	731
Median	4	685	705	728
Median	Overall	685	704	728
Minimum	1	680	696	722
Minimum	2	688	704	728
Minimum	3	681	704	728
Minimum	4	685	704	727
Minimum	Overall	680	696	722
Maximum	1	680	704	722
Maximum	2	693	708	738
Maximum	3	704	722	738
Maximum	4	685	705	728
Maximum	Overall	704	722	738
SD	1	0.00	2.73	0.00
SD	2	2.08	1.70	4.35
SD	3	8.26	7.80	4.54
SD	4	0.00	0.52	0.41
SD	Overall	6.41	5.74	5.24

Overall	Median	685	704	728
	Minimum	680	696	722
	Maximum	704	722	738
	SD	6.41	5.74	5.24

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 2 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	13	38	67
2	21	45	75
3	28	53	77
4	15	43	71
Overall	15	42.5	72

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	31.2	24.8	25.7	18.3

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 3 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	14	38	70
1	6	16	40	73
1	7	13	33	68
1	8	13	37	67
1	9	13	42	73
1	10	18	39	67
2	3	16	46	84
2	11	21	40	72
2	12	21	41	72
2	13	13	38	76
2	14	21	41	76
2	15	21	41	73
2	16	21	41	76
3	2	18	47	77
3	17	13	33	77
3	23	25	56	70
3	24	24	59	77
3	25	21	48	76
3	26	15	42	79
3	27	13	41	74
4	1	13	38	70
4	18	13	42	77
4	19	13	39	74
4	20	13	40	77
4	21	15	43	72
4	22	15	40	77

Overall	Median	15	41	74
	Minimum	13	33	67
	Maximum	25	59	84
	SD	3.95	5.78	3.96

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 3 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	681	702	727
1	6	688	702	729
1	7	680	696	722
1	8	680	700	722
1	9	680	704	729
1	10	689	702	722
2	3	688	707	752
2	11	692	702	728
2	12	692	704	728
2	13	680	702	730
2	14	692	704	730
2	15	692	704	729
2	16	692	704	730
3	2	689	707	731
3	17	680	696	731
3	23	693	713	727
3	24	692	716	731
3	25	692	708	730
3	26	685	704	738
3	27	680	704	729
4	1	680	702	727
4	18	680	704	731
4	19	680	702	729
4	20	680	702	731
4	21	685	705	728
4	22	685	702	731

Overall	Median	685	704	729
	Minimum	680	696	722
	Maximum	693	716	752
	SD	5.46	4.26	5.63

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	13.5	38.5	69
Median	2	21	41	76
Median	3	18	47	77
Median	4	13	40	75.5
Median	Overall	15	41	74
Minimum	1	13	33	67
Minimum	2	13	38	72
Minimum	3	13	33	70
Minimum	4	13	38	70
Minimum	Overall	13	33	67
Maximum	1	18	42	73
Maximum	2	21	46	84
Maximum	3	25	59	79
Maximum	4	15	43	77
Maximum	Overall	25	59	84
SD	1	2.07	3.06	2.80
SD	2	3.29	2.41	4.16
SD	3	5.03	8.96	2.93
SD	4	1.03	1.86	3.02
SD	Overall	3.95	5.78	3.96

Overall	Median	15	41	74
	Minimum	13	33	67
	Maximum	25	59	84
	SD	3.95	5.78	3.96

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	681	702	725
Median	2	692	704	730
Median	3	689	707	731
Median	4	680	702	730
Median	Overall	685	704	729
Minimum	1	680	696	722
Minimum	2	680	702	728
Minimum	3	680	696	727
Minimum	4	680	702	727
Minimum	Overall	680	696	722
Maximum	1	689	704	729
Maximum	2	692	707	752
Maximum	3	693	716	738
Maximum	4	685	705	731
Maximum	Overall	693	716	752
SD	1	4.29	2.76	3.54
SD	2	4.54	1.68	8.68
SD	3	5.65	6.54	3.42
SD	4	2.58	1.33	1.76
SD	Overall	5.46	4.26	5.63

Overall	Median	685	704	729
	Minimum	680	696	722
	Maximum	693	716	752
	SD	5.46	4.26	5.63

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 3 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	13.5	38.5	69
2	21	41	76
3	18	47	77
4	13	40	75.5
Overall	15	41	74

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	31.2	24.8	25.7	18.3

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 4 Bookmark Placements

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	14	40	72
1	6	14	40	73
1	7	13	33	68
1	8	13	34	68
1	9	13	39	73
1	10	13	37	67
2	3	16	41	79
2	11	16	38	72
2	12	16	37	76
2	13	13	38	76
2	14	14	38	77
2	15	16	41	79
2	16	16	41	76
3	2	14	40	77
3	17	13	33	77
3	23	15	56	70
3	24	20	53	77
3	25	19	41	77
3	26	13	41	79
3	27	13	37	74
4	1	13	37	75
4	18	13	37	77
4	19	13	37	77
4	20	13	37	77
4	21	15	35	73
4	22	13	37	77

Overall	Median	13.5	38	76
	Minimum	13	33	67
	Maximum	20	56	79
	SD	1.92	5.12	3.48

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 4 Cut Scores

Table	Participant	Partially Meeting	Meeting	Meeting with Distinction
1	5	681	702	728
1	6	681	702	729
1	7	680	696	722
1	8	680	696	722
1	9	680	702	729
1	10	680	700	722
2	3	688	704	738
2	11	688	702	728
2	12	688	700	730
2	13	680	702	730
2	14	681	702	731
2	15	688	704	738
2	16	688	704	730
3	2	681	702	731
3	17	680	696	731
3	23	685	713	727
3	24	691	711	731
3	25	690	704	731
3	26	680	704	738
3	27	680	700	729
4	1	680	700	730
4	18	680	700	731
4	19	680	700	731
4	20	680	700	731
4	21	685	699	729
4	22	680	700	731

Overall	Median	680	702	730
	Minimum	680	696	722
	Maximum	691	713	738
	SD	3.95	3.95	3.93

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 4 Summary of Bookmark Placements

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	13	38	70
Median	2	16	38	76
Median	3	14	41	77
Median	4	13	37	77
Median	Overall	13.5	38	76
Minimum	1	13	33	67
Minimum	2	13	37	72
Minimum	3	13	33	70
Minimum	4	13	35	73
Minimum	Overall	13	33	67
Maximum	1	14	40	73
Maximum	2	16	41	79
Maximum	3	20	56	79
Maximum	4	15	37	77
Maximum	Overall	20	56	79
SD	1	0.52	3.06	2.79
SD	2	1.25	1.77	2.37
SD	3	2.98	8.39	2.97
SD	4	0.82	0.82	1.67
SD	Overall	1.92	5.12	3.48

Overall	Median	13.5	38	76
	Minimum	13	33	67
	Maximum	20	56	79
	SD	1.92	5.12	3.48

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 4 Summary of Cut Scores

Statistic	Table	Partially Meeting	Meeting	Meeting with Distinction
Median	1	680	701	725
Median	2	688	702	730
Median	3	681	704	731
Median	4	680	700	731
Median	Overall	680	702	730
Minimum	1	680	696	722
Minimum	2	680	700	728
Minimum	3	680	696	727
Minimum	4	680	699	729
Minimum	Overall	680	696	722
Maximum	1	681	702	729
Maximum	2	688	704	738
Maximum	3	691	713	738
Maximum	4	685	700	731
Maximum	Overall	691	713	738
SD	1	0.52	2.94	3.67
SD	2	3.67	1.51	4.10
SD	3	4.88	5.96	3.39
SD	4	2.04	0.41	0.84
SD	Overall	3.95	3.95	3.93

Overall	Median	680	702	730
	Minimum	680	696	722
	Maximum	691	713	738
	SD	3.95	3.95	3.93

New York State Mathematics Standard Setting Grade 8 Mathematics
Round 4 Median Bookmark Summary

Table	Partially Meeting	Meeting	Meeting with Distinction
1	13	38	70
2	16	38	76
3	14	41	77
4	13	37	77
Overall	13.5	38	76

Impact Data

	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction
Overall	26.3	26.4	29.0	18.3

Section F

Participants' Recommended Cut Scores Plus and Minus One, Two, and Three Standard Errors with Associated Impact Data

Calculating a Meaningful Standard Error for the Bookmark Cut Score

In the Bookmark Standard Setting Procedure for a given grade and content area, participants are assigned to roughly equivalent small groups that work independently through Round 2. Thus, the set of Round 2 cut scores provide some information about the stability of consensus in Bookmark cut scores across independent small group replications. To quantify this degree of consensus, we calculate the cluster sample standard error (Cochran, 1963, p. 210) of the Round 2 mean cut score. Cluster sample standard errors are appropriate when, as may be reasonably assumed here, data are collected from groups and independence can be assumed between groups but not within groups.

For the Bookmark Procedure, the standard error of the Bookmark cut score (SE_{cut}) is based on the cluster sample standard error of the Round 2 mean cut score. Because the final Bookmark cut scores are based on the *median* of the group instead of the mean, this cluster sample standard error (SE_{cut}) is adjusted by $\sqrt{\frac{\pi}{2}}$ (Huynh, 2003). The standard error of the Bookmark cut score is:

$$SE_{cut} = \left(\sqrt{\frac{\pi}{2}}\right)\left(\sqrt{\frac{S^2}{N}\left[1+\left(\frac{N}{n}-1\right)r\right]}\right),$$

where S^2 is the sample variance of individual Round 2 cut scores, r is the Round 2 intraclass correlation, N is the number of participants, and n is the number of groups. To be precise, if Y_{ik} is the cut score from the i^{th} participant in the k^{th} group, $\overline{Y}_k$ is the average cut score for group k, and $\overline{\overline{Y}}$ is the average of all Round 2 cut scores, then

$$r = \frac{Var(\overline{Y}_k)}{Var(\overline{Y}_k) + Var(Y_{ik} - \overline{Y}_k)} \quad \text{and} \quad S^2 = \frac{1}{N-1}\sum_{n,k}\left(Y_{nk} - \overline{\overline{Y}}\right)^2$$

If we have only two groups ($n=2$) and perfect dependence (agreement) within groups ($r=1$), then the cluster sample standard error simplifies to $SE_{cut} = \left(\sqrt{\frac{\pi}{2}}\right)\left(\frac{|Y_1 - Y_2|}{2}\right)$, which is the standard error formula employed by NAEP for two independent replications of a modified Angoff procedure (ACT, 1983, pp. 4-8). If, on the other hand, individual participants acted independently of their groups ($r=0$), then the cluster sample standard error simplifies to the traditional standard error of the mean for independent observations, $SE_{cut} = \left(\sqrt{\pi/2}\right)\left(\sqrt{S^2/N}\right)$. In this manner, SE_{cut} provides a simple, flexible, and general way to quantify the amount of uncertainty associated with final Bookmark cut scores.

It is appropriate (if statistically imprecise) to say that repeated replications of this very standard setting procedure with different judges sampled from the same population of potential judges would result in a range of cut scores, most of which would fall in a band of width 4* SE_{cut}. In the graphical displays of participant data, we depict such an interval centered at the median of the Round 3 cut score. The purpose of calculating statistics like SE_{cut} and producing graphs of the types displayed here is to effectively communicate the complex information that is gathered during a Bookmark Standard Setting Procedure.

References

ACT (1993). Setting achievement levels on the 1992 National Assessment of Educational Progress in Mathematics, Reading, and Writing: A technical report on reliability and validity.

Cochran, W. G. (1963). *Sampling techniques*. New York: John Wiley & Sons.

Huynh, H. (2003, August). Technical Memorandum for Computing Standard Error in Bookmark Standard Setting. (The South Carolina PACT 2003 Standard Setting Support Project). Columbia: University of South Carolina.

New York State Mathematics Standard Setting Grade 3

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		2.36	1.78	5.11	
Recommended Cut Point* + 3 SE		417	435	491	+ 3 SE
Percent of Students in Each Level	17.1	15.1	58.6	9.2	
Recommended Cut Point* + 2 SE		415	434	486	+ 2 SE
Percent of Students in Each Level	15.0	17.2	50.9	16.9	
Recommended Cut Point* + 1 SE		412	432	481	+ 1 SE
Percent of Students in Each Level	13.1	15.3	54.6	17.0	
Recommended Cut Point*		410	430	476	Recommended Cut Points*
Percent of Students in Each Level	11.4	17.0	54.6	17.0	
Recommended Cut Point* -1 SE		408	428	471	-1 SE
Percent of Students in Each Level	11.4	13.6	49.8	25.2	
Recommended Cut Point* -2 SE		405	426	466	-2 SE
Percent of Students in Each Level	9.9	15.1	49.8	25.2	
Recommended Cut Point* -3 SE		403	425	461	-3 SE
Percent of Students in Each Level	8.6	13.5	44.7	33.2	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 3

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		9.00	9.00	21.00	
Recommended Cut Point* + 3 SE		437	457	539	+ 3 SE
Percent of Students in Each Level	36.4	23.0	37.5	3.1	
Recommended Cut Point* + 2 SE		428	448	518	+ 2 SE
Percent of Students in Each Level	25.1	21.5	50.3	3.1	
Recommended Cut Point* + 1 SE		419	439	497	+ 1 SE
Percent of Students in Each Level	17.1	19.4	54.4	9.1	
Recommended Cut Point*		410	430	476	Recommended Cut Points*
Percent of Students in Each Level	11.4	17.0	54.6	17.0	
Recommended Cut Point* -1 SE		401	421	455	-1 SE
Percent of Students in Each Level	8.6	10.8	40.0	40.6	
Recommended Cut Point* -2 SE		392	412	434	-2 SE
Percent of Students in Each Level	5.3	7.8	19.1	67.8	
Recommended Cut Point* -3 SE		383	403	413	-3 SE
Percent of Students in Each Level	3.7	4.9	4.5	86.9	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 3

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		9.30	9.17	21.61	
Recommended Cut Point* + 3 SE		438	457	541	+ 3 SE
Percent of Students in Each Level	36.4	23.0	37.5	3.1	
Recommended Cut Point* + 2 SE		428	448	519	+ 2 SE
Percent of Students in Each Level	25.1	21.5	50.3	3.1	
Recommended Cut Point* + 1 SE		419	439	498	+ 1 SE
Percent of Students in Each Level	17.1	19.4	54.4	9.1	
Recommended Cut Point*		410	430	476	Recommended Cut Points*
Percent of Students in Each Level	11.4	17.0	54.6	17.0	
Recommended Cut Point* -1 SE		401	421	454	-1 SE
Percent of Students in Each Level	8.6	10.8	40.0	40.6	
Recommended Cut Point* -2 SE		391	412	433	-2 SE
Percent of Students in Each Level	5.3	7.8	19.1	67.8	
Recommended Cut Point* -3 SE		382	402	411	-3 SE
Percent of Students in Each Level	3.0	5.6	4.5	86.9	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 4 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		2.31	4.57	5.56	
Recommended Cut Point* + 3 SE		470	501	535	+ 3 SE
Percent of Students in Each Level	20.6	33.9	34.1	11.4	
Recommended Cut Point* + 2 SE		467	497	529	+ 2 SE
Percent of Students in Each Level	18.1	30.7	36.2	15.0	
Recommended Cut Point* + 1 SE		465	492	523	+ 1 SE
Percent of Students in Each Level	17.0	26.8	33.9	22.3	
Recommended Cut Point*		463	488	518	Recommended Cut Points*
Percent of Students in Each Level	14.8	24.3	34.9	26.0	
Recommended Cut Point* -1 SE		460	483	512	-1 SE
Percent of Students in Each Level	13.8	19.2	34.0	33.0	
Recommended Cut Point* -2 SE		458	479	507	-2 SE
Percent of Students in Each Level	11.9	15.9	35.8	36.4	
Recommended Cut Point* -3 SE		456	474	501	-3 SE
Percent of Students in Each Level	11.1	12.2	31.1	45.6	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 4 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		7.00	7.00	10.00	
Recommended Cut Point* + 3 SE		484	509	548	+ 3 SE
Percent of Students in Each Level	33.1	30.6	31.2	5.1	
Recommended Cut Point* + 2 SE		477	502	538	+ 2 SE
Percent of Students in Each Level	26.3	31.0	31.2	11.5	
Recommended Cut Point* + 1 SE		470	495	528	+ 1 SE
Percent of Students in Each Level	20.6	25.7	38.7	15.0	
Recommended Cut Point*		463	488	518	Recommended Cut Points*
Percent of Students in Each Level	14.8	24.3	34.9	26.0	
Recommended Cut Point* -1 SE		456	481	508	-1 SE
Percent of Students in Each Level	11.1	20.2	32.5	36.2	
Recommended Cut Point* -2 SE		449	474	498	-2 SE
Percent of Students in Each Level	8.0	15.3	28.3	48.4	
Recommended Cut Point* -3 SE		442	467	488	-3 SE
Percent of Students in Each Level	6.1	12.0	21.0	60.9	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 4 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		7.37	8.35	11.44	
Recommended Cut Point* + 3 SE		485	513	552	+ 3 SE
Percent of Students in Each Level	35.0	35.5	24.5	5.0	
Recommended Cut Point* + 2 SE		478	504	541	+ 2 SE
Percent of Students in Each Level	27.9	29.5	34.6	8.0	
Recommended Cut Point* + 1 SE		470	496	529	+ 1 SE
Percent of Students in Each Level	20.6	28.2	36.2	15.0	
Recommended Cut Point*		463	488	518	Recommended Cut Points*
Percent of Students in Each Level	14.8	24.3	34.9	26.0	
Recommended Cut Point* -1 SE		455	479	506	-1 SE
Percent of Students in Each Level	11.1	16.8	32.6	39.5	
Recommended Cut Point* -2 SE		448	471	495	-2 SE
Percent of Students in Each Level	8.0	12.5	25.7	53.8	
Recommended Cut Point* -3 SE		441	463	484	-3 SE
Percent of Students in Each Level	5.6	9.3	18.2	66.9	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 5 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		8.12	4.34	4.93	
Recommended Cut Point* + 3 SE		538	562	591	+ 3 SE
Percent of Students in Each Level	34.2	30.4	24.3	11.1	
Recommended Cut Point* + 2 SE		529	557	587	+ 2 SE
Percent of Students in Each Level	26.4	34.3	28.2	11.1	
Recommended Cut Point* + 1 SE		521	553	582	+ 1 SE
Percent of Students in Each Level	19.5	33.9	31.6	15.0	
Recommended Cut Point*		513	549	577	Recommended Cut Points*
Percent of Students in Each Level	13.7	36.2	31.0	19.1	
Recommended Cut Point* -1 SE		505	544	572	-1 SE
Percent of Students in Each Level	10.3	32.9	33.5	23.3	
Recommended Cut Point* -2 SE		497	540	567	-2 SE
Percent of Students in Each Level	6.0	31.1	35.5	27.4	
Recommended Cut Point* -3 SE		489	536	562	-3 SE
Percent of Students in Each Level	4.8	29.4	30.4	35.4	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 5 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		10.00	9.00	12.00	
Recommended Cut Point* + 3 SE		543	576	613	+ 3 SE
Percent of Students in Each Level	40.1	40.7	15.2	4.0	
Recommended Cut Point* + 2 SE		533	567	601	+ 2 SE
Percent of Students in Each Level	28.9	43.7	20.1	7.3	
Recommended Cut Point* + 1 SE		523	558	589	+ 1 SE
Percent of Students in Each Level	21.7	39.0	28.2	11.1	
Recommended Cut Point*		513	549	577	Recommended Cut Points*
Percent of Students in Each Level	13.7	36.2	31.0	19.1	
Recommended Cut Point* -1 SE		503	540	565	-1 SE
Percent of Students in Each Level	8.7	28.4	31.5	31.4	
Recommended Cut Point* -2 SE		493	531	553	-2 SE
Percent of Students in Each Level	4.8	24.1	24.5	46.6	
Recommended Cut Point* -3 SE		483	522	541	-3 SE
Percent of Students in Each Level	2.9	16.6	20.6	59.9	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 5 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		12.88	9.99	12.97	
Recommended Cut Point* + 3 SE		552	579	616	+ 3 SE
Percent of Students in Each Level	53.4	27.5	15.2	3.9	
Recommended Cut Point* + 2 SE		539	569	603	+ 2 SE
Percent of Students in Each Level	37.1	35.5	20.1	7.3	
Recommended Cut Point* + 1 SE		526	559	590	+ 1 SE
Percent of Students in Each Level	24.0	36.7	28.2	11.1	
Recommended Cut Point*		513	549	577	Recommended Cut Points*
Percent of Students in Each Level	13.7	36.2	31.0	19.1	
Recommended Cut Point* -1 SE		500	539	564	-1 SE
Percent of Students in Each Level	7.3	29.8	31.5	31.4	
Recommended Cut Point* -2 SE		487	529	551	-2 SE
Percent of Students in Each Level	3.8	22.6	23.4	50.2	
Recommended Cut Point* -3 SE		475	519	538	-3 SE
Percent of Students in Each Level	2.1	15.4	16.8	65.7	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 6 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		2.49	2.11	2.44	
Recommended Cut Point* + 3 SE		589	611	641	+ 3 SE
Percent of Students in Each Level	36.9	26.0	29.5	7.6	
Recommended Cut Point* + 2 SE		586	609	639	+ 2 SE
Percent of Students in Each Level	34.3	28.5	26.8	10.4	
Recommended Cut Point* + 1 SE		584	606	636	+ 1 SE
Percent of Students in Each Level	31.8	25.0	30.0	13.2	
Recommended Cut Point*		581	604	634	Recommended Cut Points*
Percent of Students in Each Level	29.4	27.4	30.0	13.2	
Recommended Cut Point* -1 SE		579	602	631	-1 SE
Percent of Students in Each Level	27.0	26.7	30.1	16.2	
Recommended Cut Point* -2 SE		576	600	629	-2 SE
Percent of Students in Each Level	24.8	26.0	33.1	16.1	
Recommended Cut Point* -3 SE		574	598	626	-3 SE
Percent of Students in Each Level	22.6	25.2	33.1	19.1	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 6 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		8.00	8.00	10.00	
Recommended Cut Point* + 3 SE		605	628	664	+ 3 SE
Percent of Students in Each Level	56.8	24.2	16.2	2.8	
Recommended Cut Point* + 2 SE		597	620	654	+ 2 SE
Percent of Students in Each Level	47.9	27.1	19.9	5.1	
Recommended Cut Point* + 1 SE		589	612	644	+ 1 SE
Percent of Students in Each Level	36.9	29.0	26.5	7.6	
Recommended Cut Point*		581	604	634	Recommended Cut Points*
Percent of Students in Each Level	29.4	27.4	30.0	13.2	
Recommended Cut Point* -1 SE		573	596	624	-1 SE
Percent of Students in Each Level	20.5	24.4	33.0	22.1	
Recommended Cut Point* -2 SE		565	588	614	-2 SE
Percent of Students in Each Level	14.9	21.9	32.0	31.2	
Recommended Cut Point* -3 SE		557	580	604	-3 SE
Percent of Students in Each Level	11.6	15.4	29.7	43.3	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 6 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		8.37	8.27	10.29	
Recommended Cut Point* + 3 SE		606	629	665	+ 3 SE
Percent of Students in Each Level	56.8	27.1	13.2	2.9	
Recommended Cut Point* + 2 SE		598	621	654	+ 2 SE
Percent of Students in Each Level	47.9	27.1	19.9	5.1	
Recommended Cut Point* + 1 SE		589	613	644	+ 1 SE
Percent of Students in Each Level	36.9	29.0	26.5	7.6	
Recommended Cut Point*		581	604	634	Recommended Cut Points*
Percent of Students in Each Level	29.4	27.4	30.0	13.2	
Recommended Cut Point* -1 SE		573	596	623	-1 SE
Percent of Students in Each Level	20.5	24.4	33.0	22.1	
Recommended Cut Point* -2 SE		564	588	613	-2 SE
Percent of Students in Each Level	14.9	21.9	29.0	34.2	
Recommended Cut Point* -3 SE		556	580	603	-3 SE
Percent of Students in Each Level	11.6	15.4	26.7	46.3	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 7 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		3.88	2.21	2.39	
Recommended Cut Point* + 3 SE		628	659	688	+ 3 SE
Percent of Students in Each Level	28.7	35.7	26.4	9.2	
Recommended Cut Point* + 2 SE		625	657	686	+ 2 SE
Percent of Students in Each Level	25.8	35.2	26.8	12.2	
Recommended Cut Point* + 1 SE		621	655	683	+ 1 SE
Percent of Students in Each Level	20.4	37.3	30.2	12.1	
Recommended Cut Point*		617	653	681	Recommended Cut Points*
Percent of Students in Each Level	17.8	39.8	27.0	15.4	
Recommended Cut Point* -1 SE		613	650	678	-1 SE
Percent of Students in Each Level	15.4	38.8	30.4	15.4	
Recommended Cut Point* -2 SE		609	648	676	-2 SE
Percent of Students in Each Level	13.1	37.8	30.5	18.6	
Recommended Cut Point* -3 SE		605	646	674	-3 SE
Percent of Students in Each Level	11.0	36.5	33.9	18.6	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 7 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		11.00	9.00	11.00	
Recommended Cut Point* + 3 SE		650	680	714	+ 3 SE
Percent of Students in Each Level	54.2	30.4	13.0	2.4	
Recommended Cut Point* + 2 SE		639	671	703	+ 2 SE
Percent of Students in Each Level	37.7	40.3	17.8	4.2	
Recommended Cut Point* + 1 SE		628	662	692	+ 1 SE
Percent of Students in Each Level	28.7	39.0	25.8	6.5	
Recommended Cut Point*		617	653	681	Recommended Cut Points*
Percent of Students in Each Level	17.8	39.8	27.0	15.4	
Recommended Cut Point* -1 SE		606	644	670	-1 SE
Percent of Students in Each Level	13.1	31.1	30.4	25.4	
Recommended Cut Point* -2 SE		595	635	659	-2 SE
Percent of Students in Each Level	7.4	27.3	29.7	35.6	
Recommended Cut Point* -3 SE		584	626	648	-3 SE
Percent of Students in Each Level	4.6	21.2	25.1	49.1	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 7 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		11.66	9.26	11.25	
Recommended Cut Point* + 3 SE		652	680	715	+ 3 SE
Percent of Students in Each Level	54.2	30.4	13.0	2.4	
Recommended Cut Point* + 2 SE		640	671	703	+ 2 SE
Percent of Students in Each Level	40.9	37.1	17.8	4.2	
Recommended Cut Point* + 1 SE		628	662	692	+ 1 SE
Percent of Students in Each Level	28.7	39.0	25.8	6.5	
Recommended Cut Point*		617	653	681	Recommended Cut Points*
Percent of Students in Each Level	17.8	39.8	27.0	15.4	
Recommended Cut Point* -1 SE		605	643	670	-1 SE
Percent of Students in Each Level	11.0	33.2	30.4	25.4	
Recommended Cut Point* -2 SE		593	634	658	-2 SE
Percent of Students in Each Level	7.4	27.3	29.7	35.6	
Recommended Cut Point* -3 SE		582	625	647	-3 SE
Percent of Students in Each Level	4.6	21.2	21.8	52.4	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 8 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of the Cut Score

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
SE (cut score)		3.23	2.70	2.80	
Recommended Cut Point* + 3 SE		689	710	738	+ 3 SE
Percent of Students in Each Level	36.2	26.5	25.0	12.3	
Recommended Cut Point* + 2 SE		686	707	736	+ 2 SE
Percent of Students in Each Level	32.8	26.5	26.4	14.3	
Recommended Cut Point* + 1 SE		683	704	733	+ 1 SE
Percent of Students in Each Level	29.6	26.4	27.7	16.3	
Recommended Cut Point*		680	702	730	Recommended Cut Points*
Percent of Students in Each Level	26.3	26.4	29.0	18.3	
Recommended Cut Point* -1 SE		676	699	727	-1 SE
Percent of Students in Each Level	22.9	26.4	30.6	20.1	
Recommended Cut Point* -2 SE		673	696	724	-2 SE
Percent of Students in Each Level	19.7	24.6	33.8	21.9	
Recommended Cut Point* -3 SE		670	694	722	-3 SE
Percent of Students in Each Level	18.1	24.5	33.6	23.8	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 8 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement		7.00	5.00	8.00	
Recommended Cut Point* + 3 SE		701	717	754	+ 3 SE
Percent of Students in Each Level	51.0	20.1	22.8	6.1	
Recommended Cut Point* + 2 SE		694	712	746	+ 2 SE
Percent of Students in Each Level	42.6	23.3	25.8	8.3	
Recommended Cut Point* + 1 SE		687	707	738	+ 1 SE
Percent of Students in Each Level	34.5	24.8	28.4	12.3	
Recommended Cut Point*		680	702	730	Recommended Cut Points*
Percent of Students in Each Level	26.3	26.4	29.0	18.3	
Recommended Cut Point* -1 SE		673	697	722	-1 SE
Percent of Students in Each Level	19.7	26.2	30.4	23.7	
Recommended Cut Point* -2 SE		666	692	714	-2 SE
Percent of Students in Each Level	14.8	24.6	28.3	32.3	
Recommended Cut Point* -3 SE		659	687	706	-3 SE
Percent of Students in Each Level	10.3	24.2	23.1	42.4	

* Participants' Large Group Medians

New York State Mathematics Standard Setting Grade 8 Mathematics

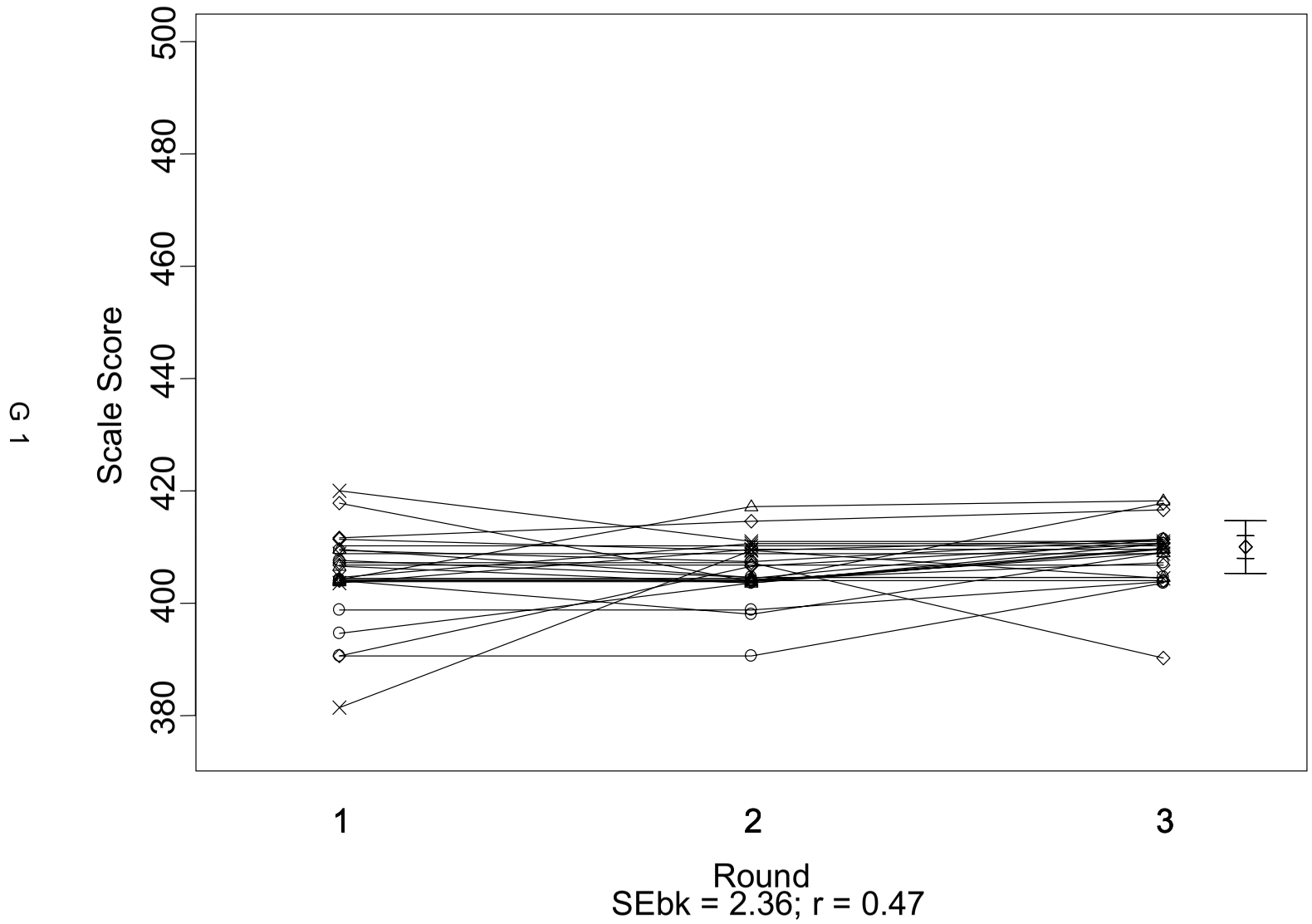
Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement and the Cut Score

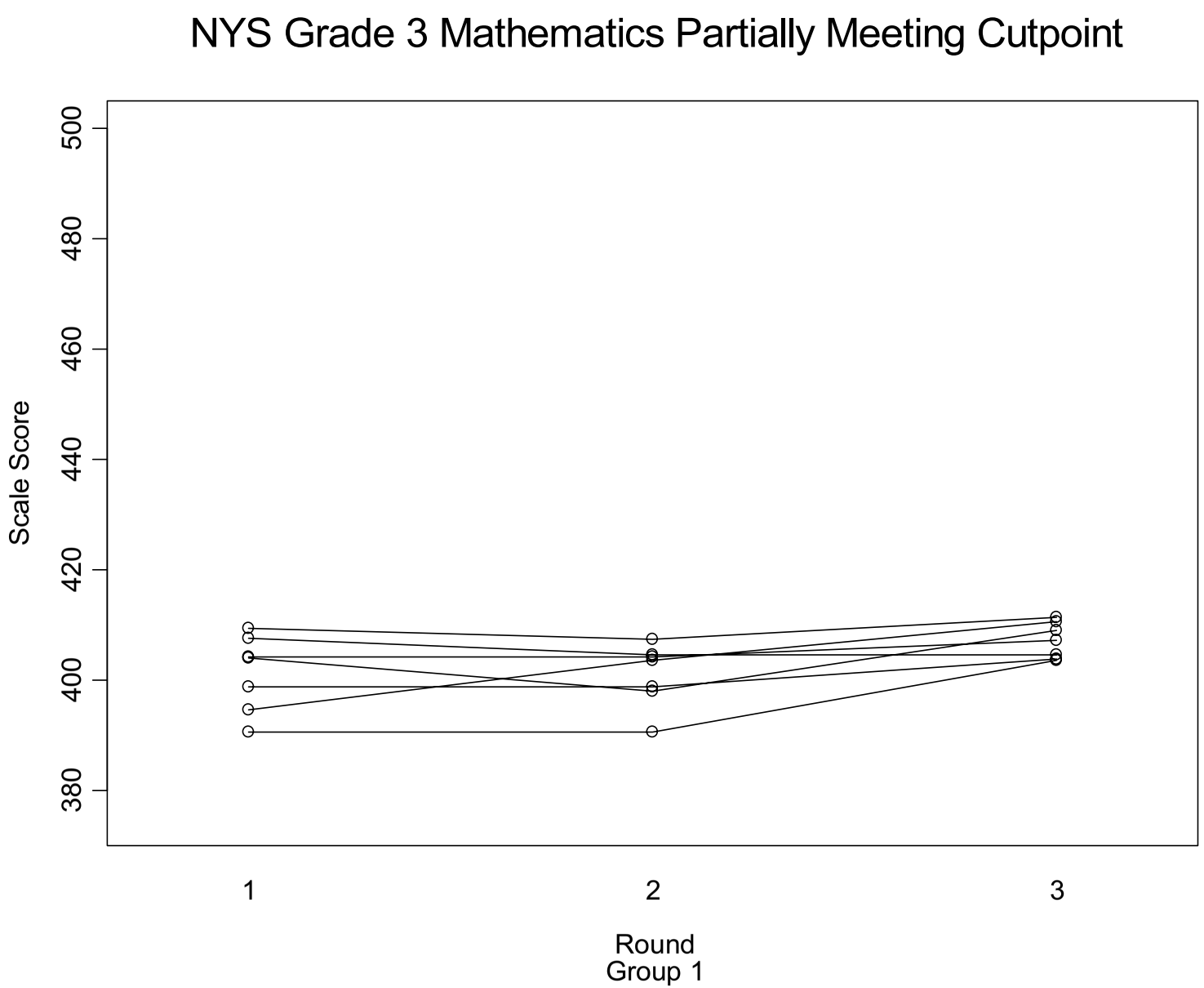
Performance Level	Not Meeting	Partially Meeting	Meeting	Meeting with Distinction	
Standard Error (SE) measurement + cutscore		7.70	5.68	8.47	
Recommended Cut Point* + 3 SE		703	719	755	+ 3 SE
Percent of Students in Each Level	54.3	18.4	21.2	6.1	
Recommended Cut Point* + 2 SE		695	713	747	+ 2 SE
Percent of Students in Each Level	44.3	21.7	25.8	8.2	
Recommended Cut Point* + 1 SE		687	707	739	+ 1 SE
Percent of Students in Each Level	34.5	24.8	28.4	12.3	
Recommended Cut Point*		680	702	730	Recommended Cut Points*
Percent of Students in Each Level	26.3	26.4	29.0	18.3	
Recommended Cut Point* -1 SE		672	696	722	-1 SE
Percent of Students in Each Level	19.7	24.6	32.0	23.7	
Recommended Cut Point* -2 SE		664	690	713	-2 SE
Percent of Students in Each Level	13.3	24.5	28.2	34.0	
Recommended Cut Point* -3 SE		657	685	705	-3 SE
Percent of Students in Each Level	10.3	20.9	24.8	44.0	

* Participants' Large Group Medians

Section G

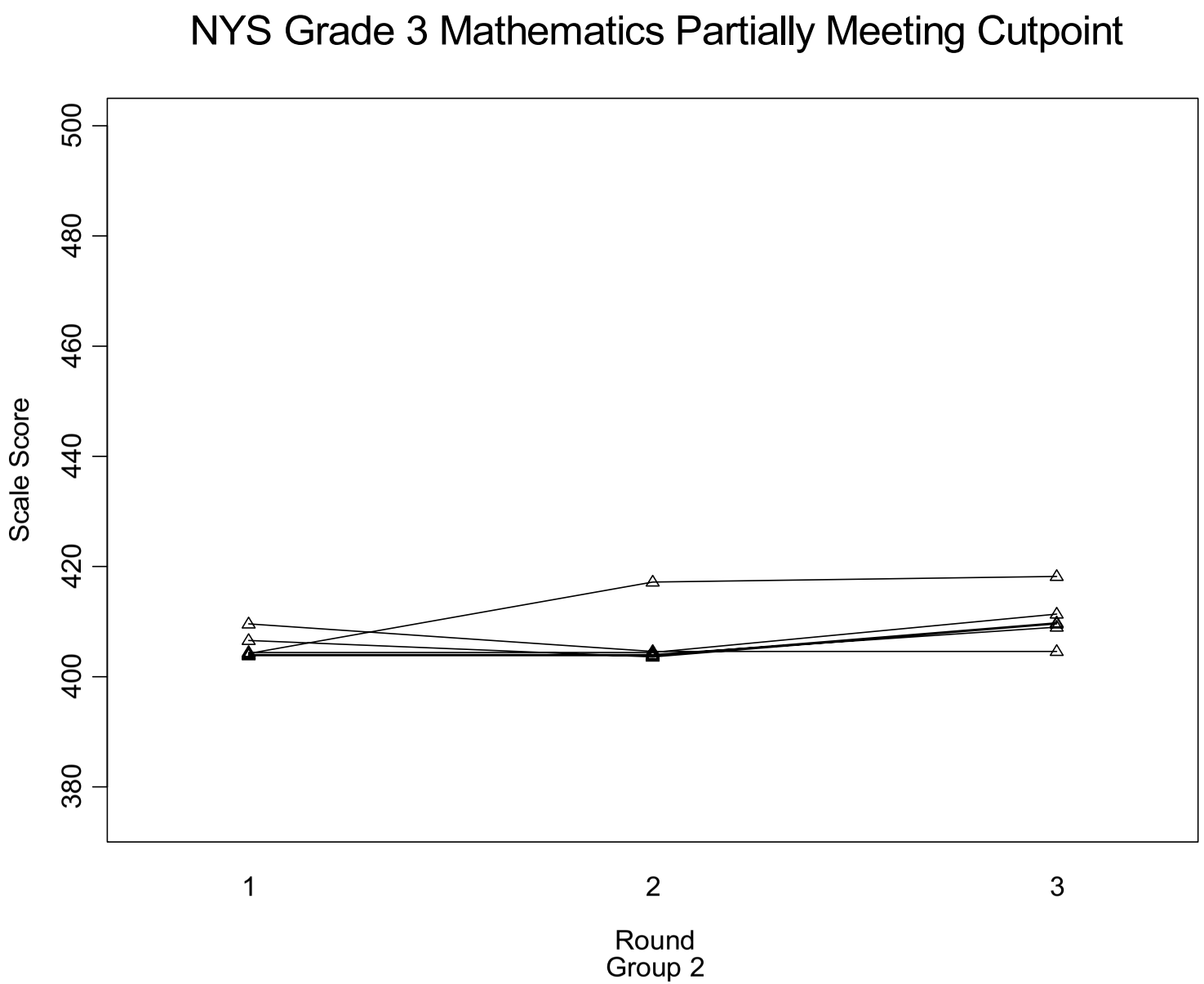
Graphical Representations of Participants' Judgments and Standard Errors


NYS Grade 3 Mathematics Partially Meeting Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
SEbk = 2.36; r = 0.47


NYS Grade 3 Mathematics Partially Meeting Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 1

G 2

G 3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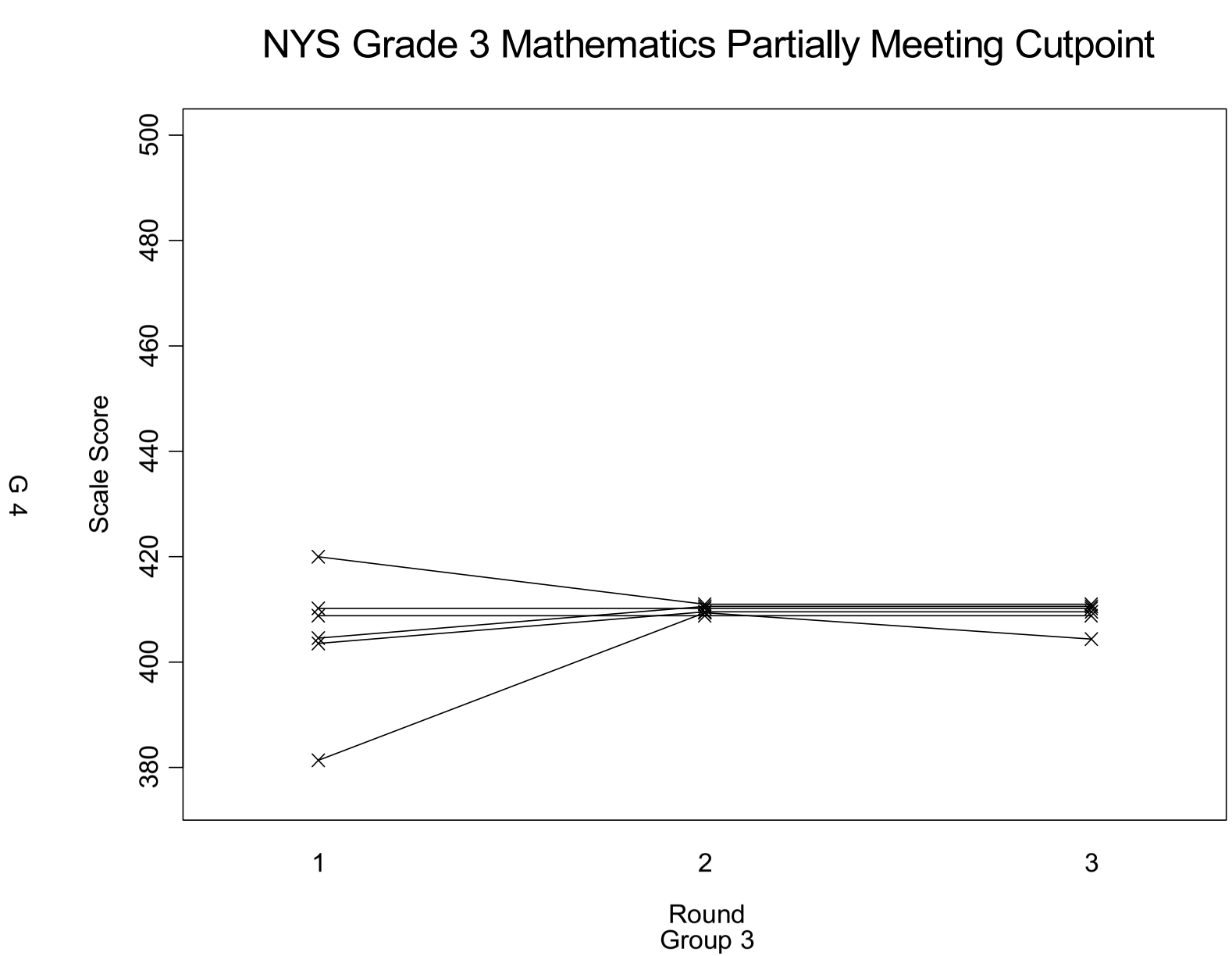
Scale Score
380
400
420
440
460
480
500
1
2
3
Round
Group 2


NYS Grade 3 Mathematics Partially Meeting Cutpoint
Scale Score
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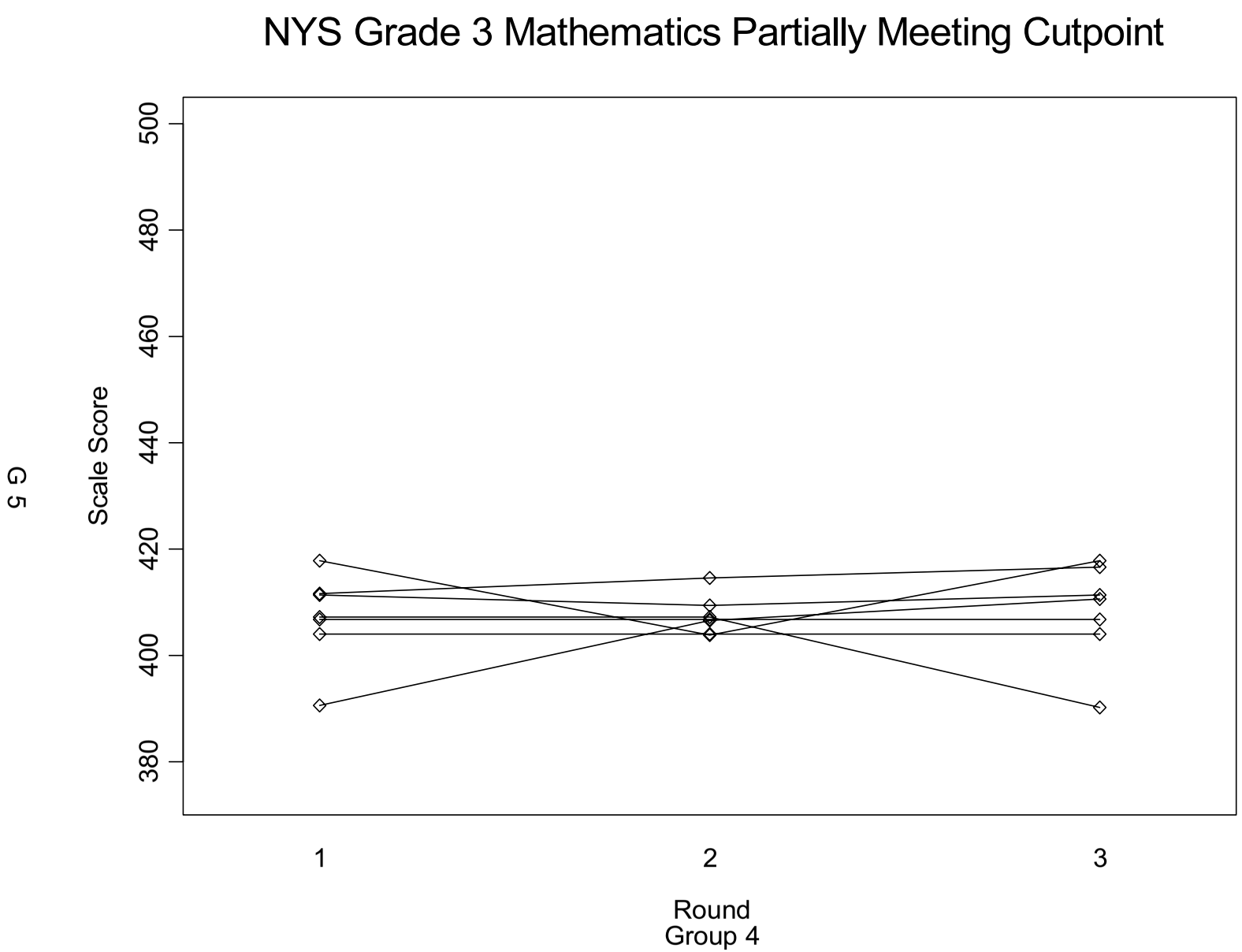
480
460
440
420
400
380
1
2
3
Round
Group 3

G 4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G 5
Scale Score
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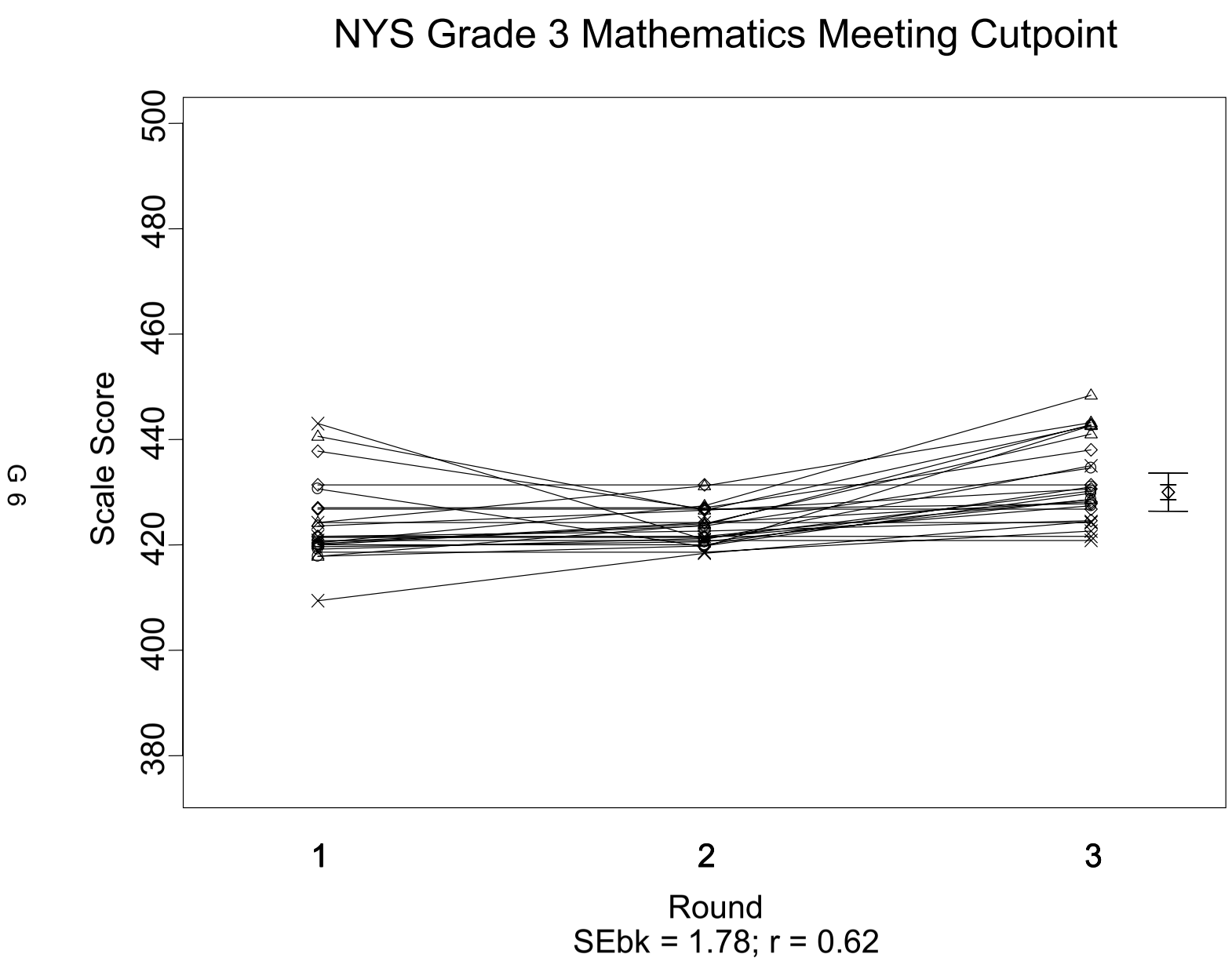
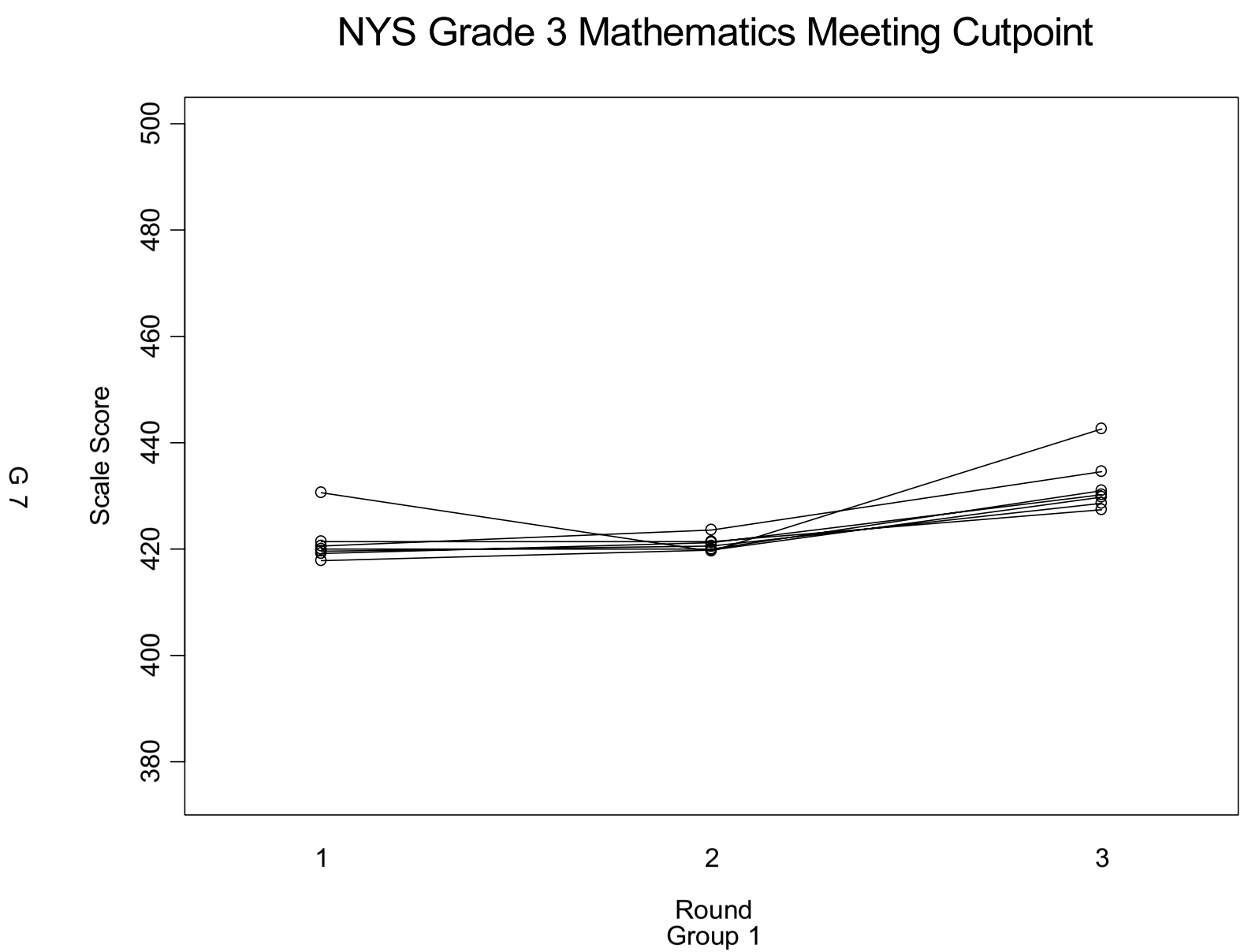
480
460
440
420
400
380
1
2
3
Round
Group 4


NYS Grade 3 Mathematics Meeting Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
SEbk = 1.78; r = 0.62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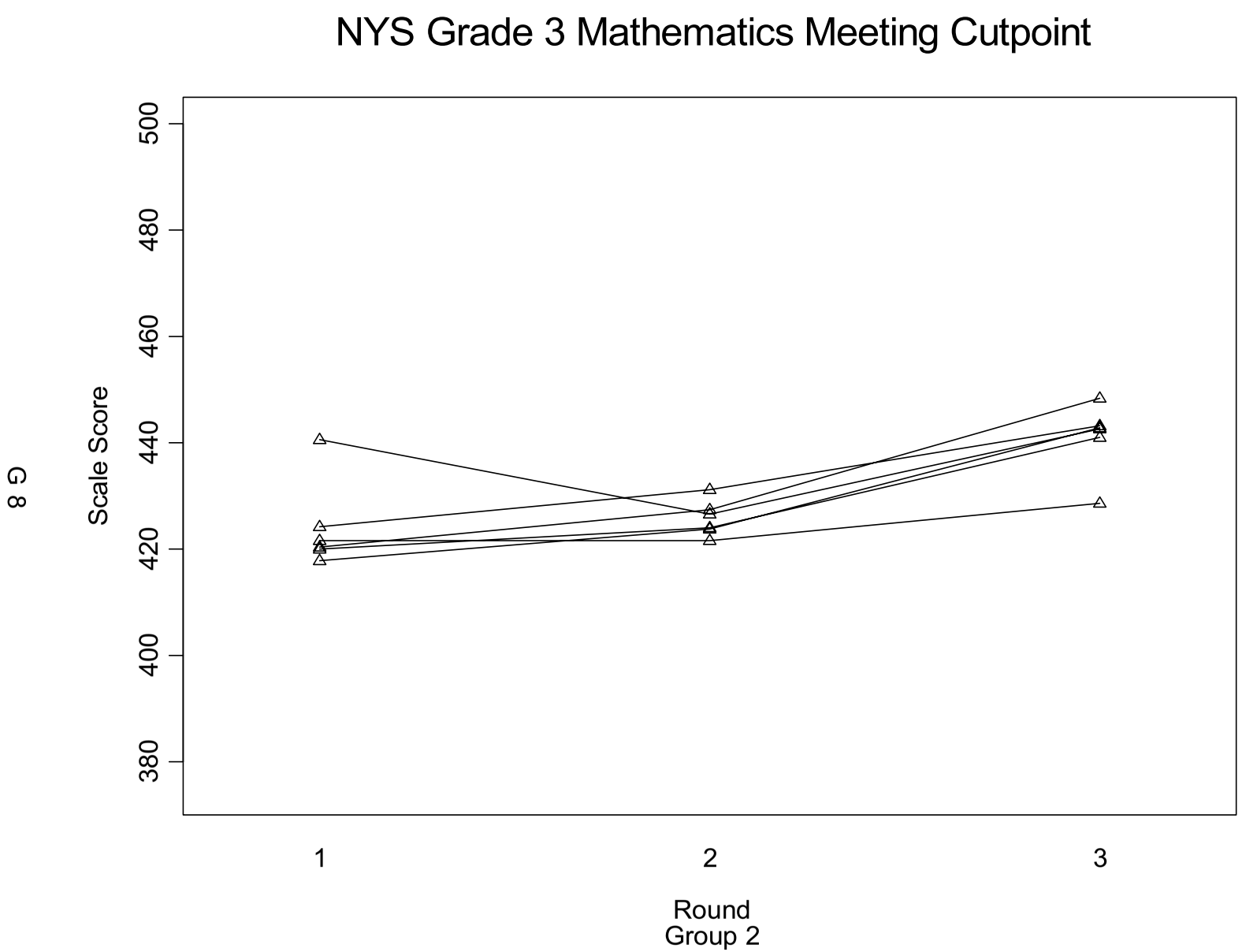
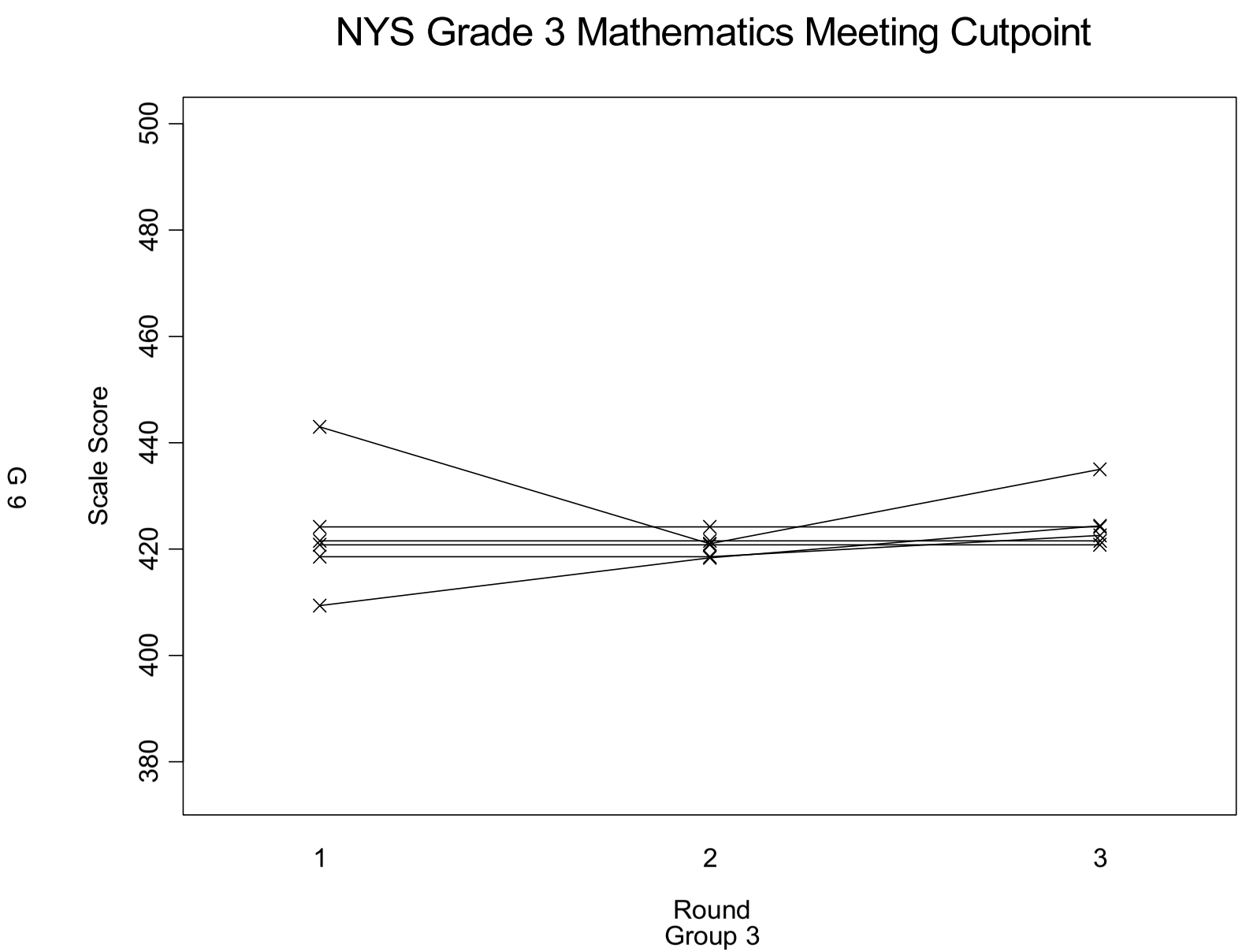
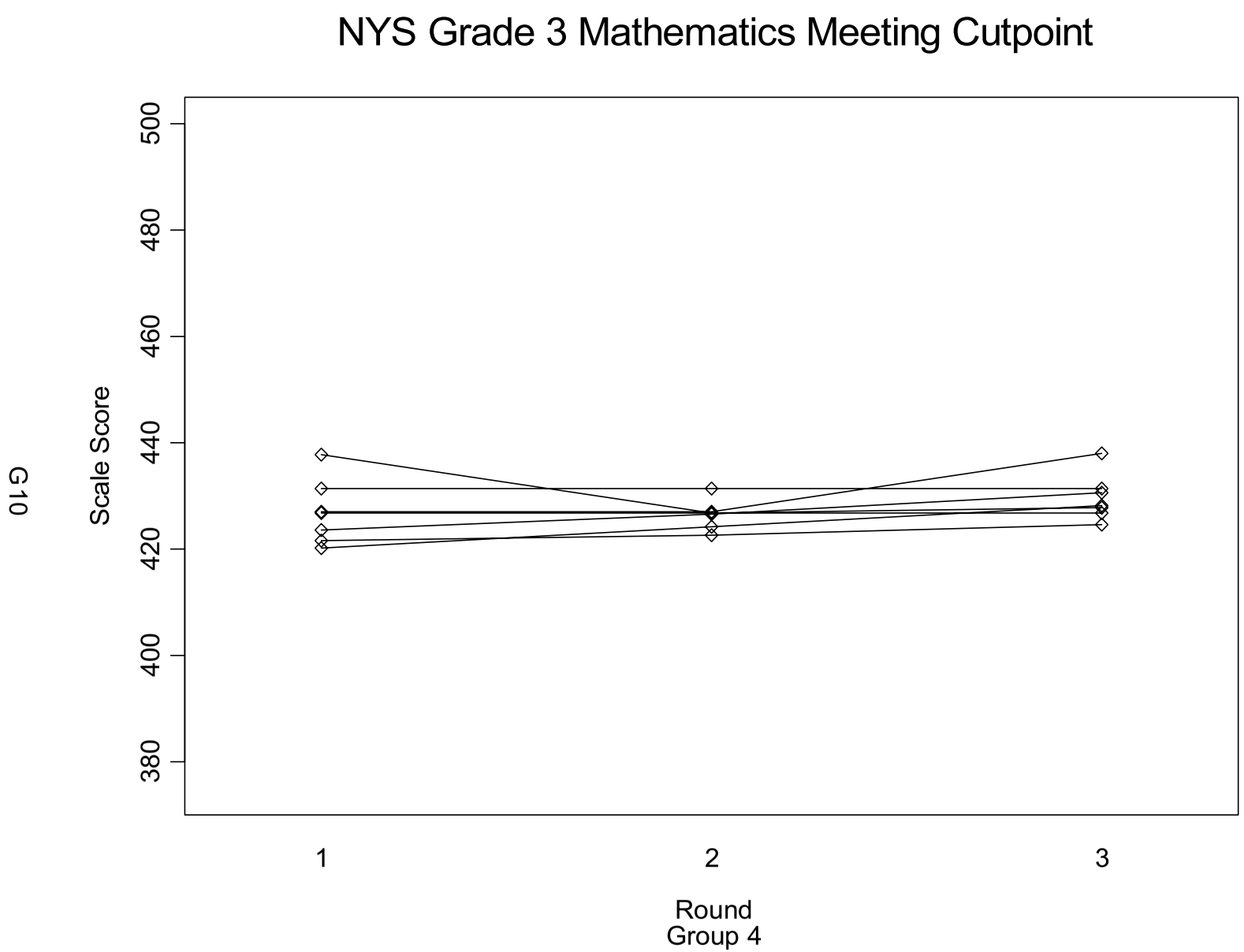
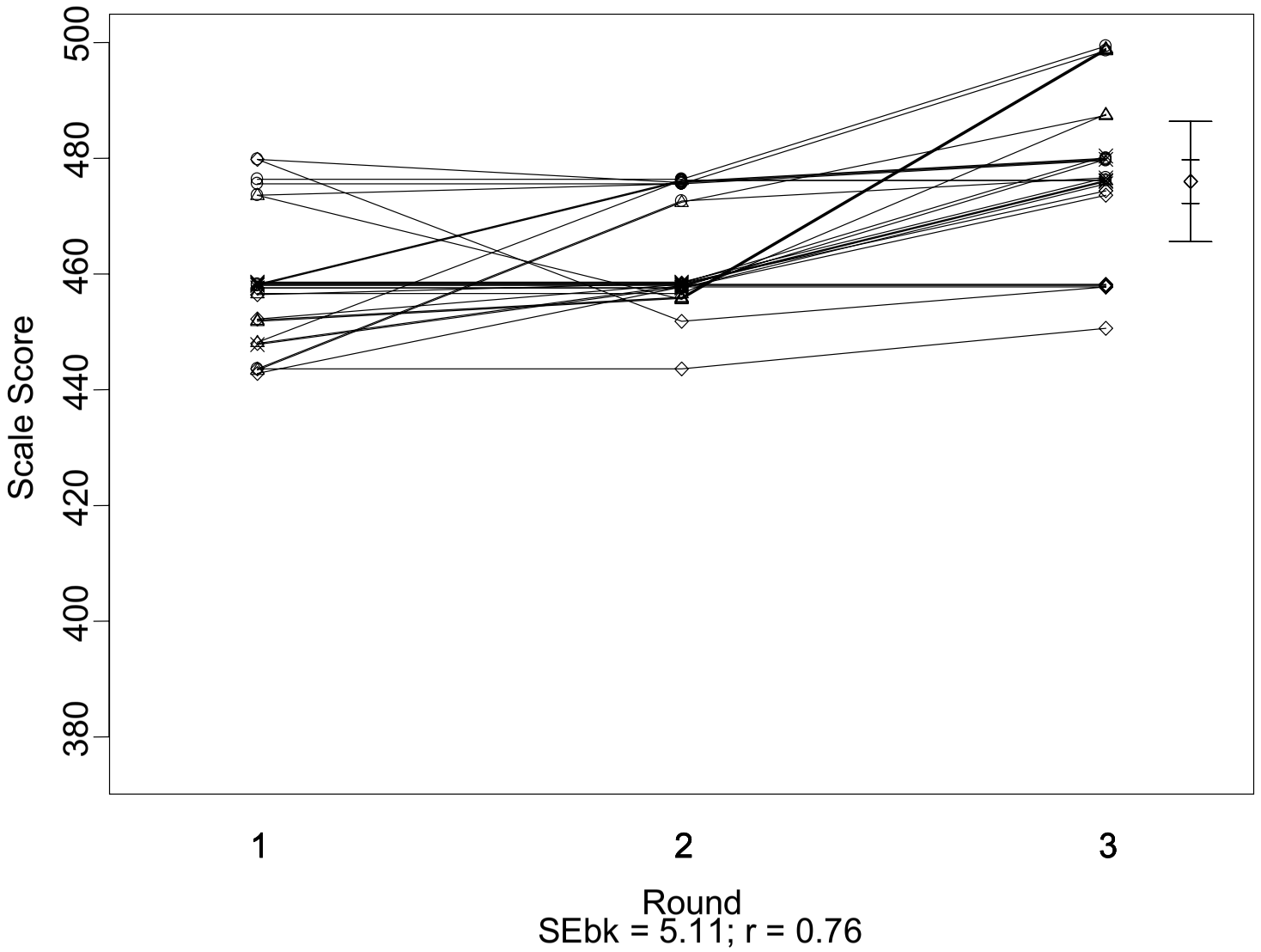
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 1
G 7

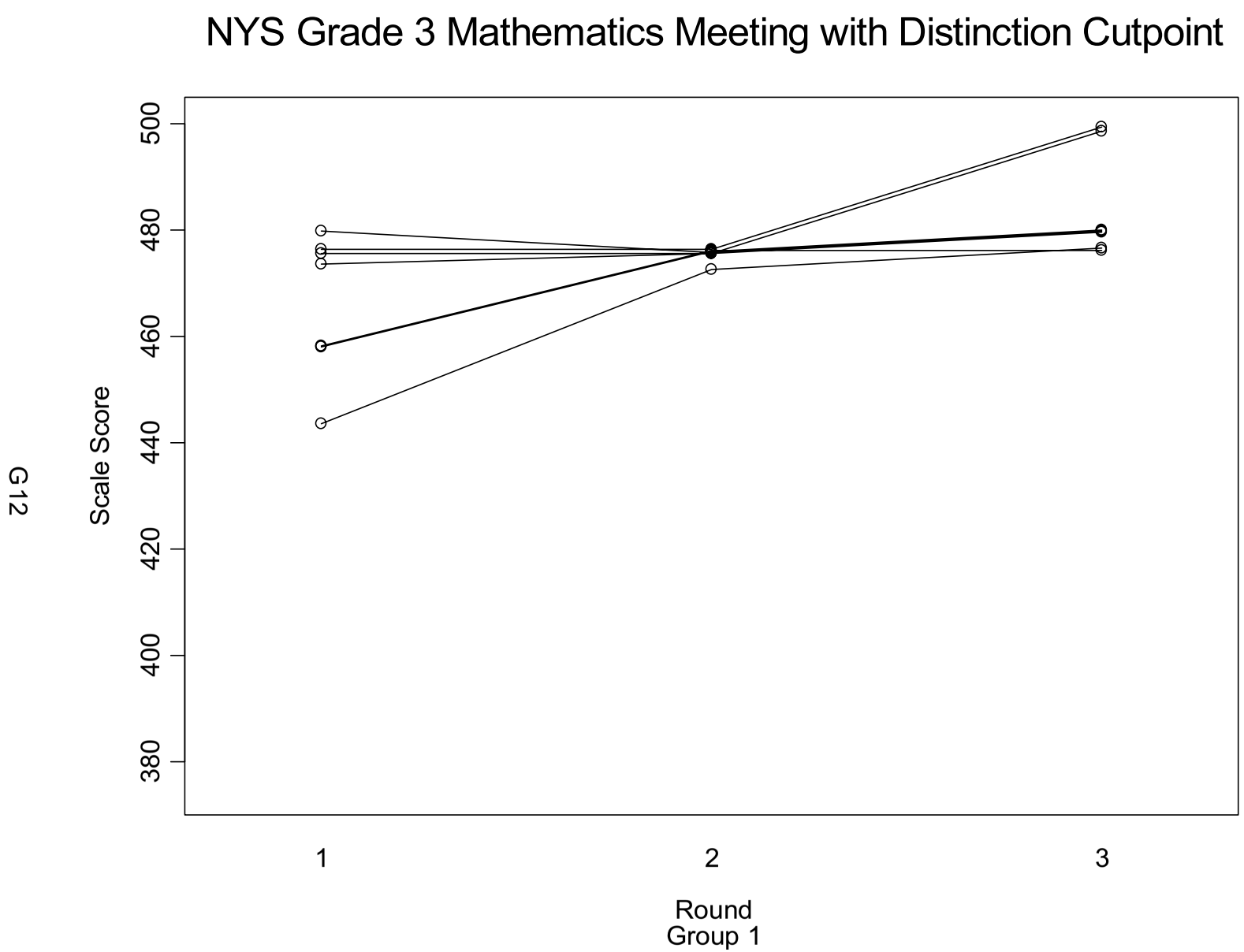

NYS Grade 3 Mathematics Meeting Cutpoint
G 8
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 2

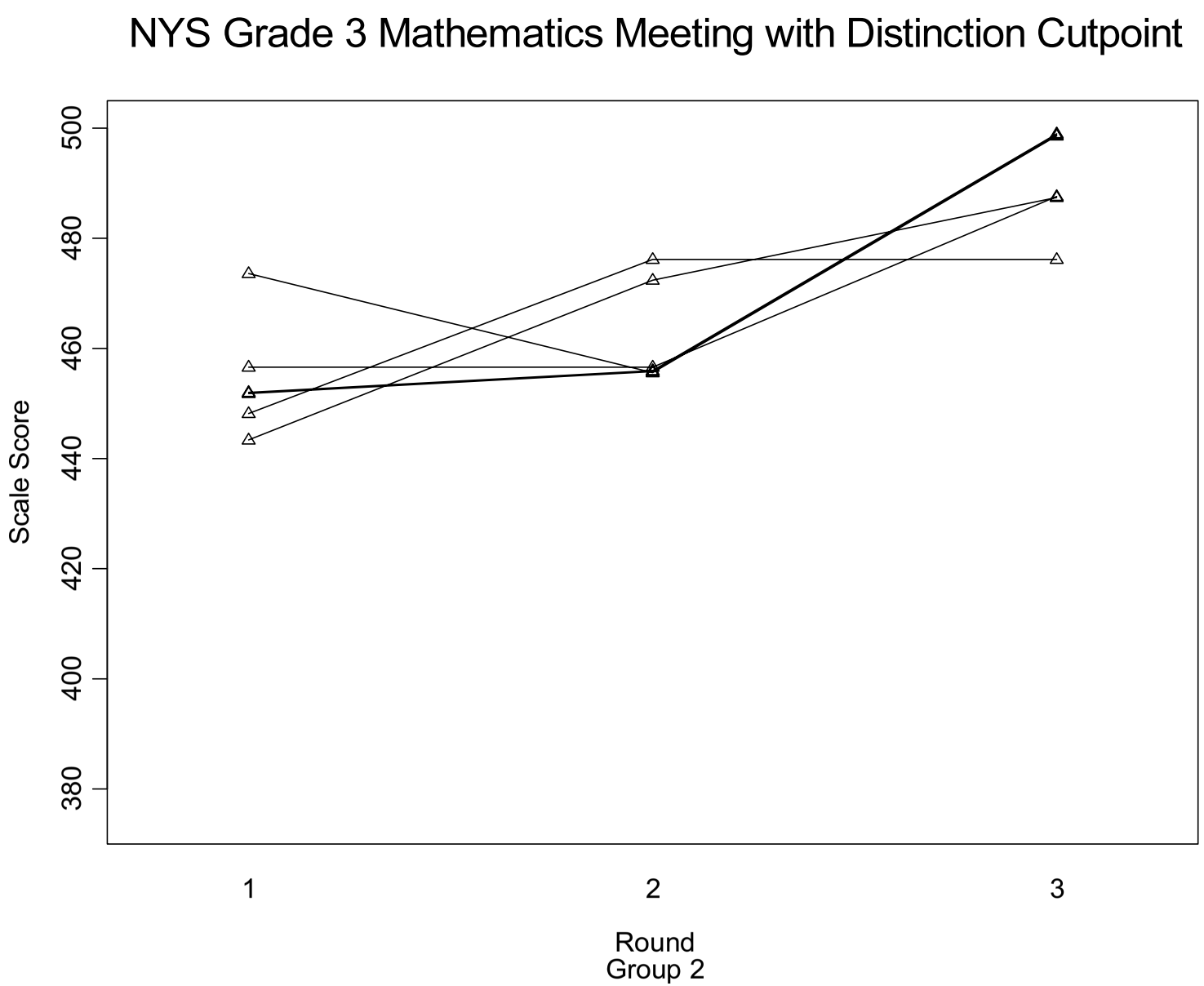

NYS Grade 3 Mathematics Meeting Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 3


NYS Grade 3 Mathematics Meeting Cutpoint
G10
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 4

NYS Grade 3 Mathematics Meeting with Distinction Cutpoint

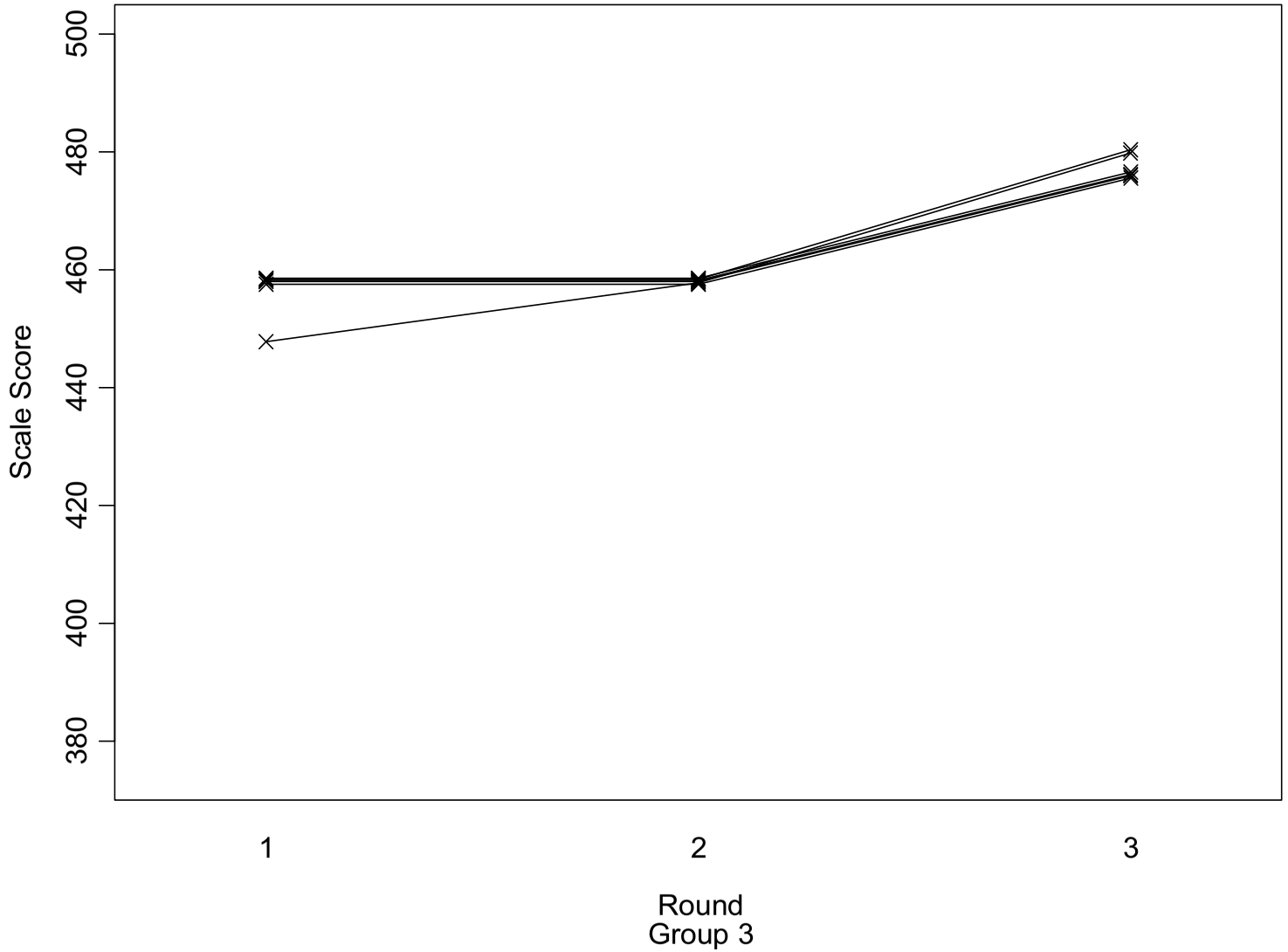


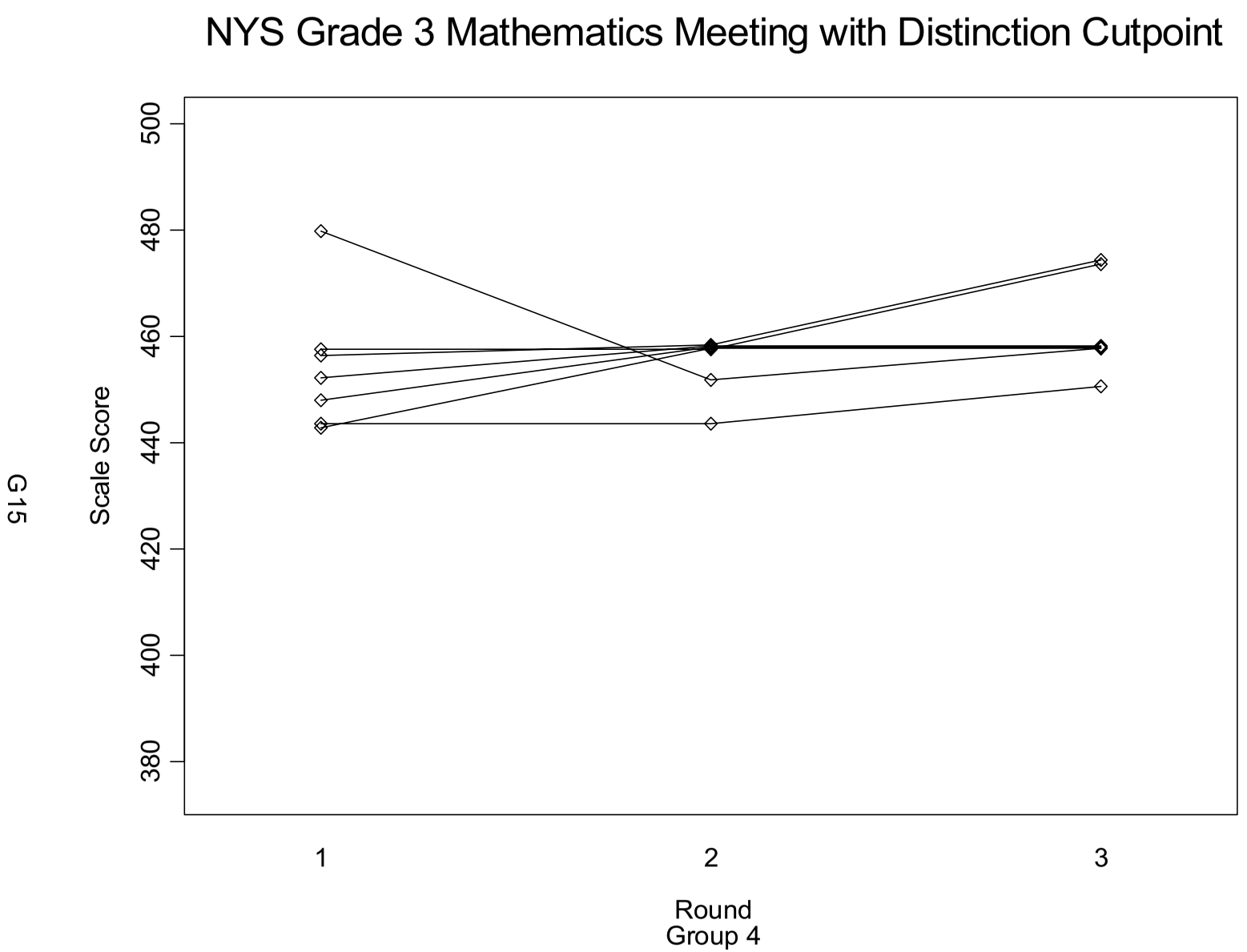

NYS Grade 3 Mathematics Meeting with Distinction Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 1
G12


NYS Grade 3 Mathematics Meeting with Distinction Cutpoint
Scale Score
380
400
420
440
460
480
500
1
2
3
Round
Group 2

G13

NYS Grade 3 Mathematics Meeting with Distinction Cutpoint

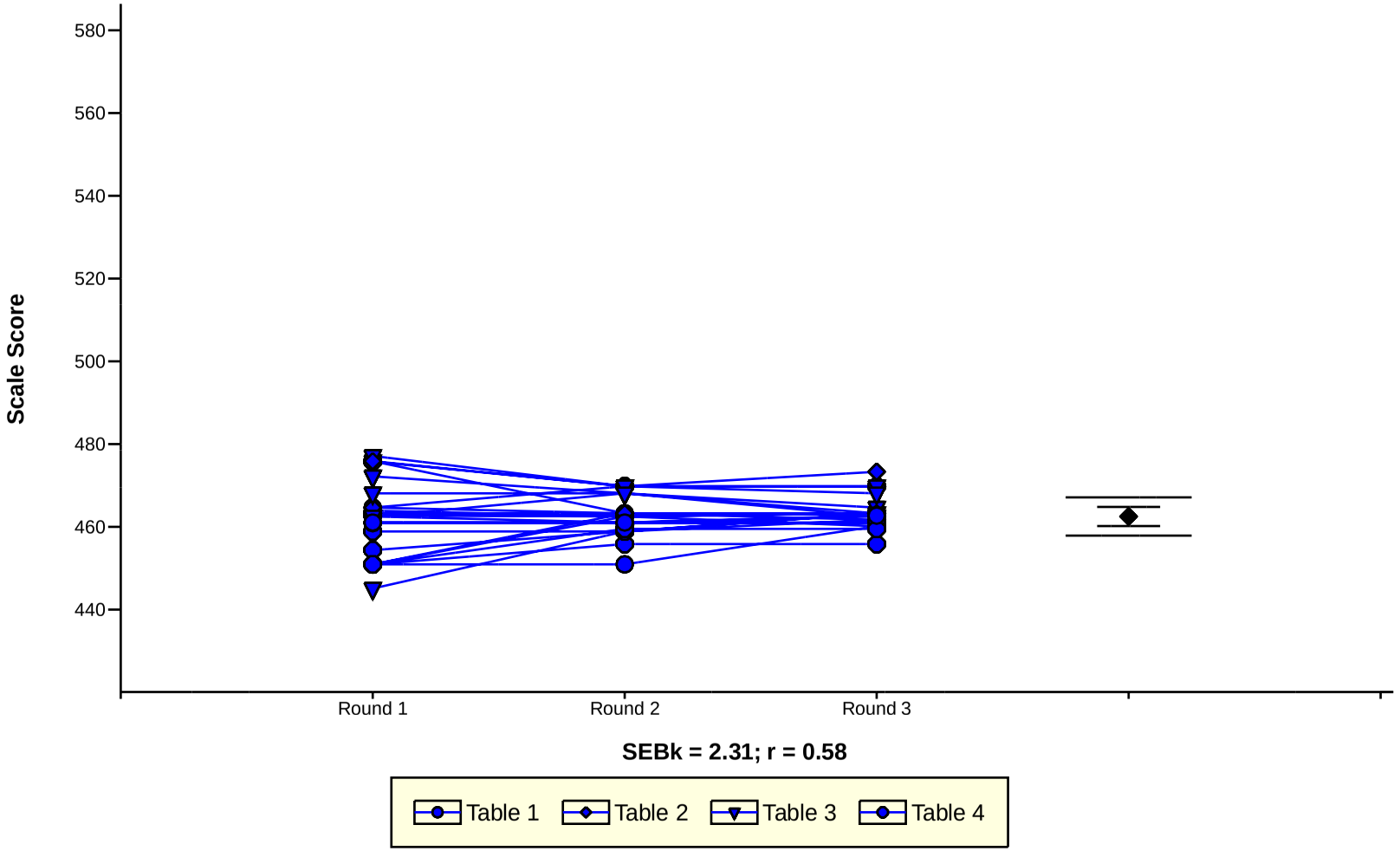



NYS Grade 3 Mathematics Meeting with Distinction Cutpoint
Scale Score
500
480
460
440
420
400
380
1
2
3
Round
Group 4

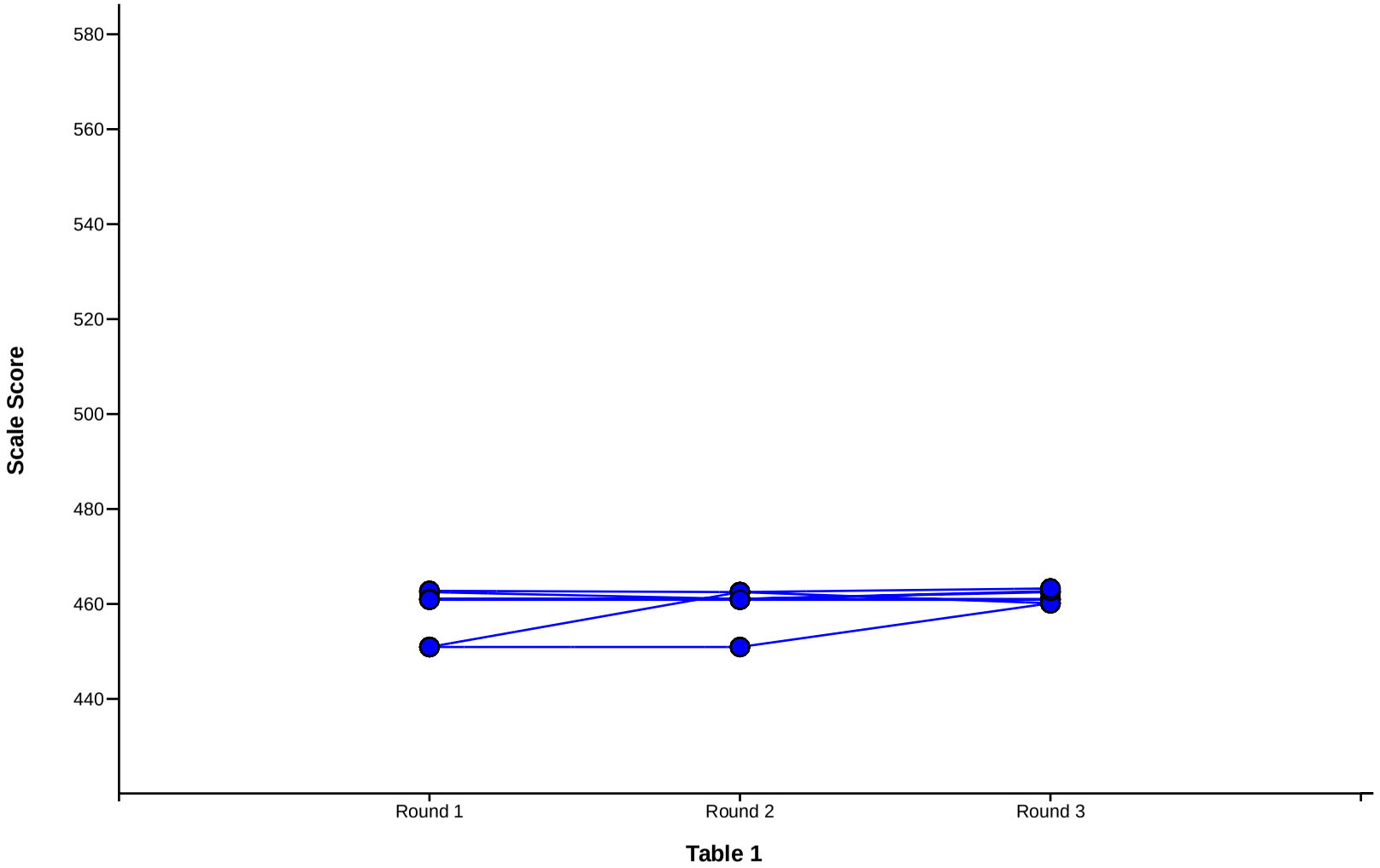
G15

New York State Mathematics Standard Setting Grade 4 Mathematics Partially Meeting Cut Point

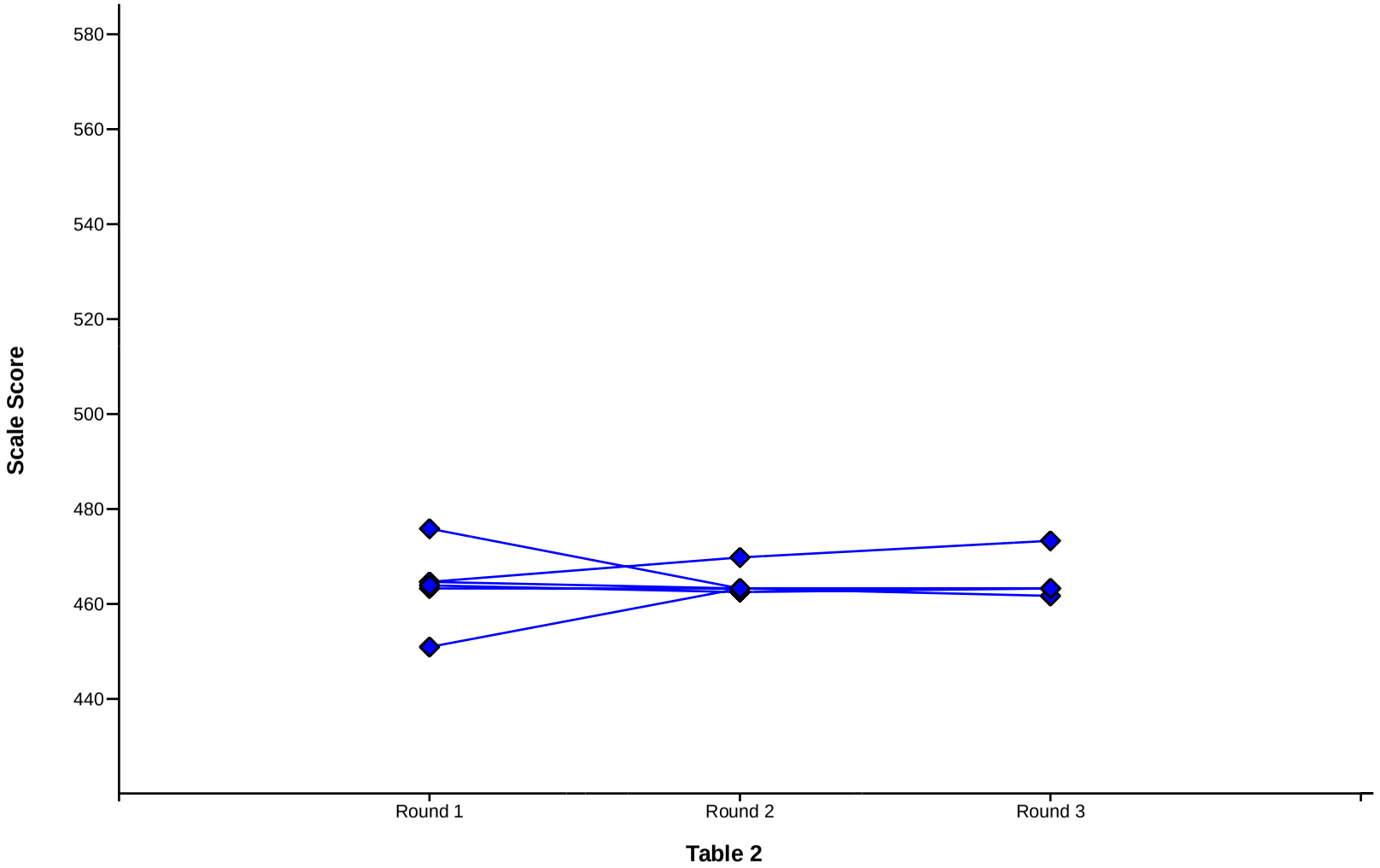
G 16



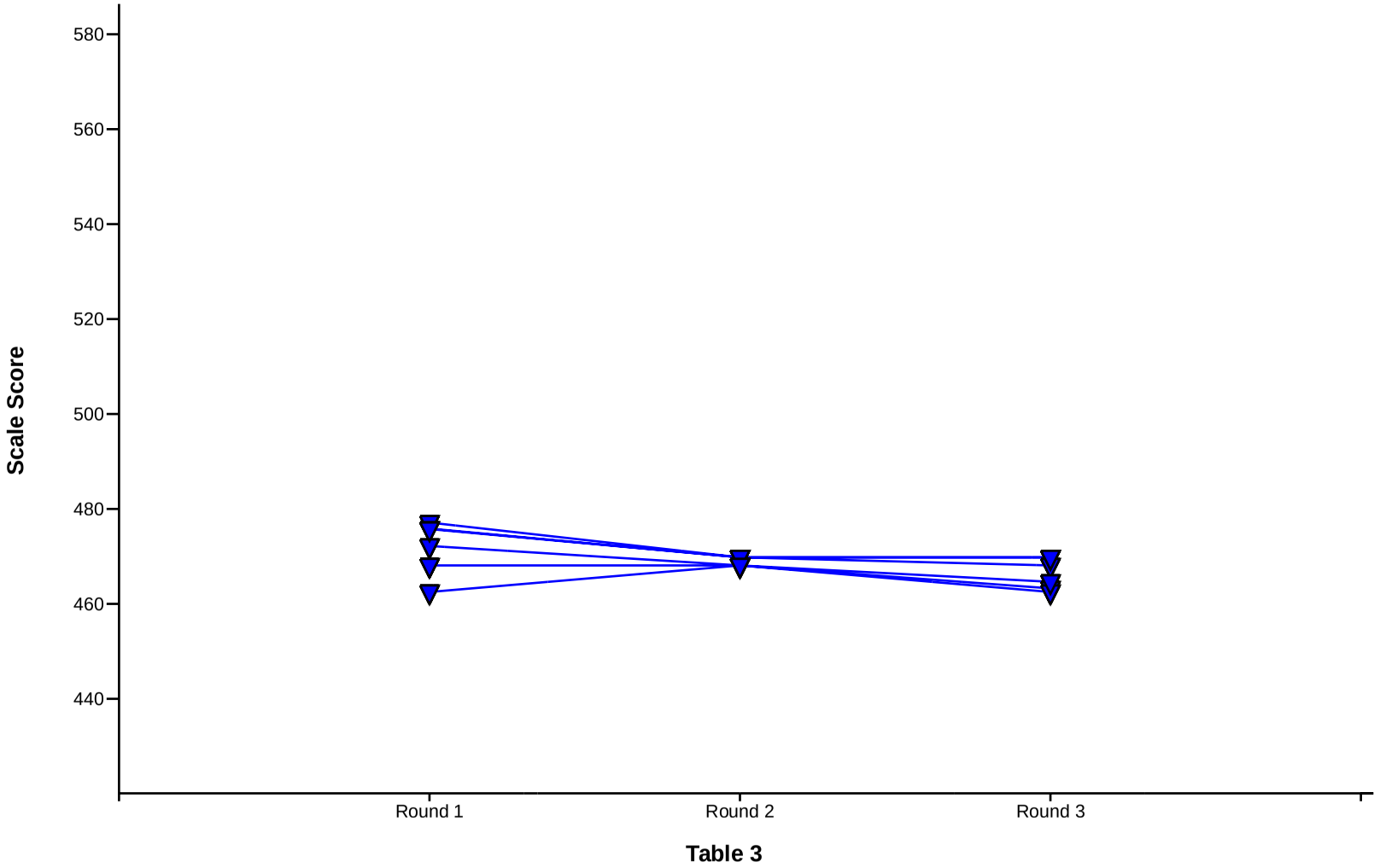
New York State Mathematics Standard Setting Grade 4 Mathematics Partially Meeting Cut Point



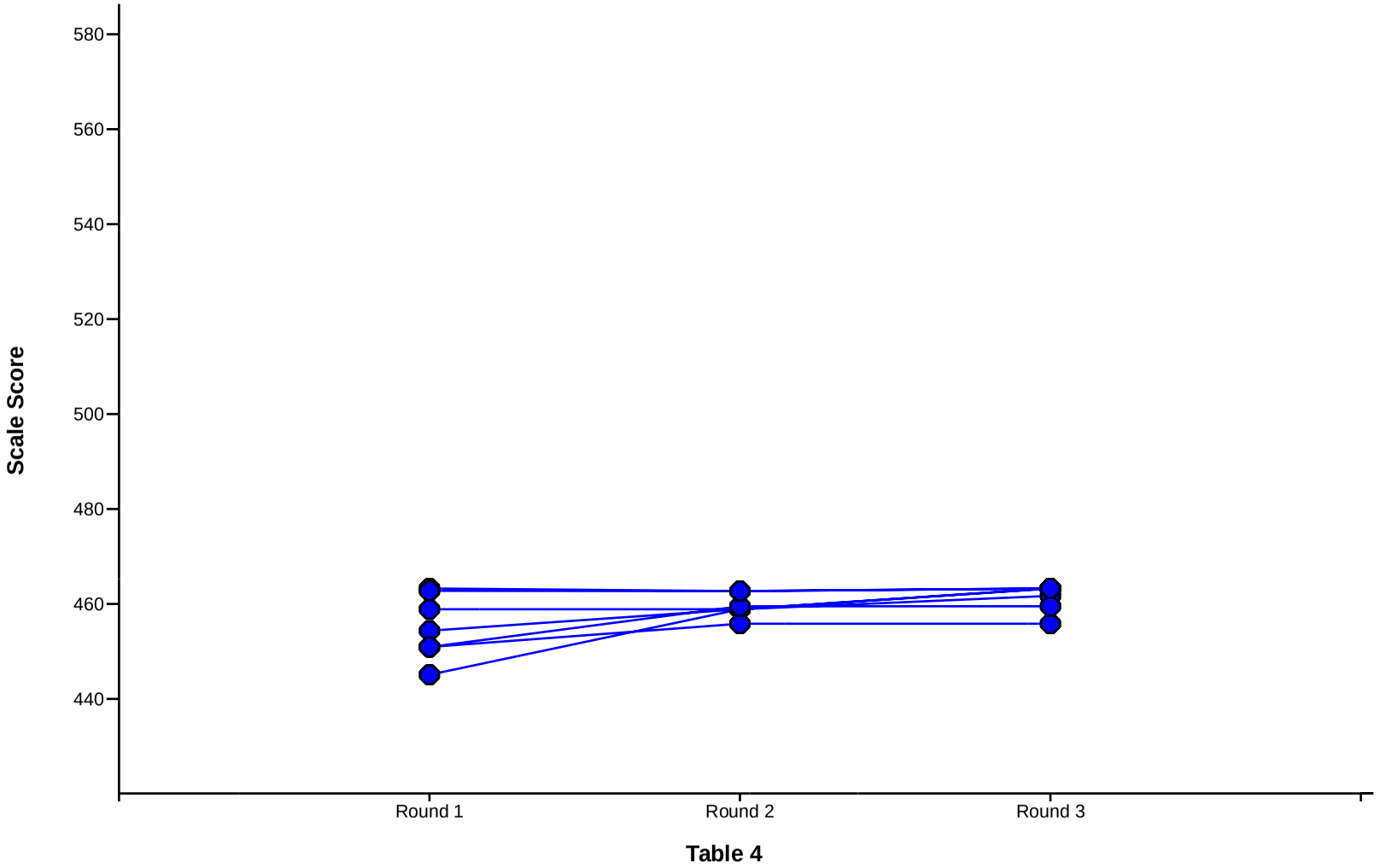
New York State Mathematics Standard Setting Grade 4 Mathematics Partially Meeting Cut Point



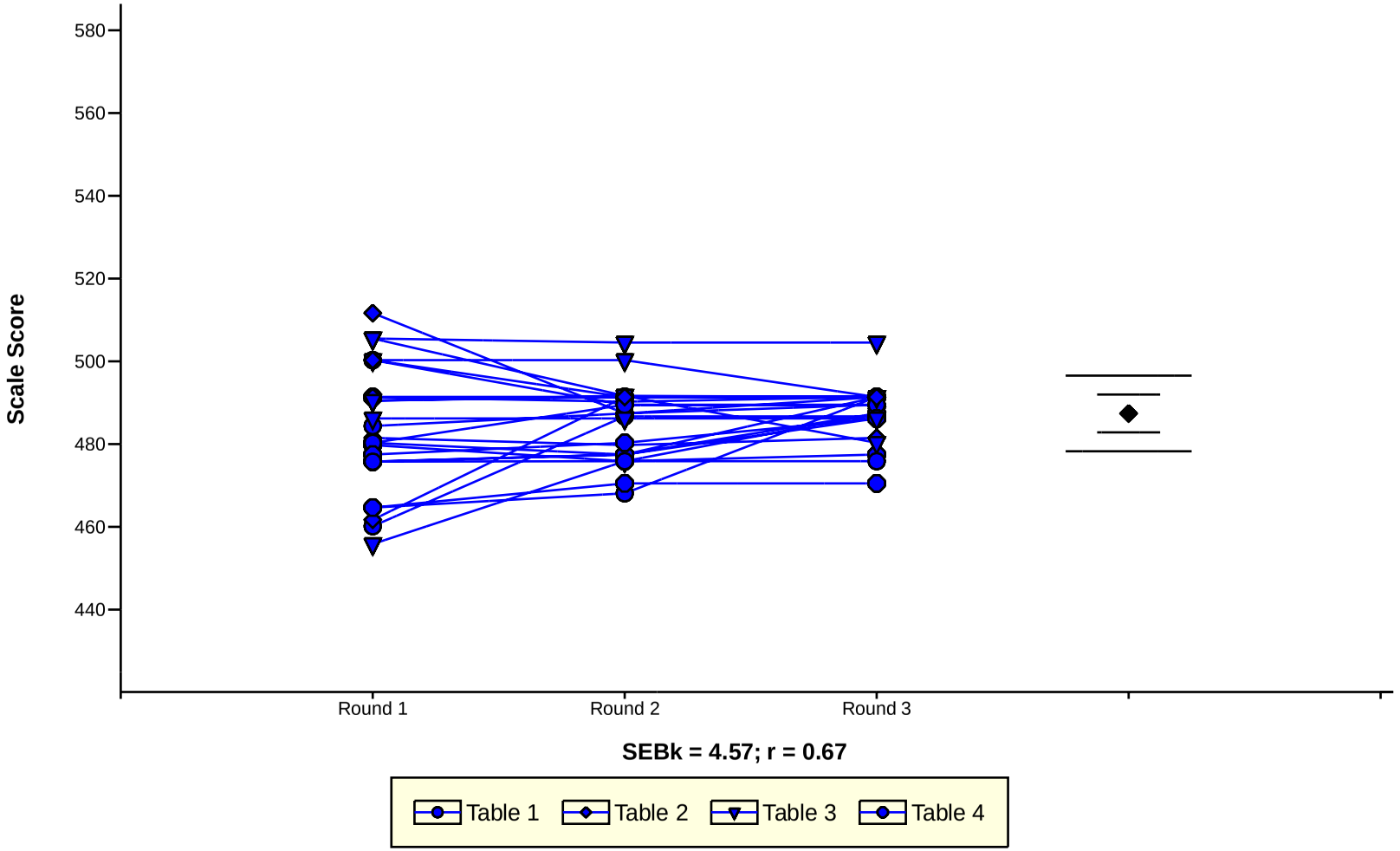
New York State Mathematics Standard Setting Grade 4 Mathematics Partially Meeting Cut Point



New York State Mathematics Standard Setting Grade 4 Mathematics Partially Meeting Cut Point

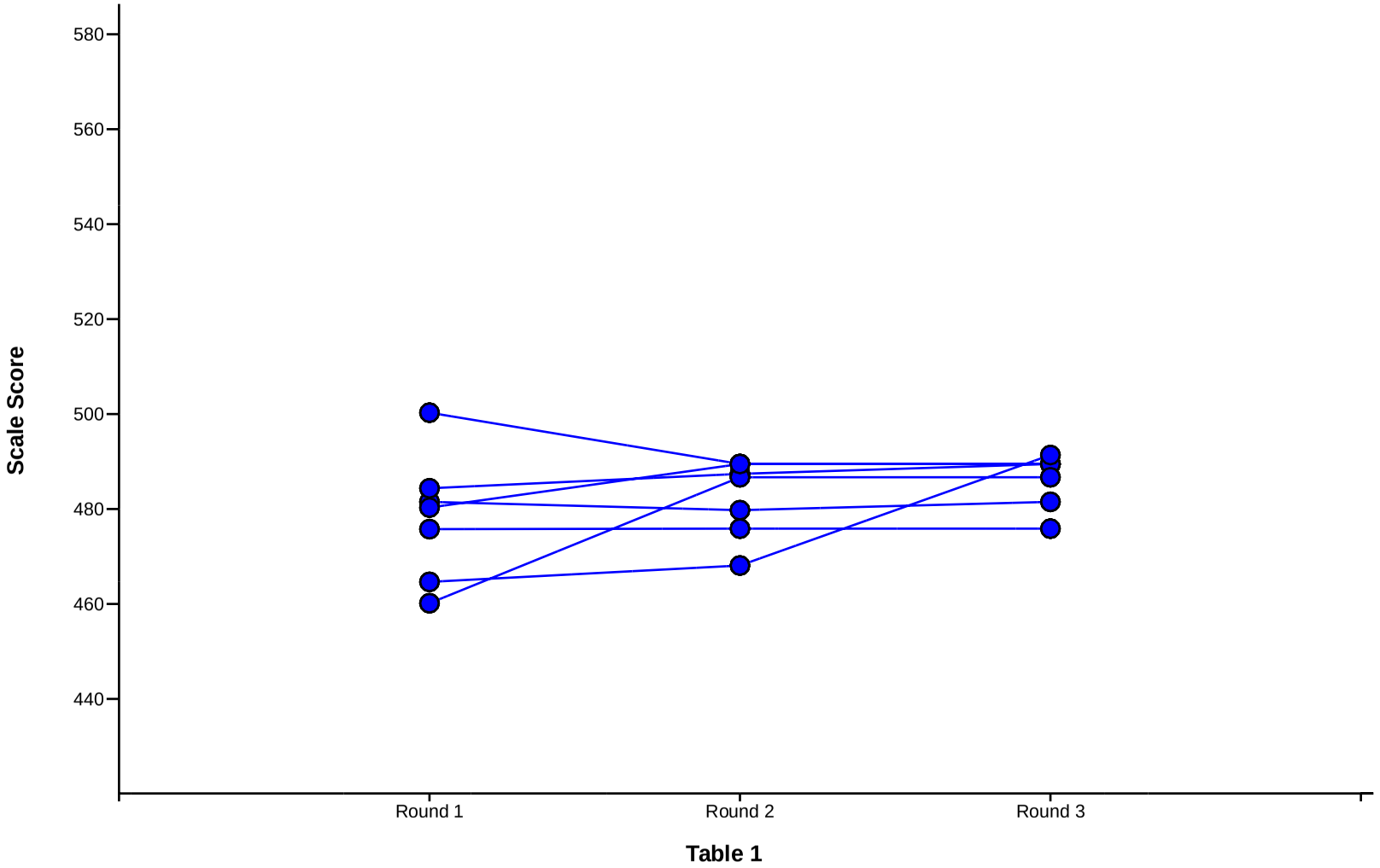


New York State Mathematics Standard Setting Grade 4 Mathematics Meeting Cut Point

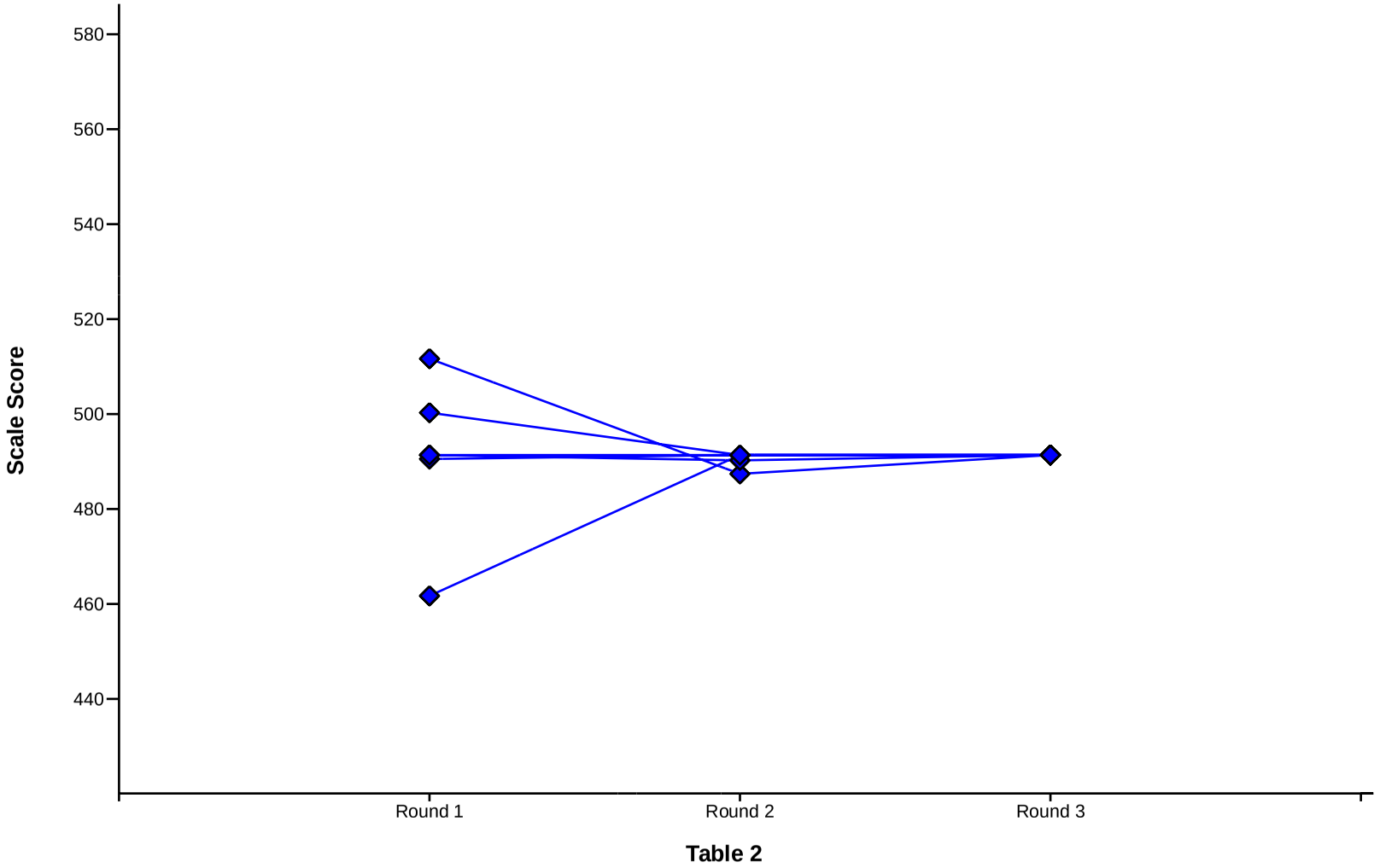


G22

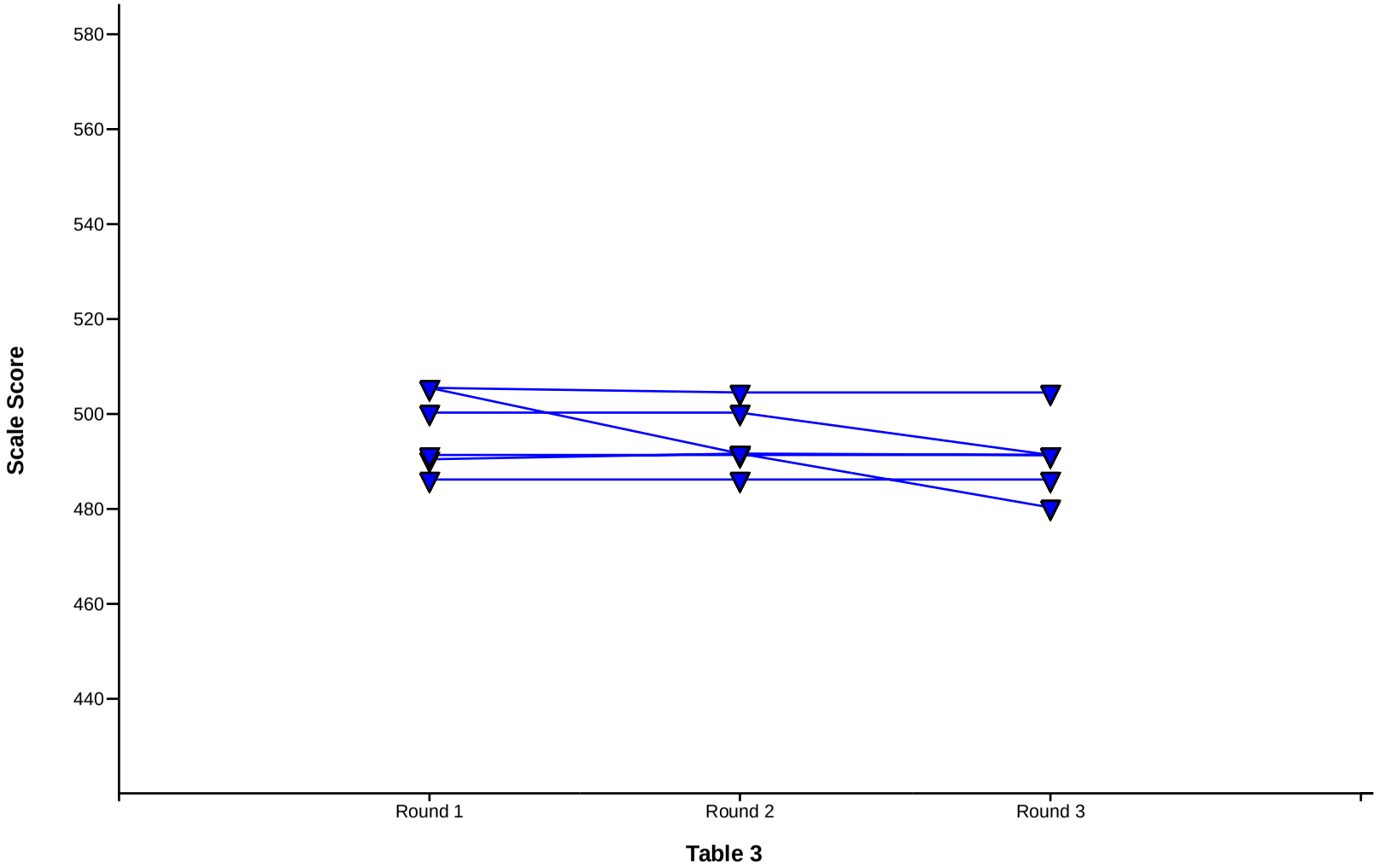
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting Cut Point



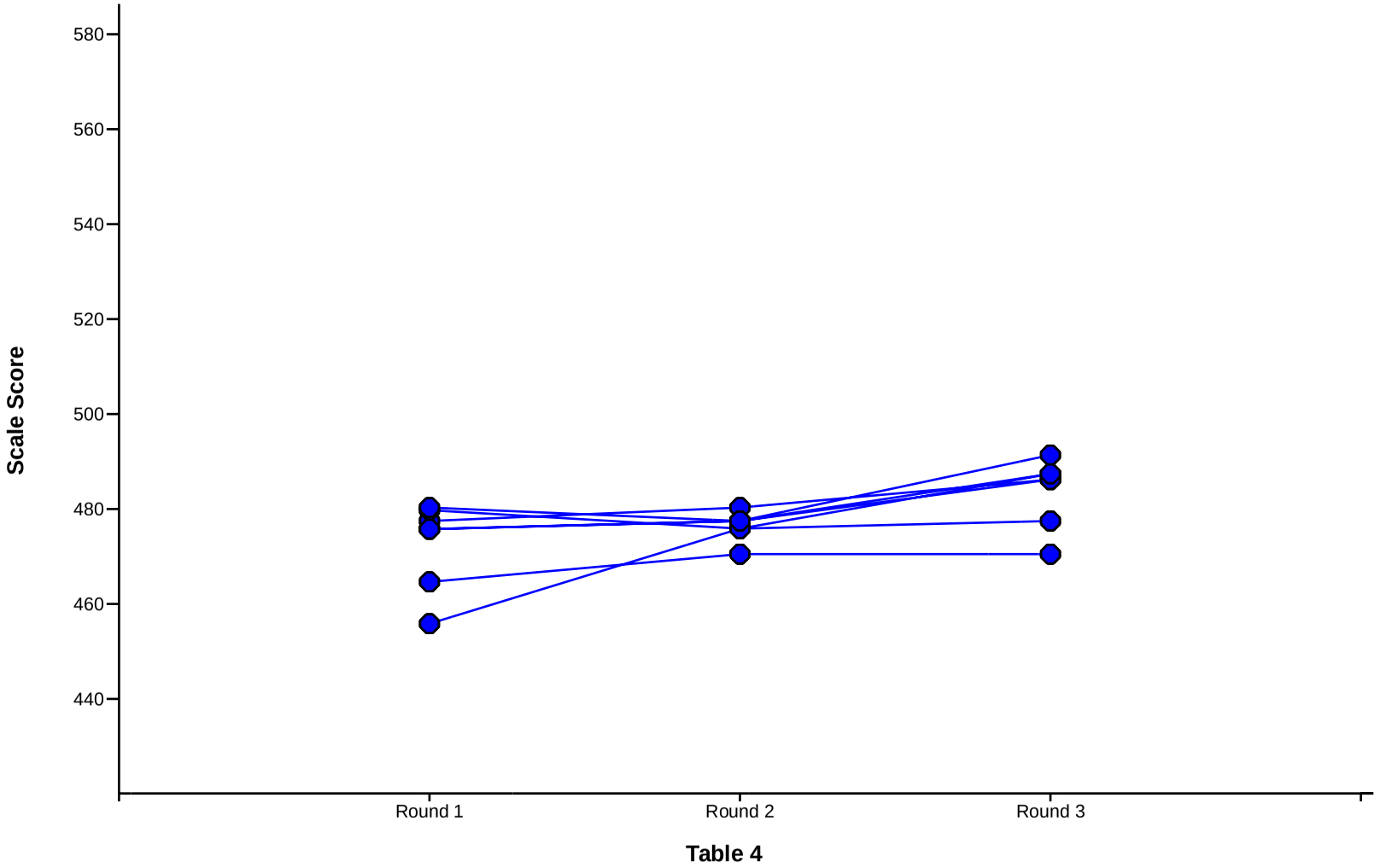
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting Cut Point



New York State Mathematics Standard Setting Grade 4 Mathematics Meeting Cut Point

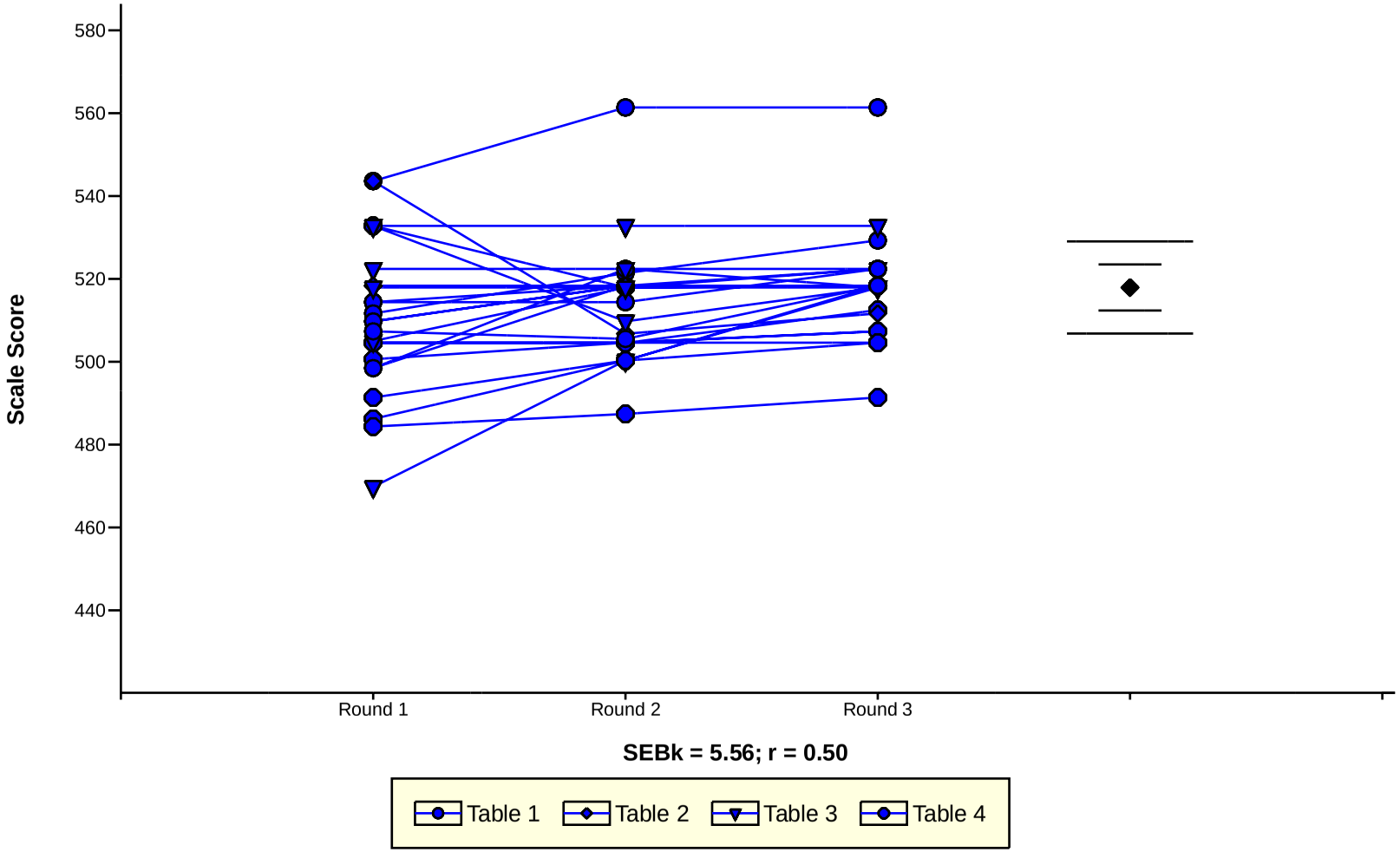


New York State Mathematics Standard Setting Grade 4 Mathematics Meeting Cut Point



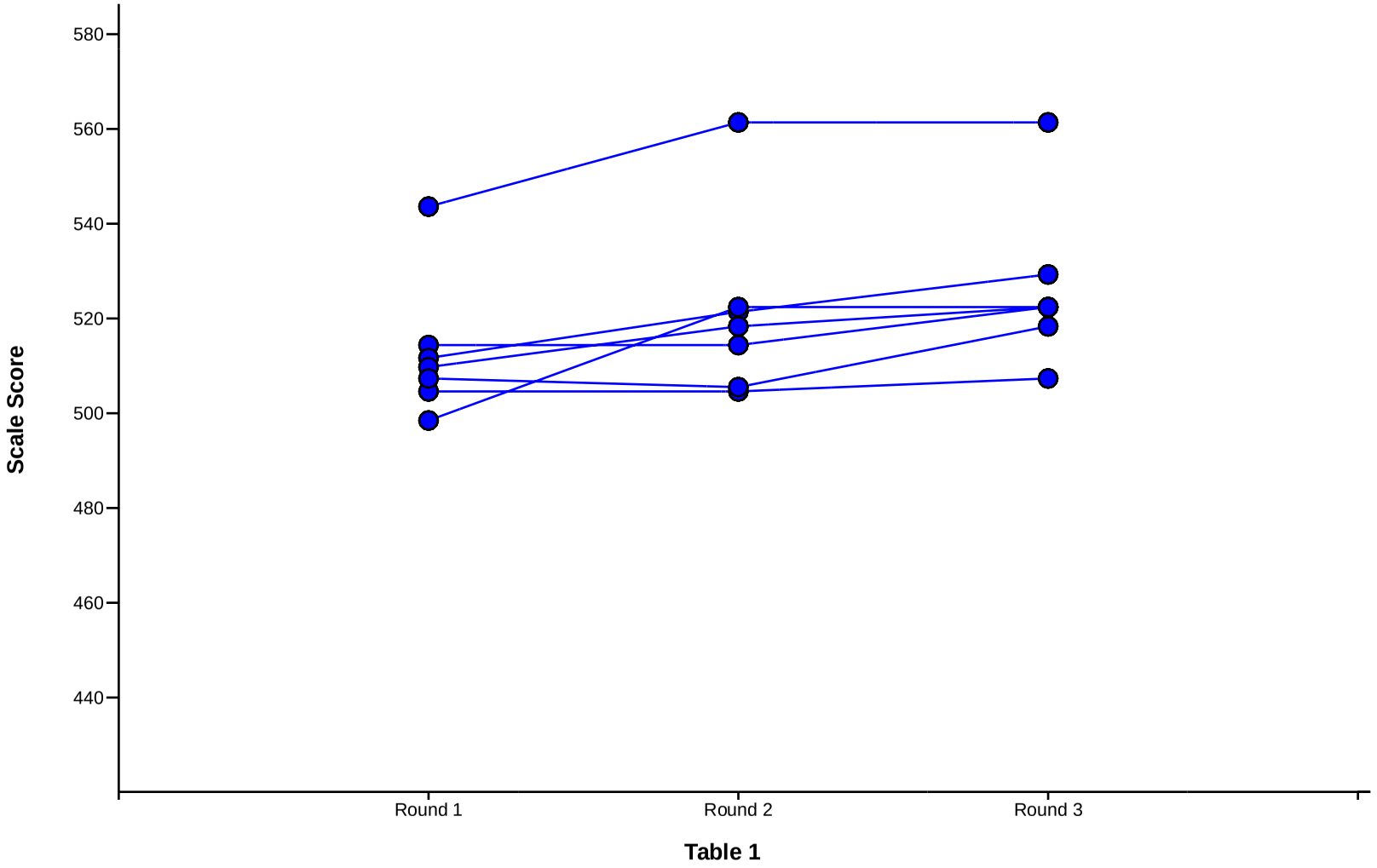
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting with Distinction Cut Point

G 26



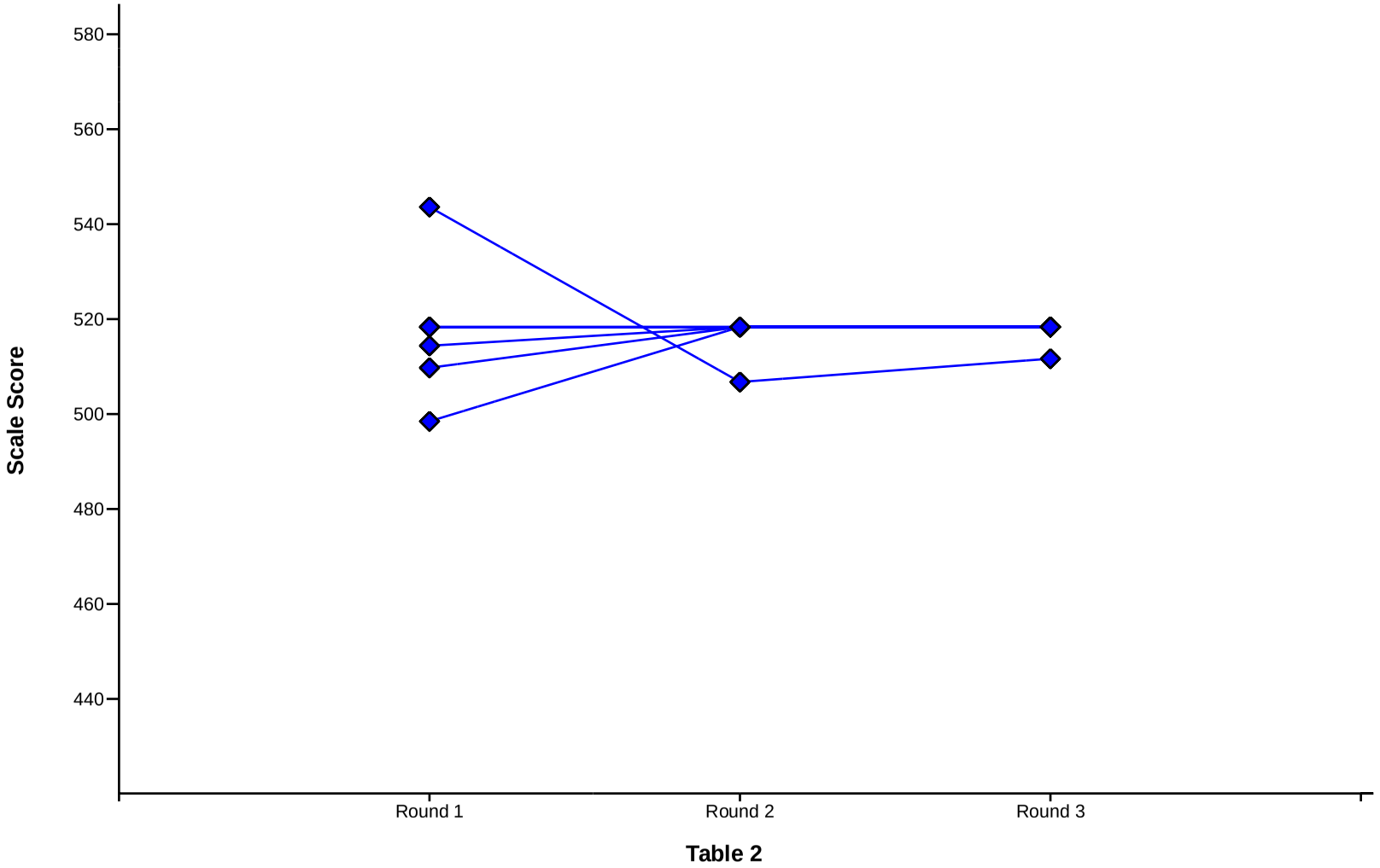
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting with Distinction Cut Point

G27



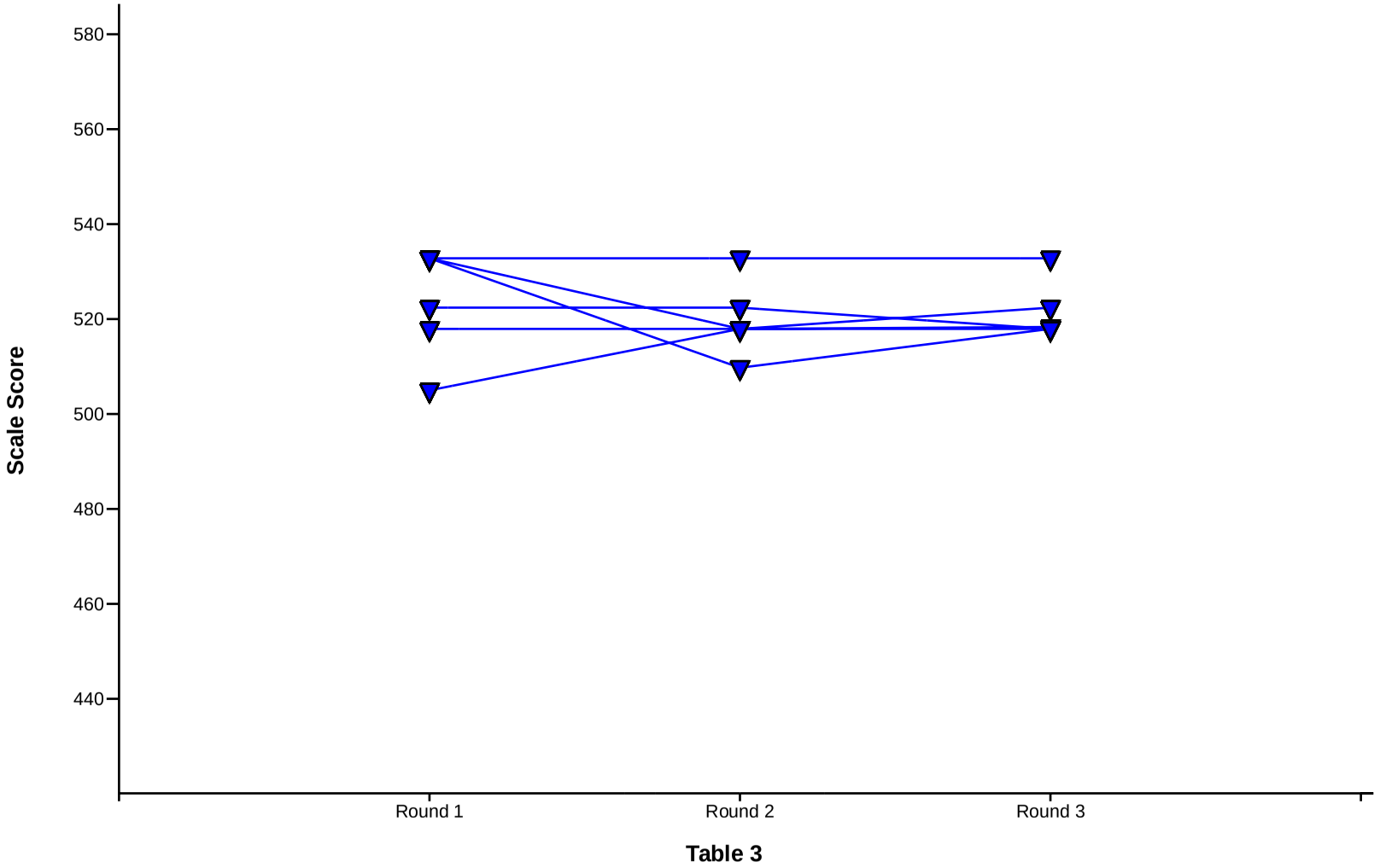
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting with Distinction Cut Point

G28



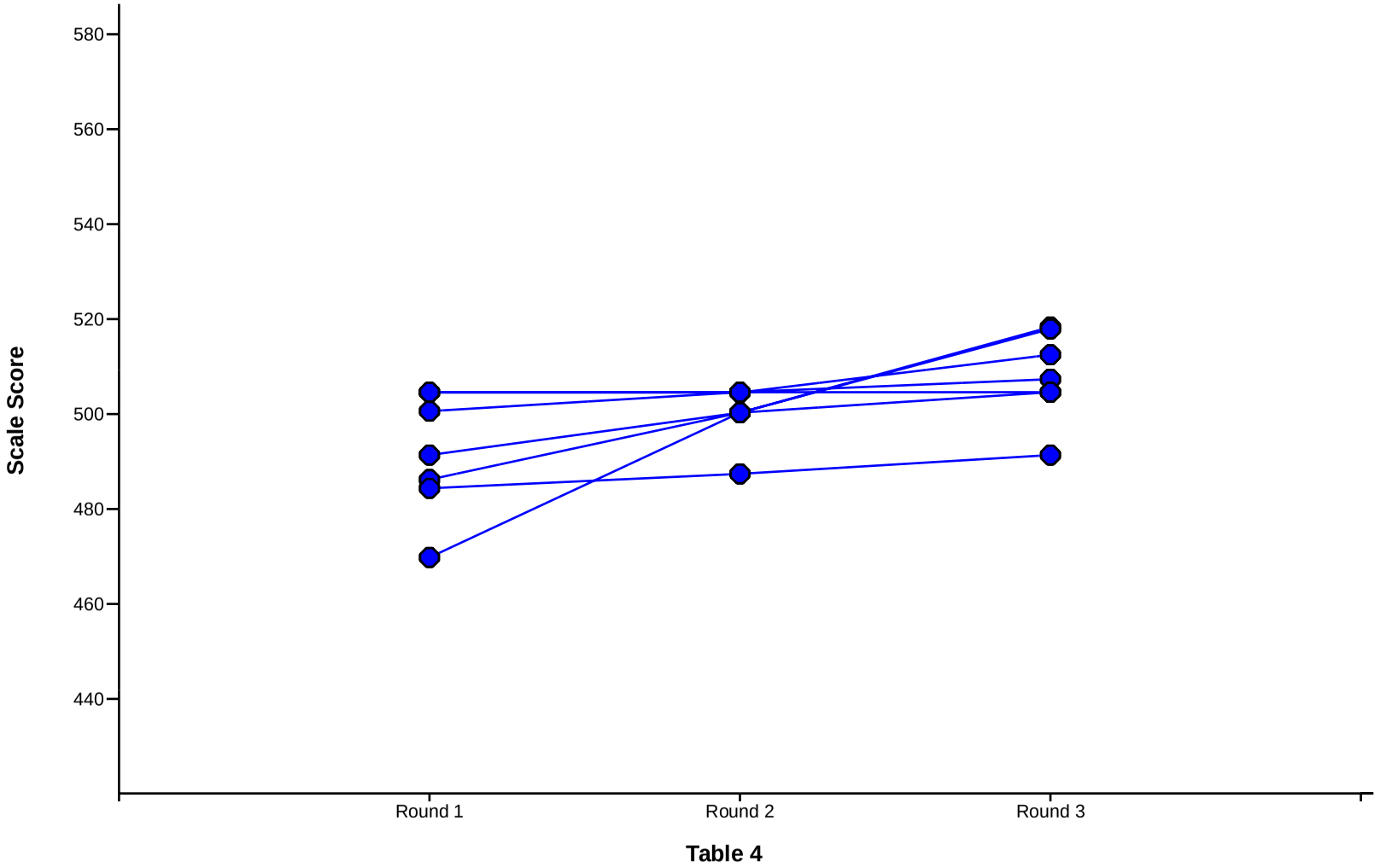
New York State Mathematics Standard Setting Grade 4 Mathematics Meeting with Distinction Cut Point

G29

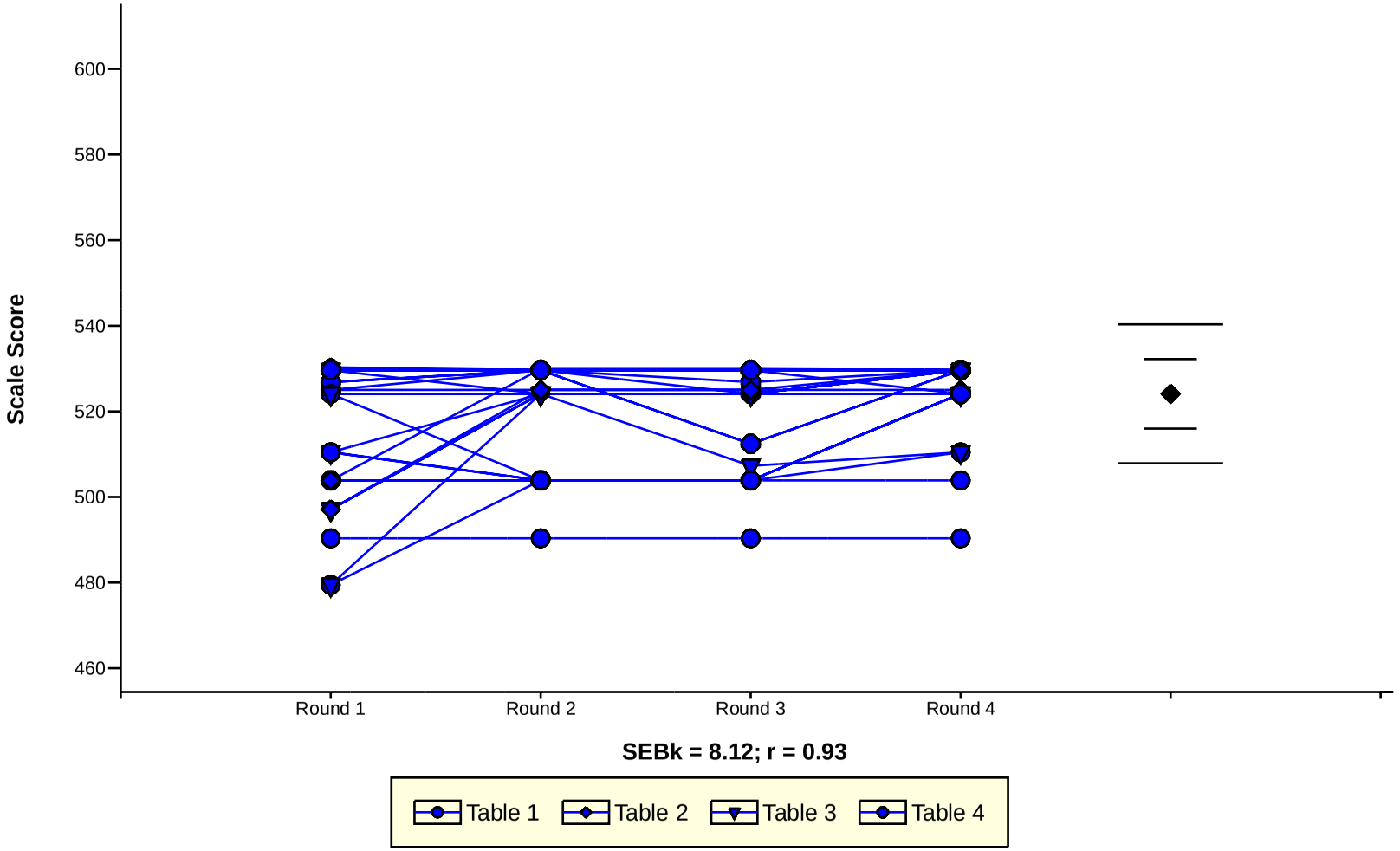


New York State Mathematics Standard Setting Grade 4 Mathematics Meeting with Distinction Cut Point

G 30



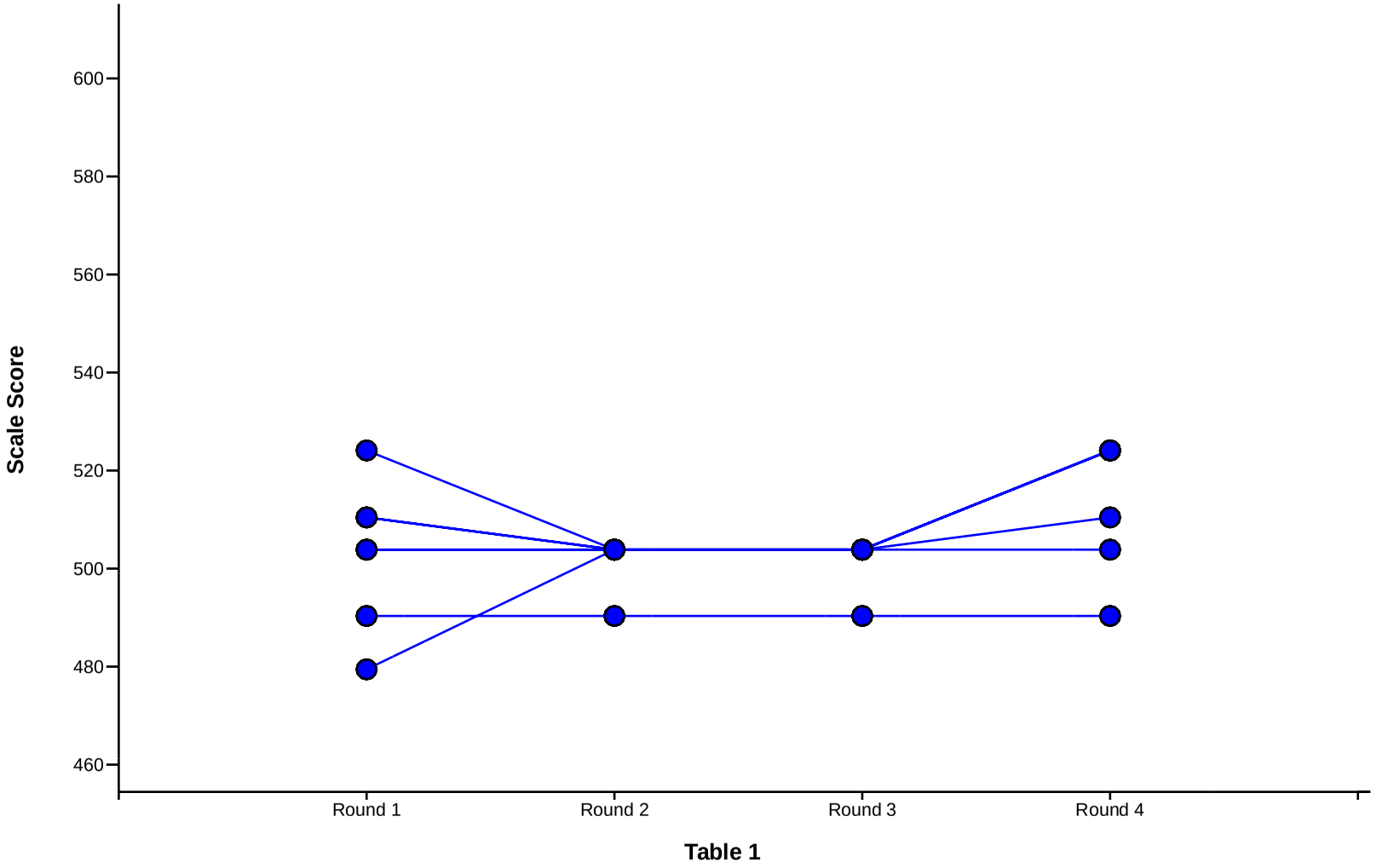
New York State Mathematics Standard Setting Grade 5 Mathematics Partially Meeting Cut Point



G 31

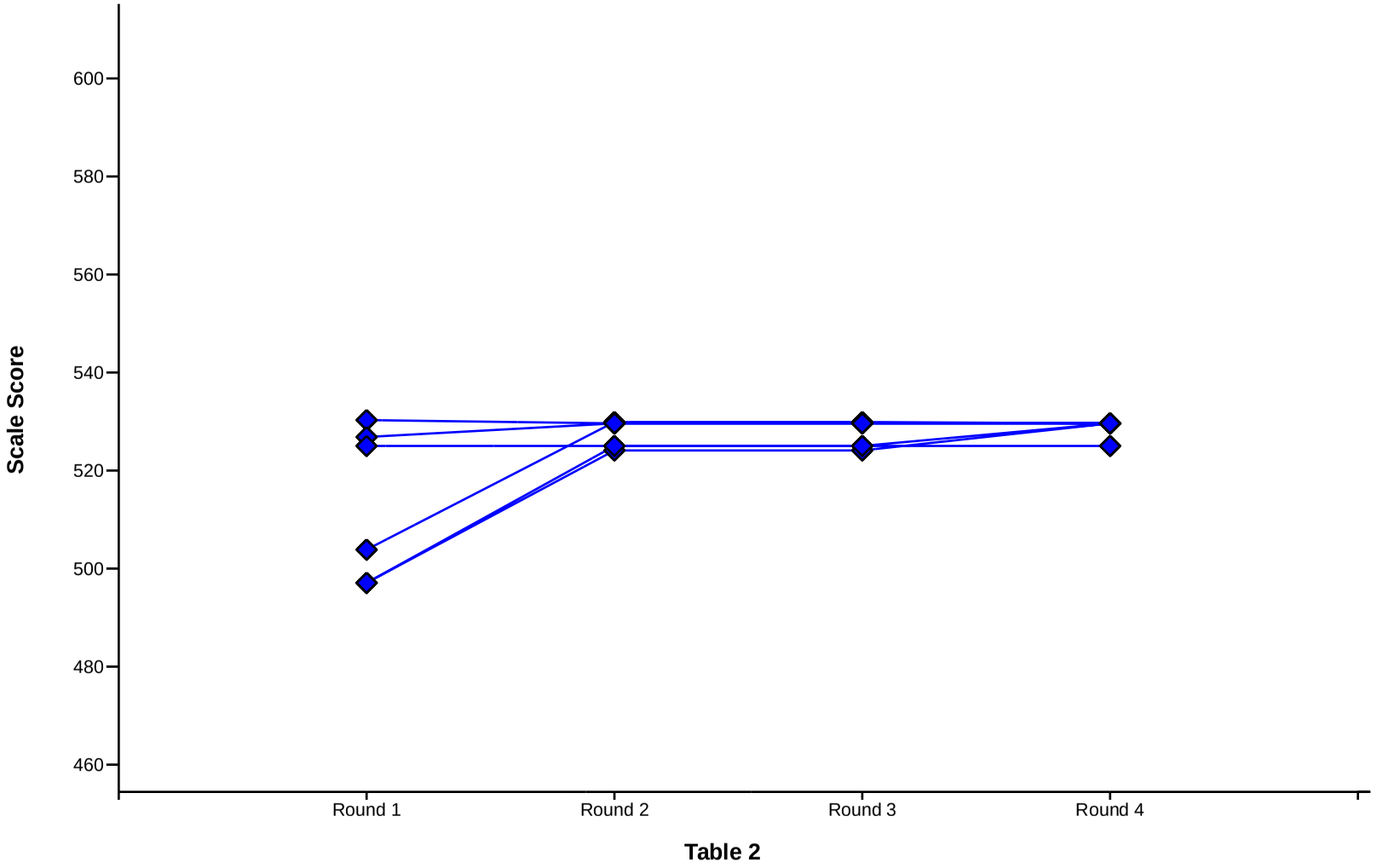
G 32

New York State Mathematics Standard Setting Grade 5 Mathematics Partially Meeting Cut Point

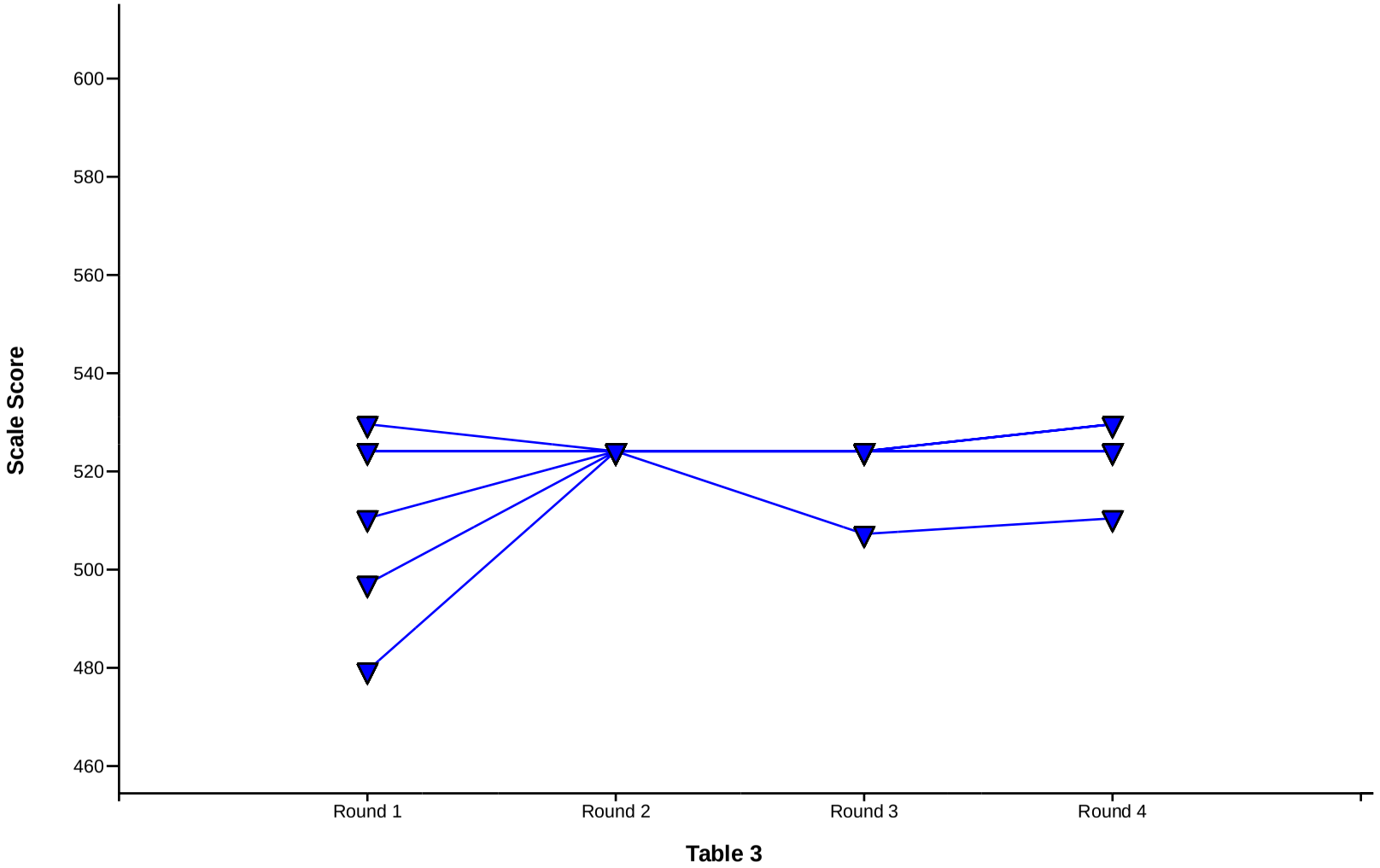


New York State Mathematics Standard Setting Grade 5 Mathematics Partially Meeting Cut Point

G 33

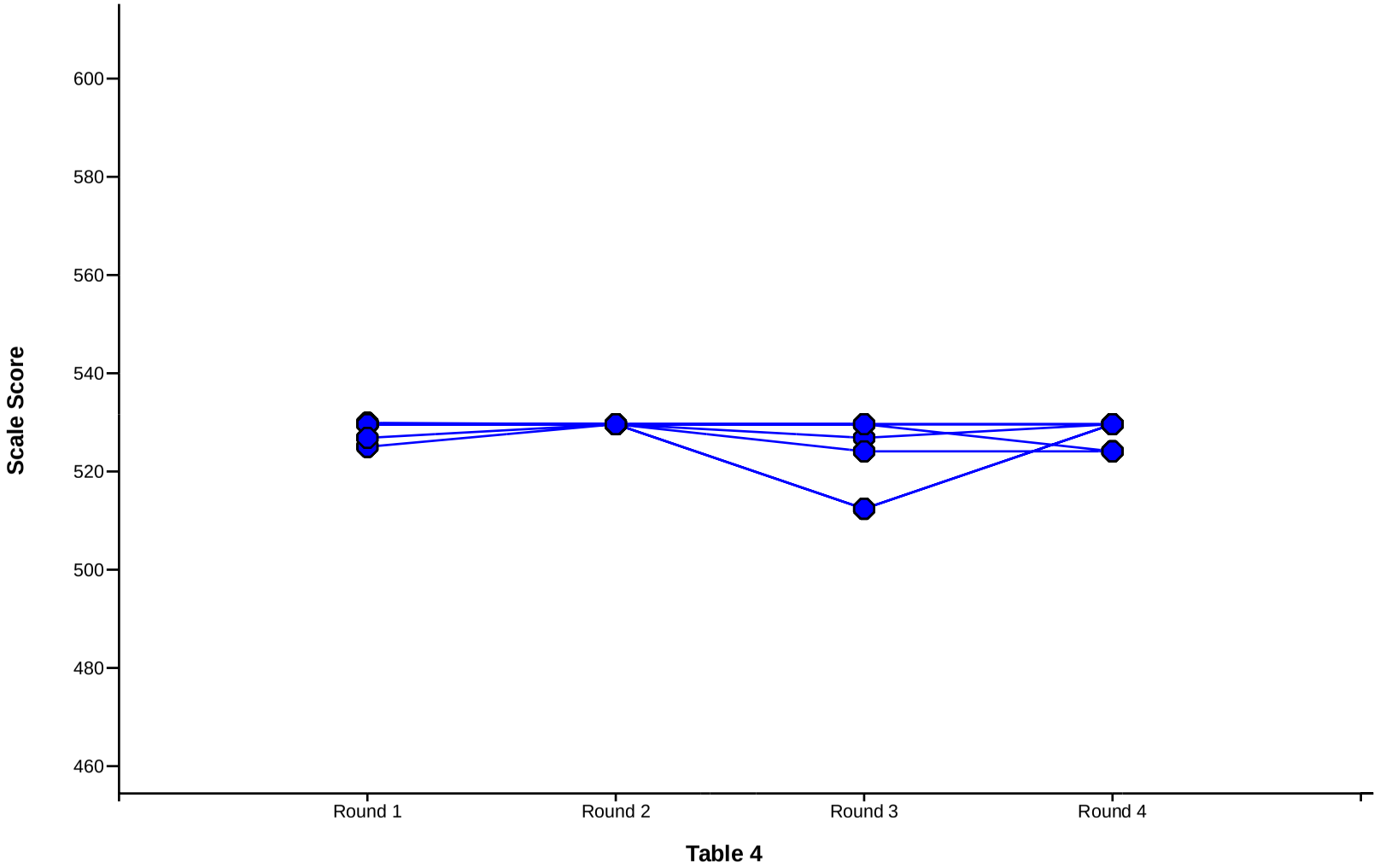


New York State Mathematics Standard Setting Grade 5 Mathematics Partially Meeting Cut Point

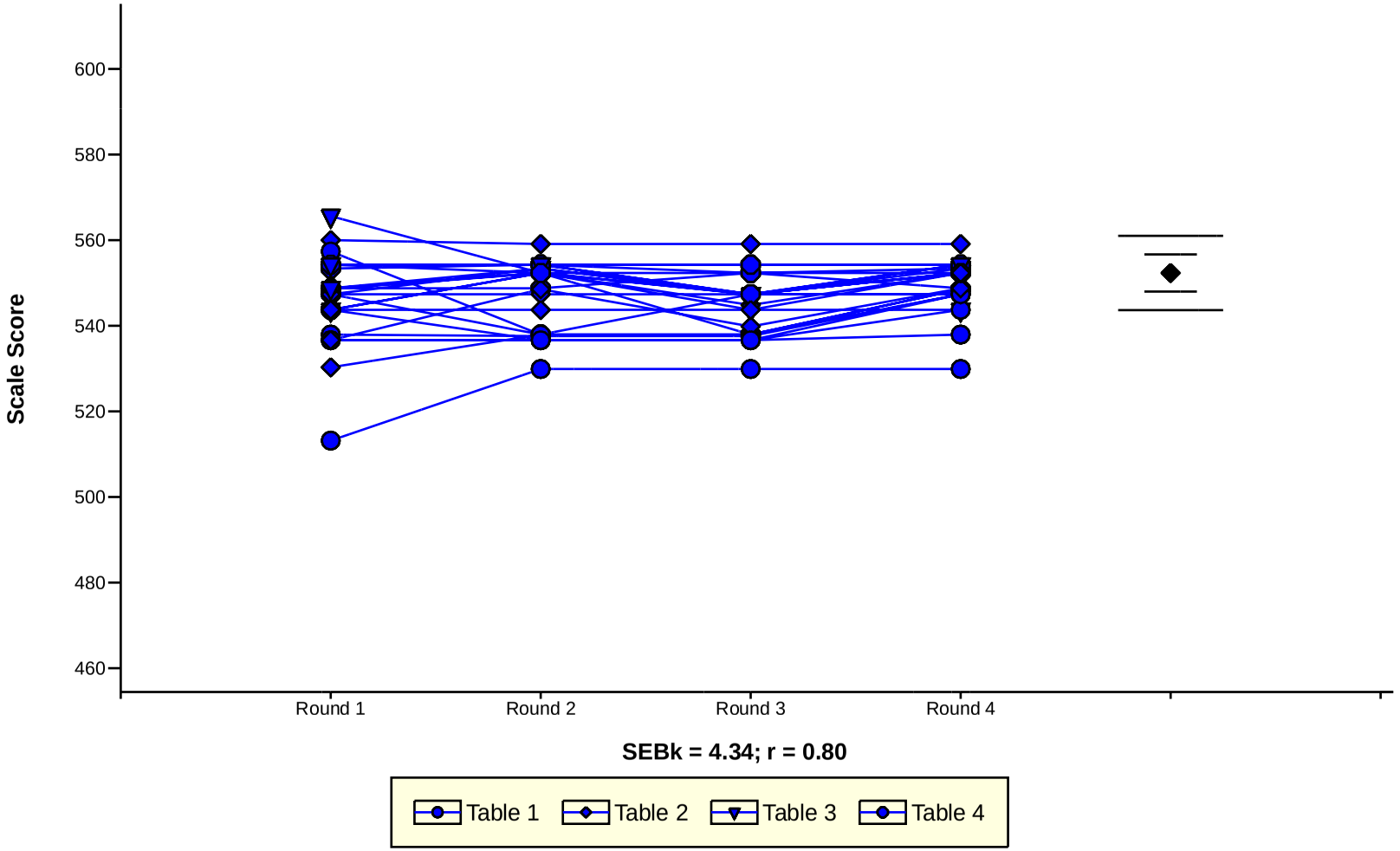


New York State Mathematics Standard Setting Grade 5 Mathematics Partially Meeting Cut Point

G 35

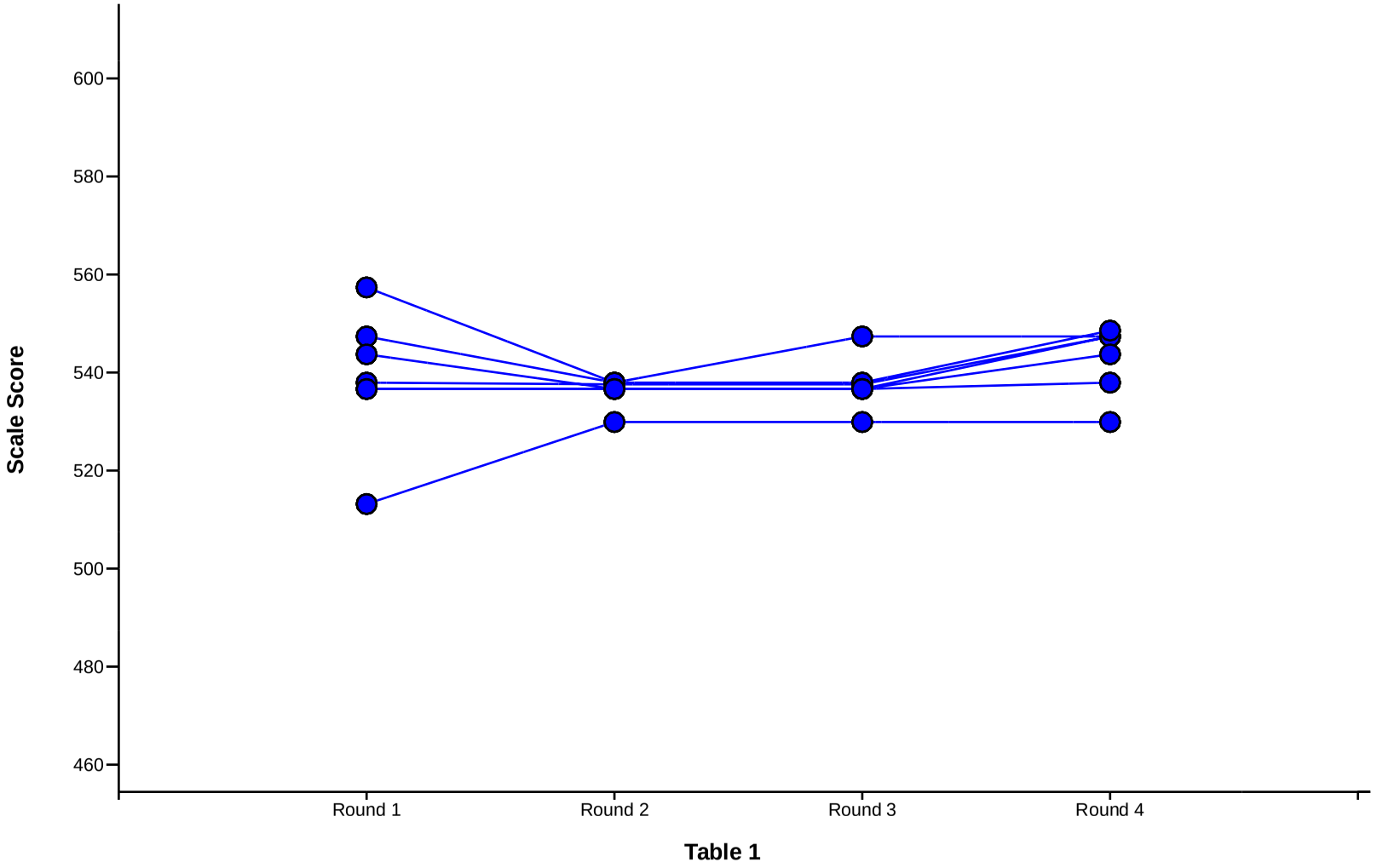


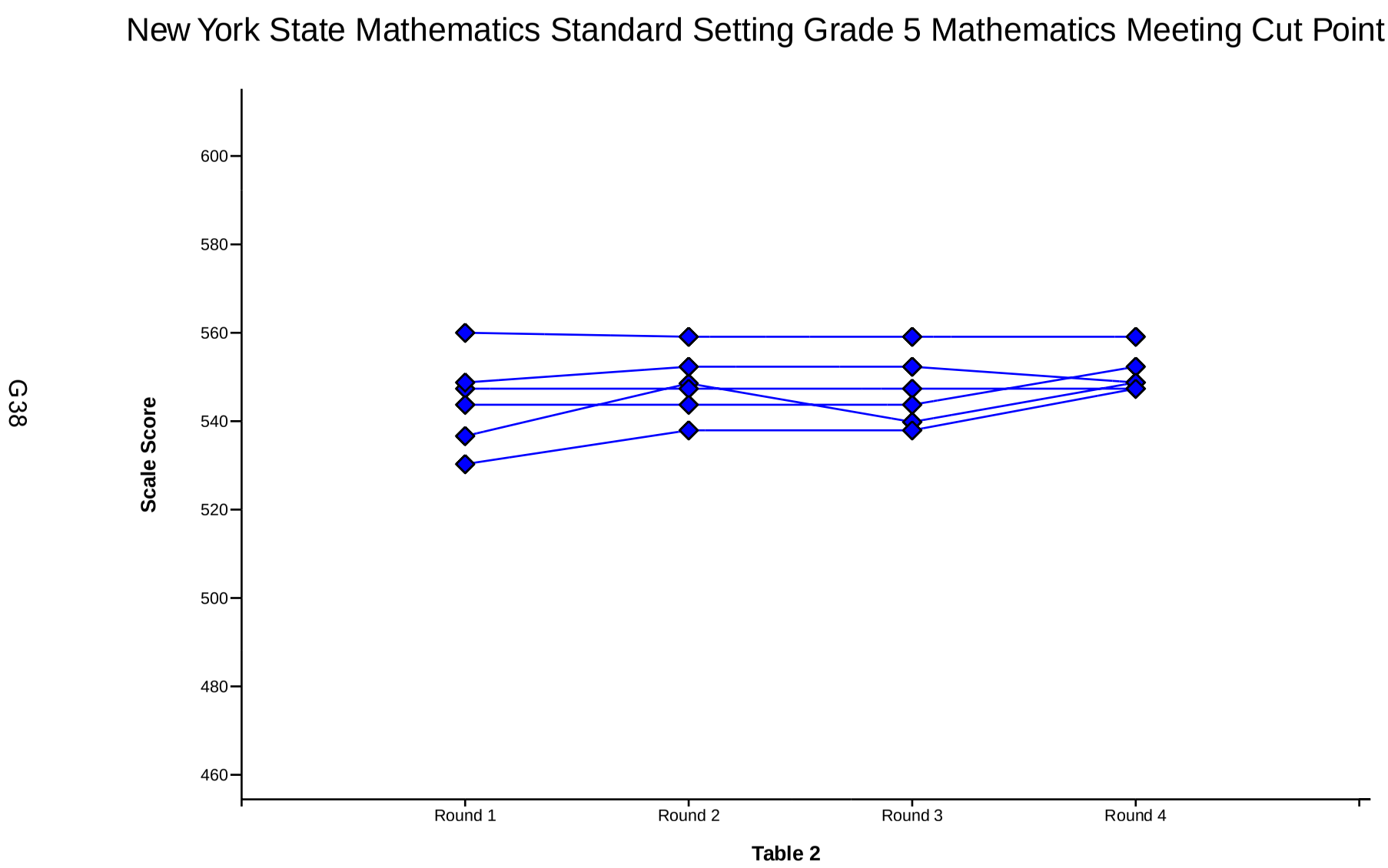
New York State Mathematics Standard Setting Grade 5 Mathematics Meeting Cut Point



G37

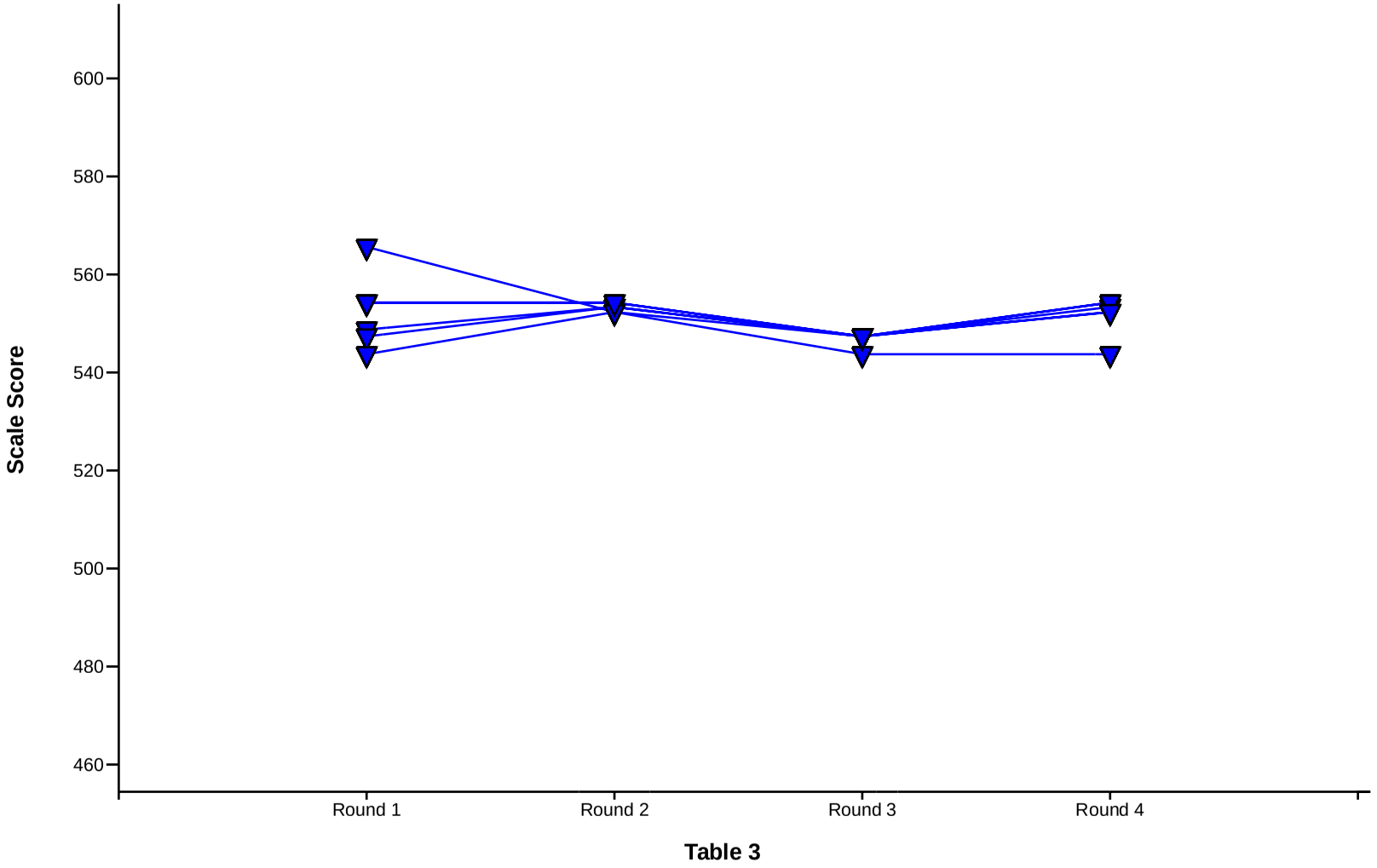
New York State Mathematics Standard Setting Grade 5 Mathematics Meeting Cut Point




New York State Mathematics Standard Setting Grade 5 Mathematics Meeting Cut Point
Scale Score
600
580
560
540
520
500
480
460
Round 1
Round 2
Round 3
Round 4
Table 2

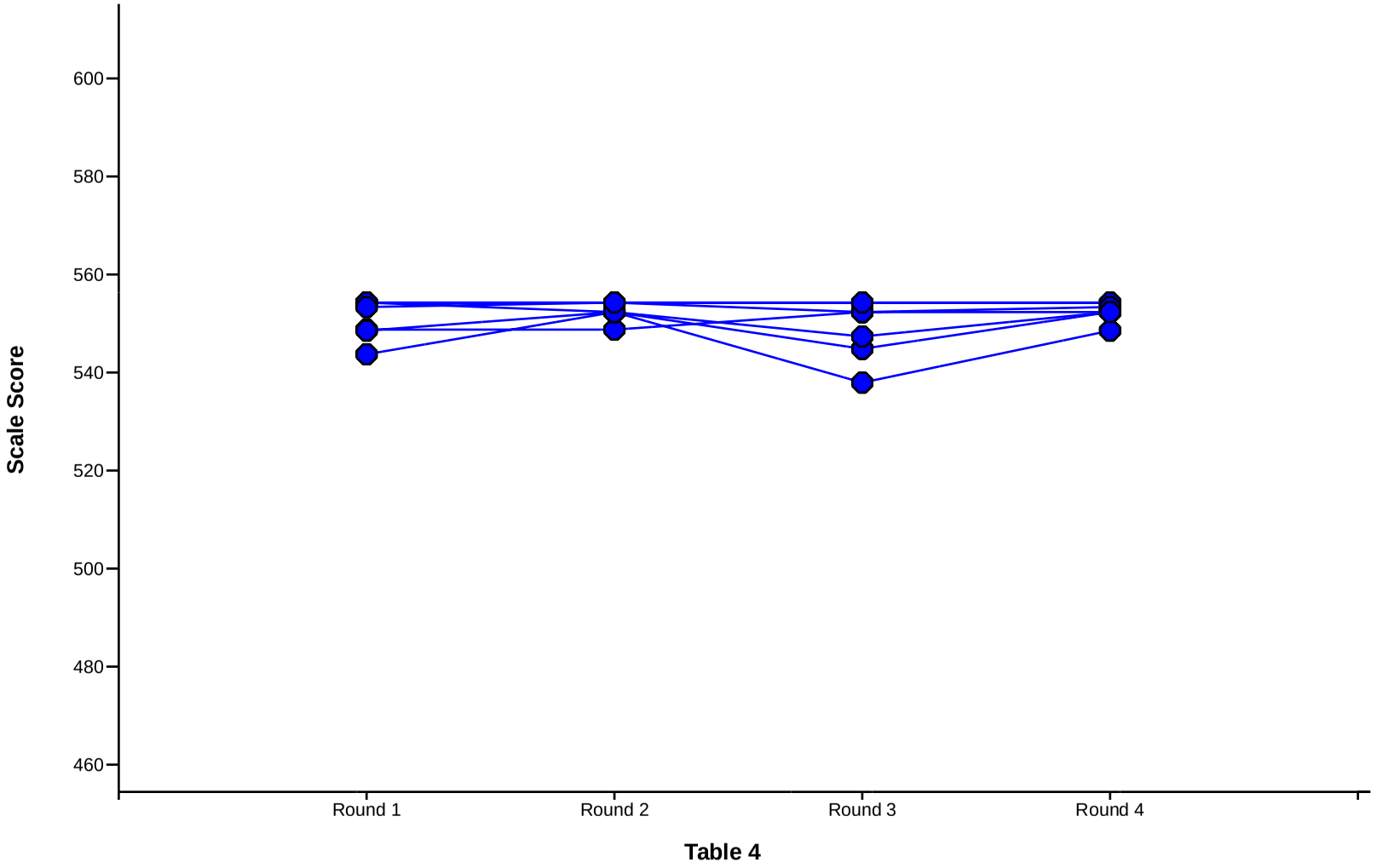
G 39

New York State Mathematics Standard Setting Grade 5 Mathematics Meeting Cut Point



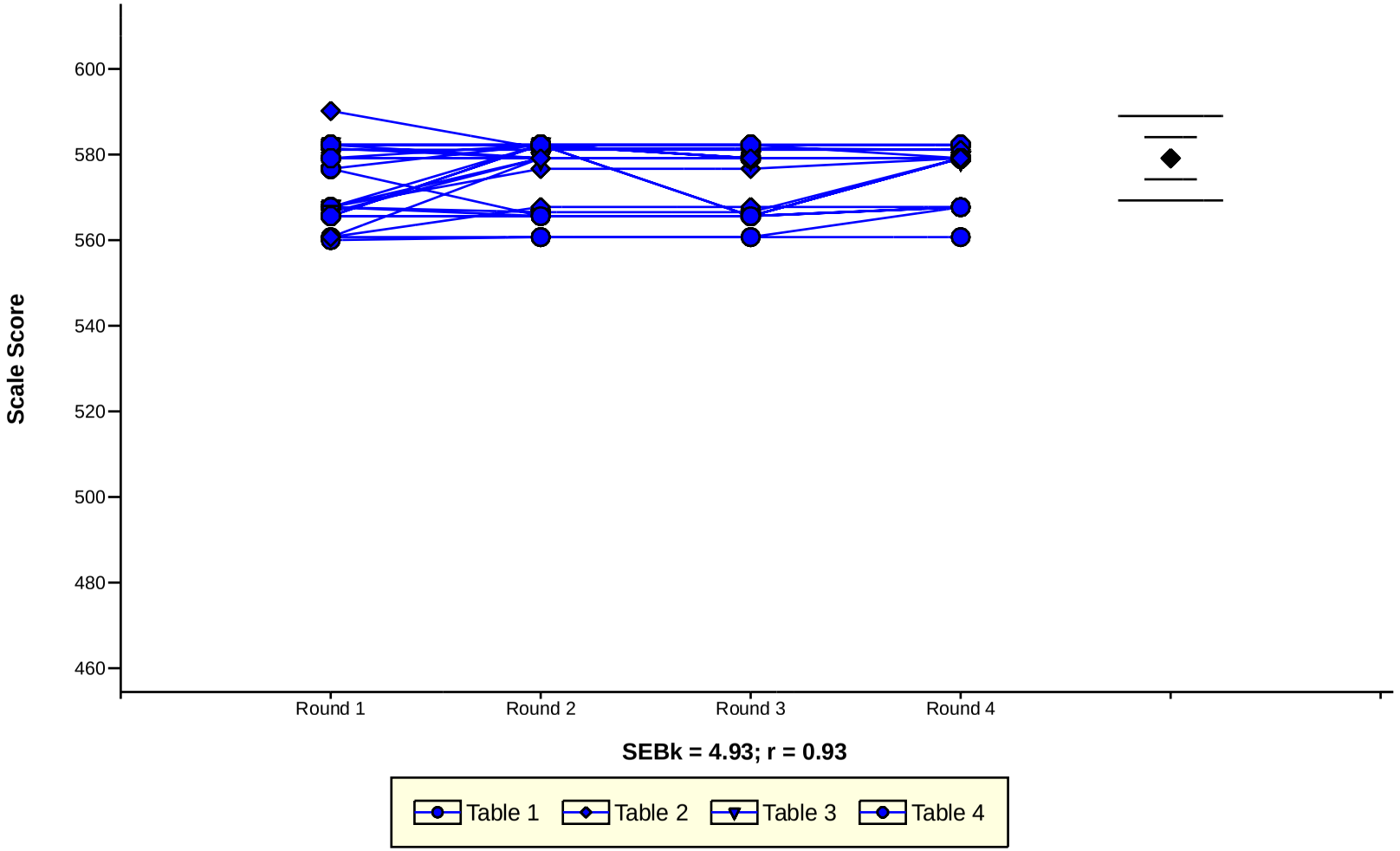
G40

New York State Mathematics Standard Setting Grade 5 Mathematics Meeting Cut Point



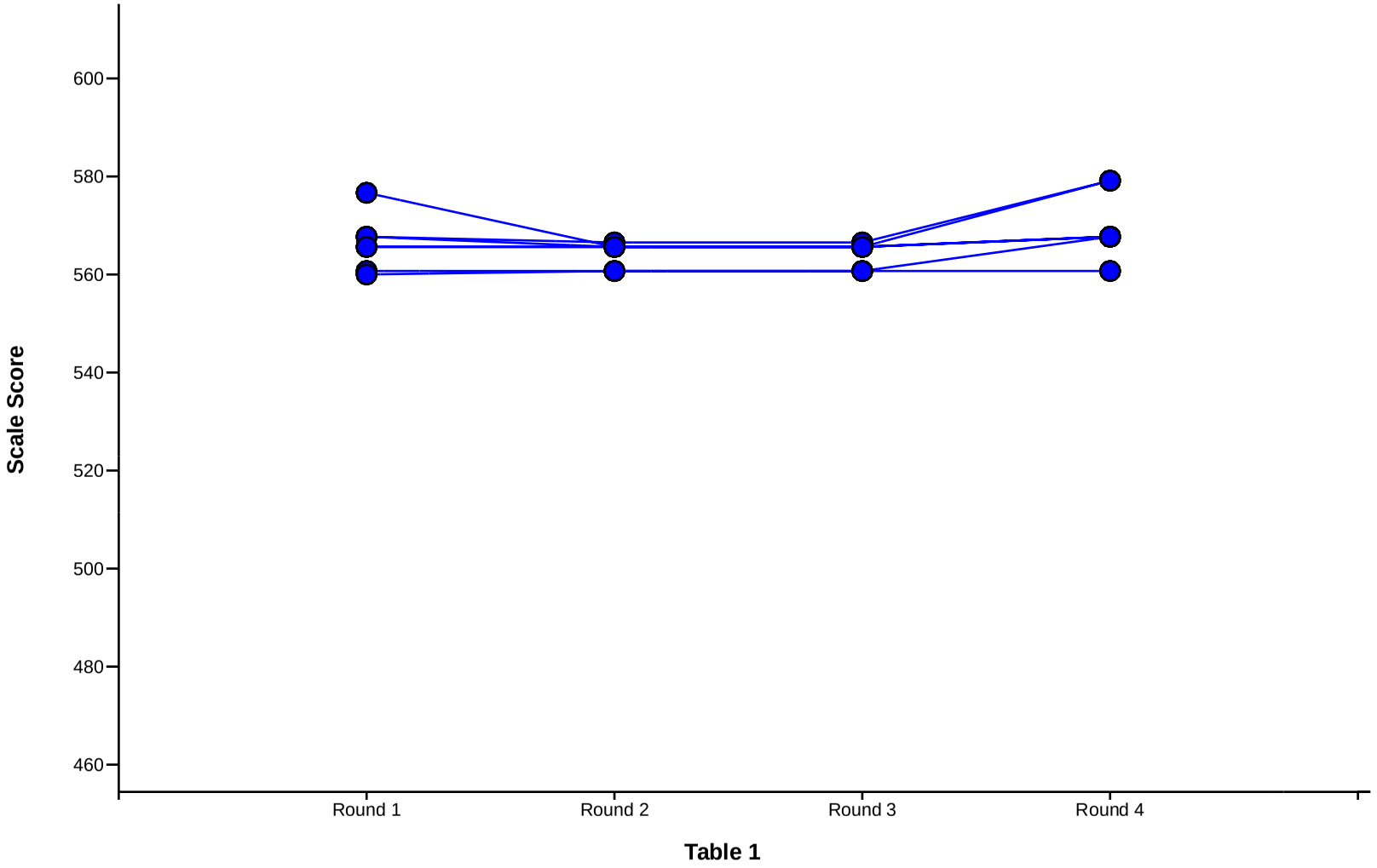
New York State Mathematics Standard Setting Grade 5 Mathematics Meeting with Distinction Cut Point

G41



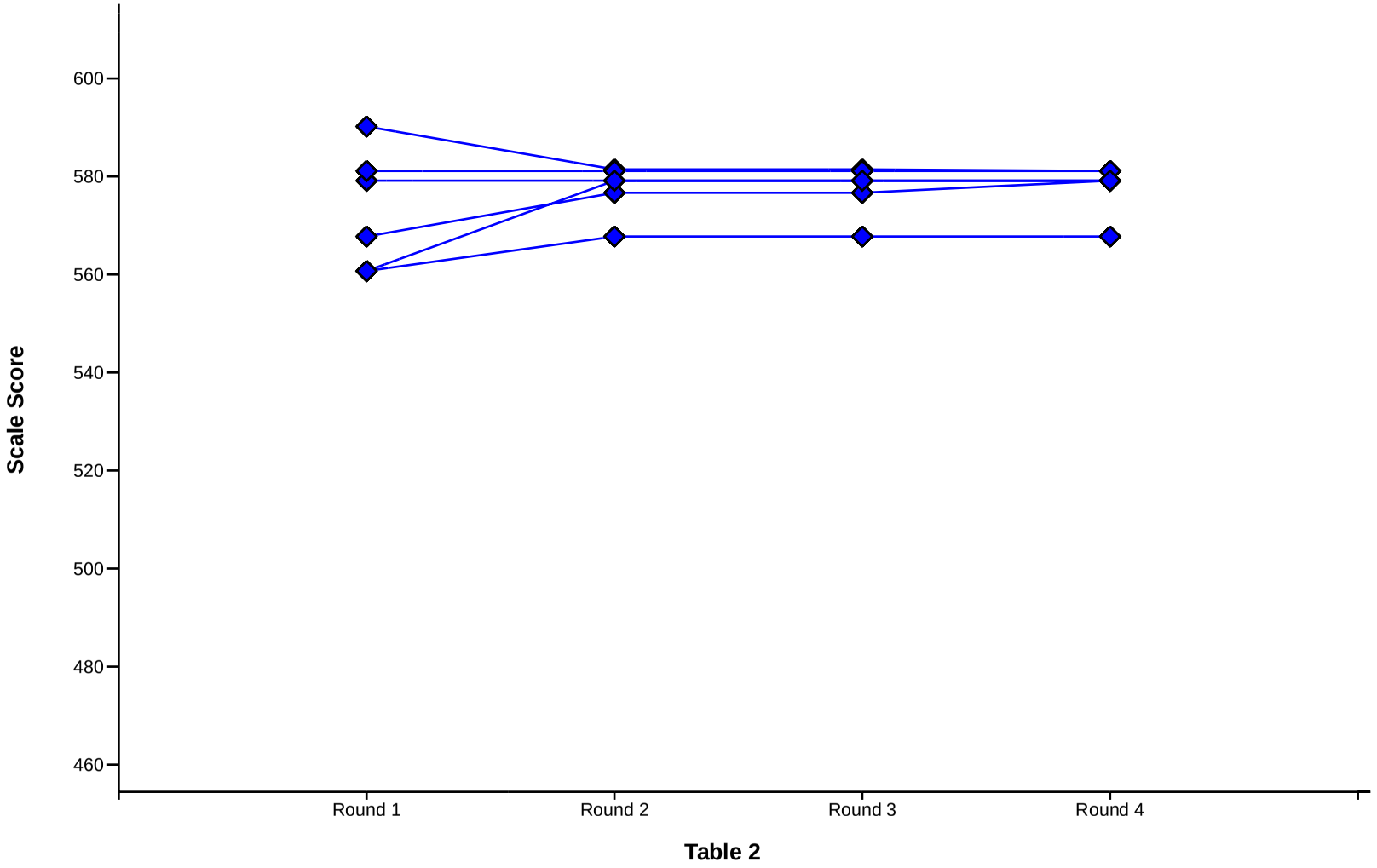
New York State Mathematics Standard Setting Grade 5 Mathematics Meeting with Distinction Cut Point

G42

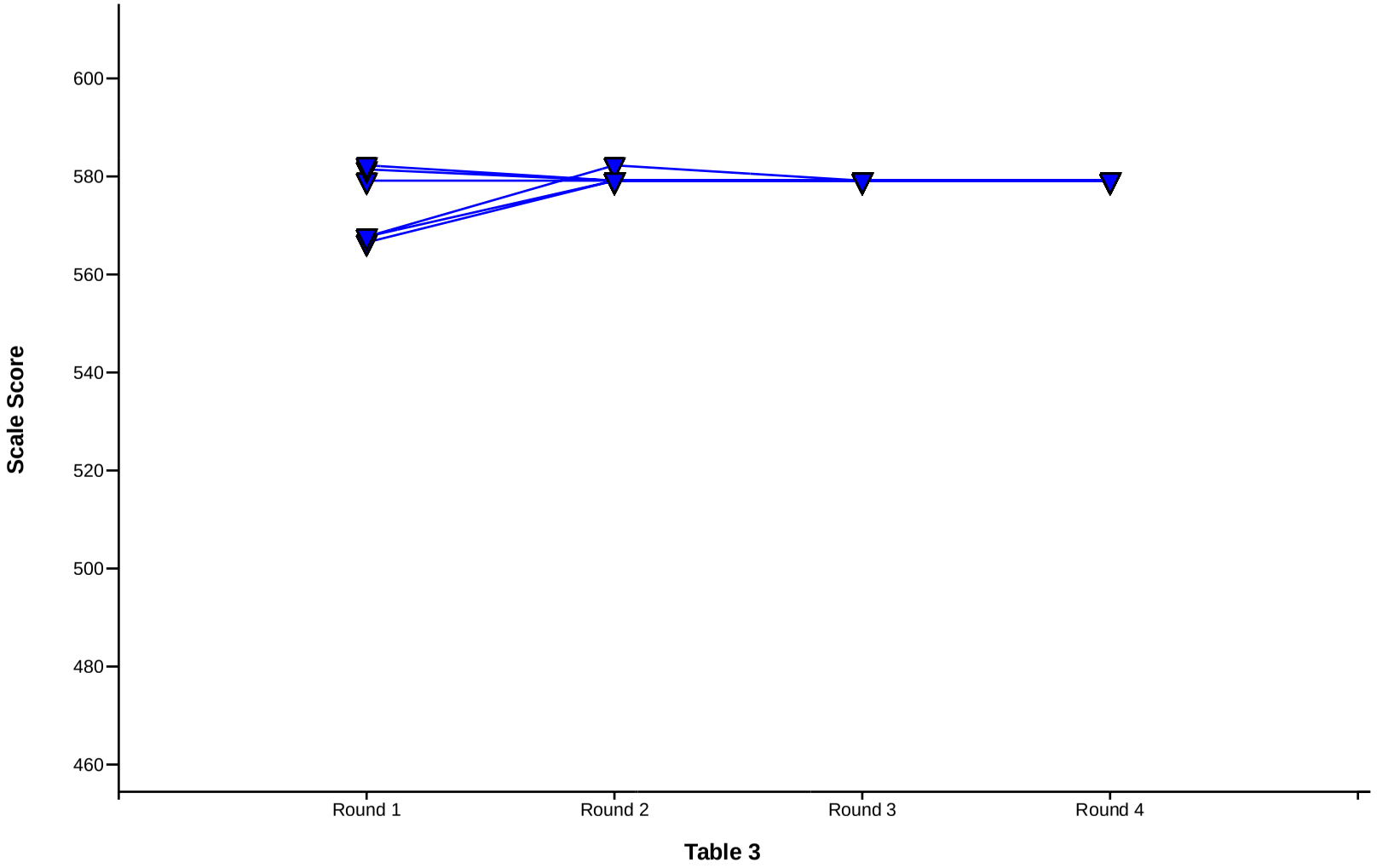


New York State Mathematics Standard Setting Grade 5 Mathematics Meeting with Distinction Cut Point

G43



New York State Mathematics Standard Setting Grade 5 Mathematics Meeting with Distinction Cut Point



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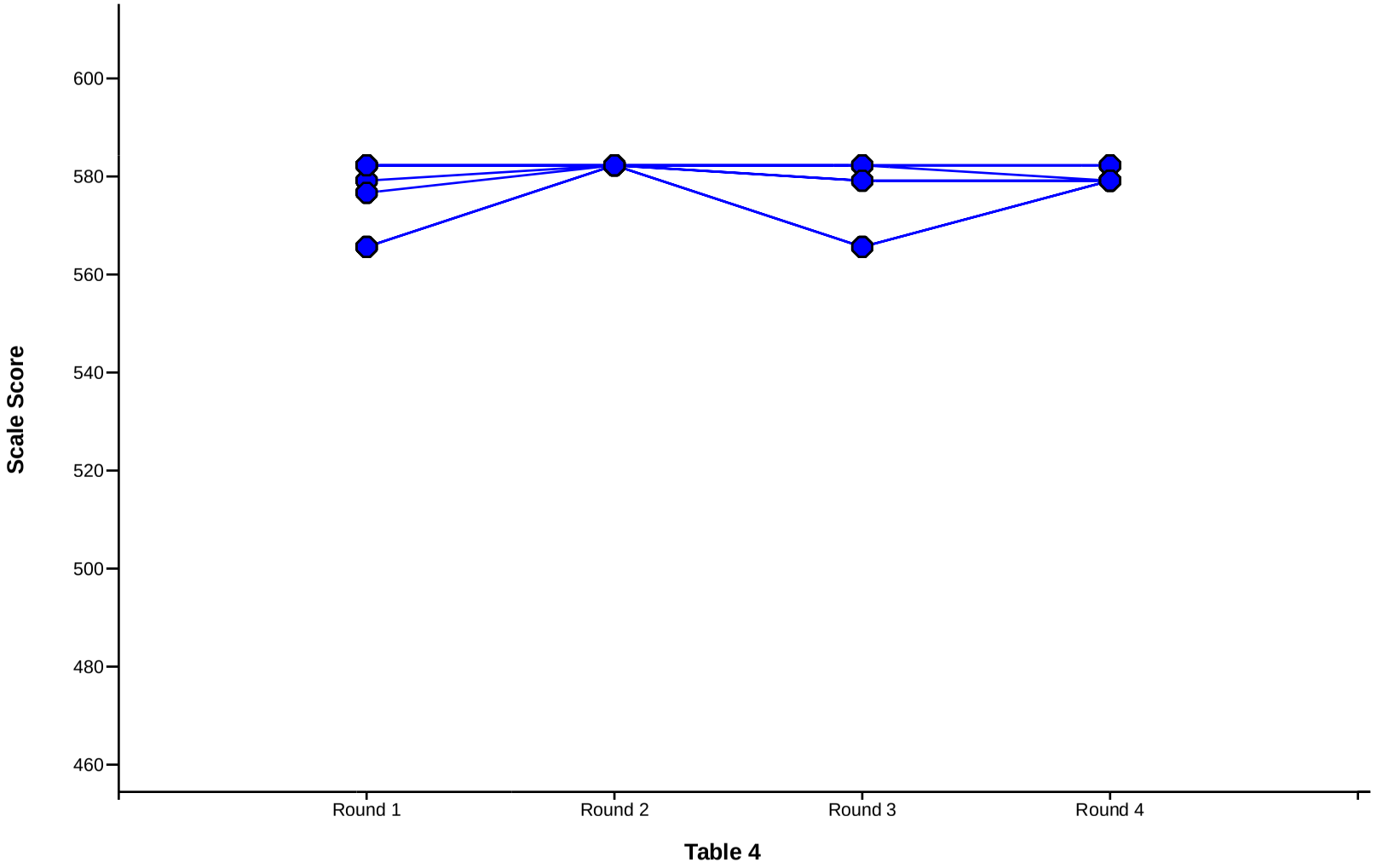
New York State Mathematics Standard Setting Grade 5 Mathematics Meeting with Distinction Cut Point

G45



New York State Mathematics Standard Setting Grade 6 Mathematics Partially Meeting Cut Point

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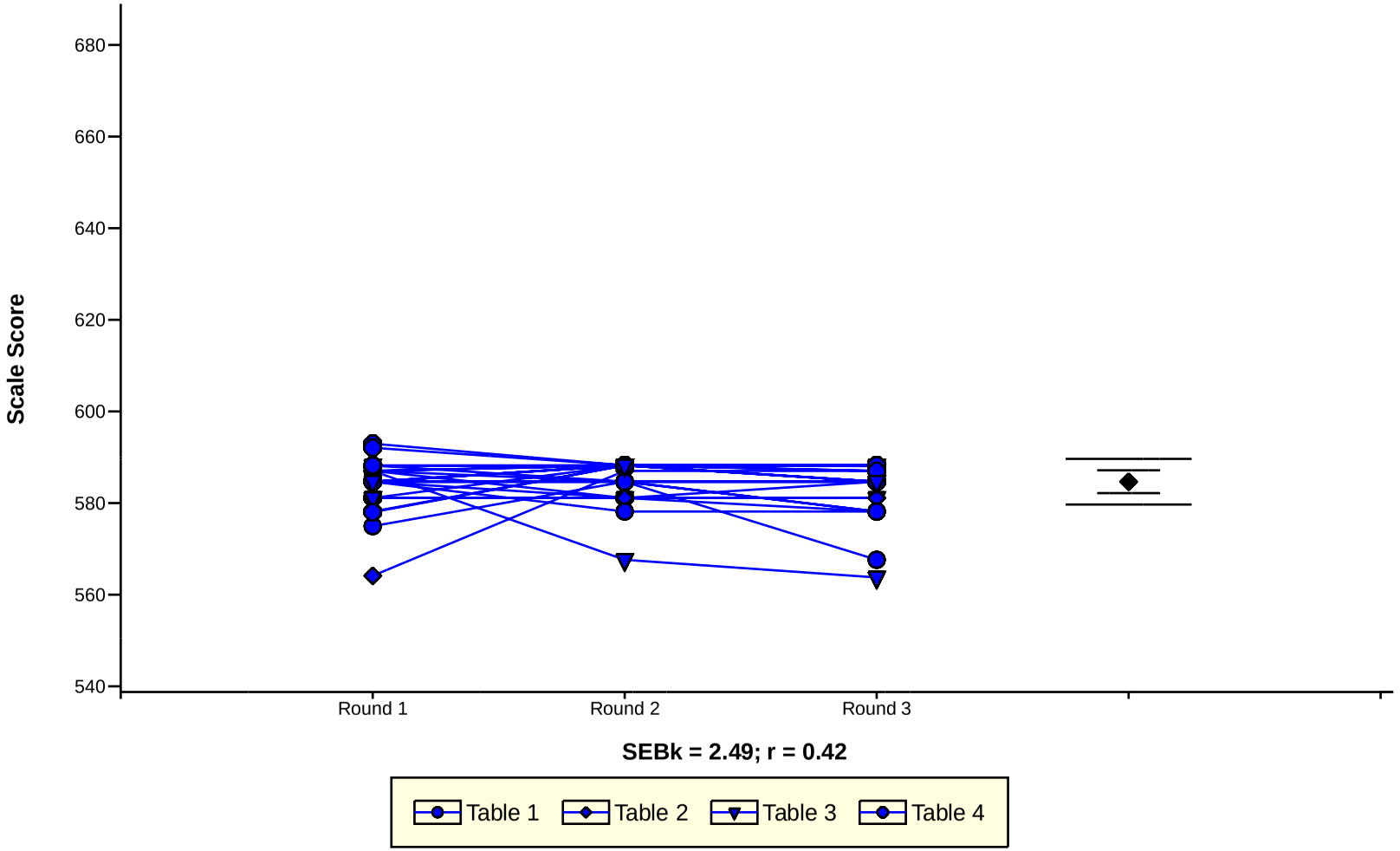

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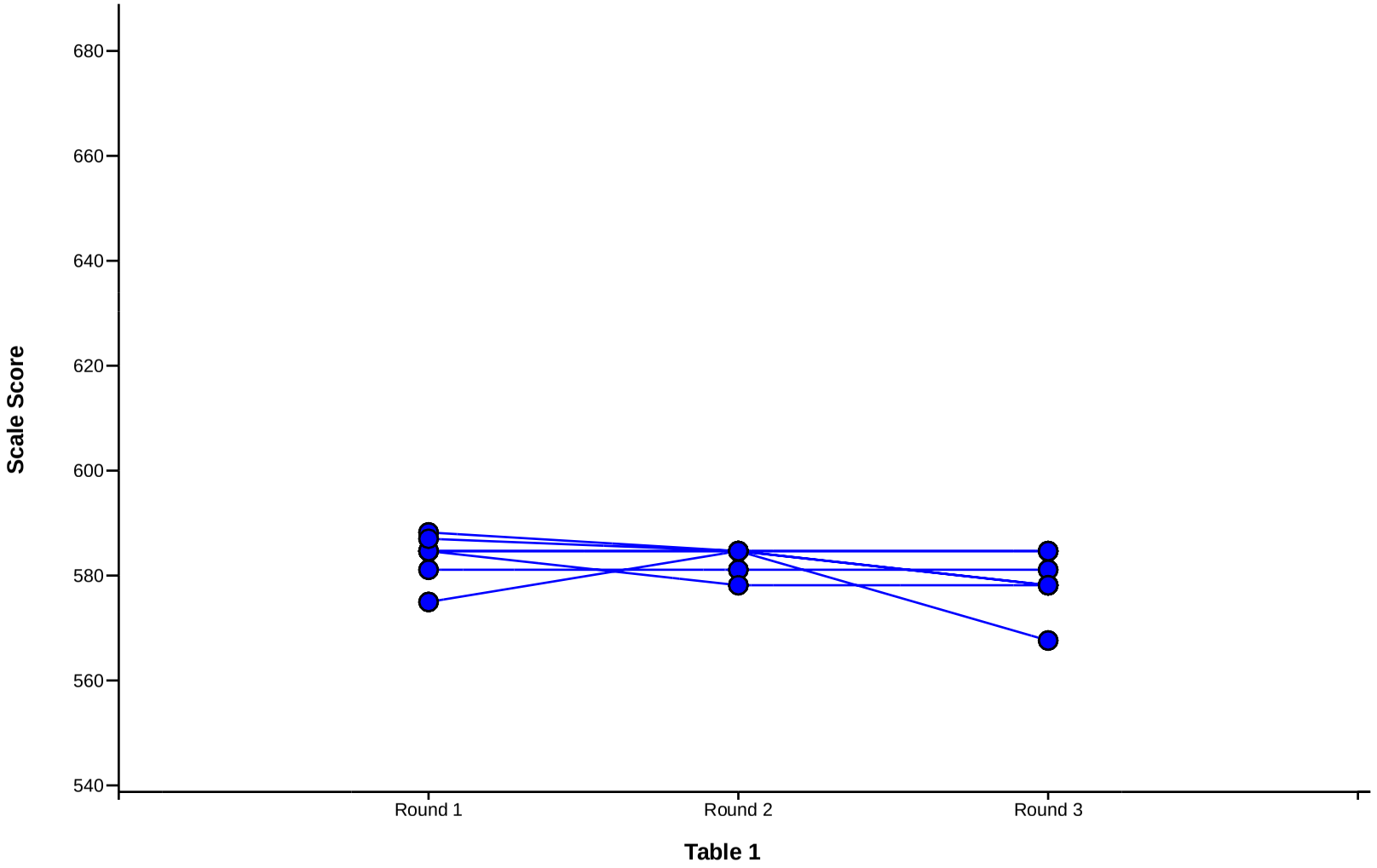

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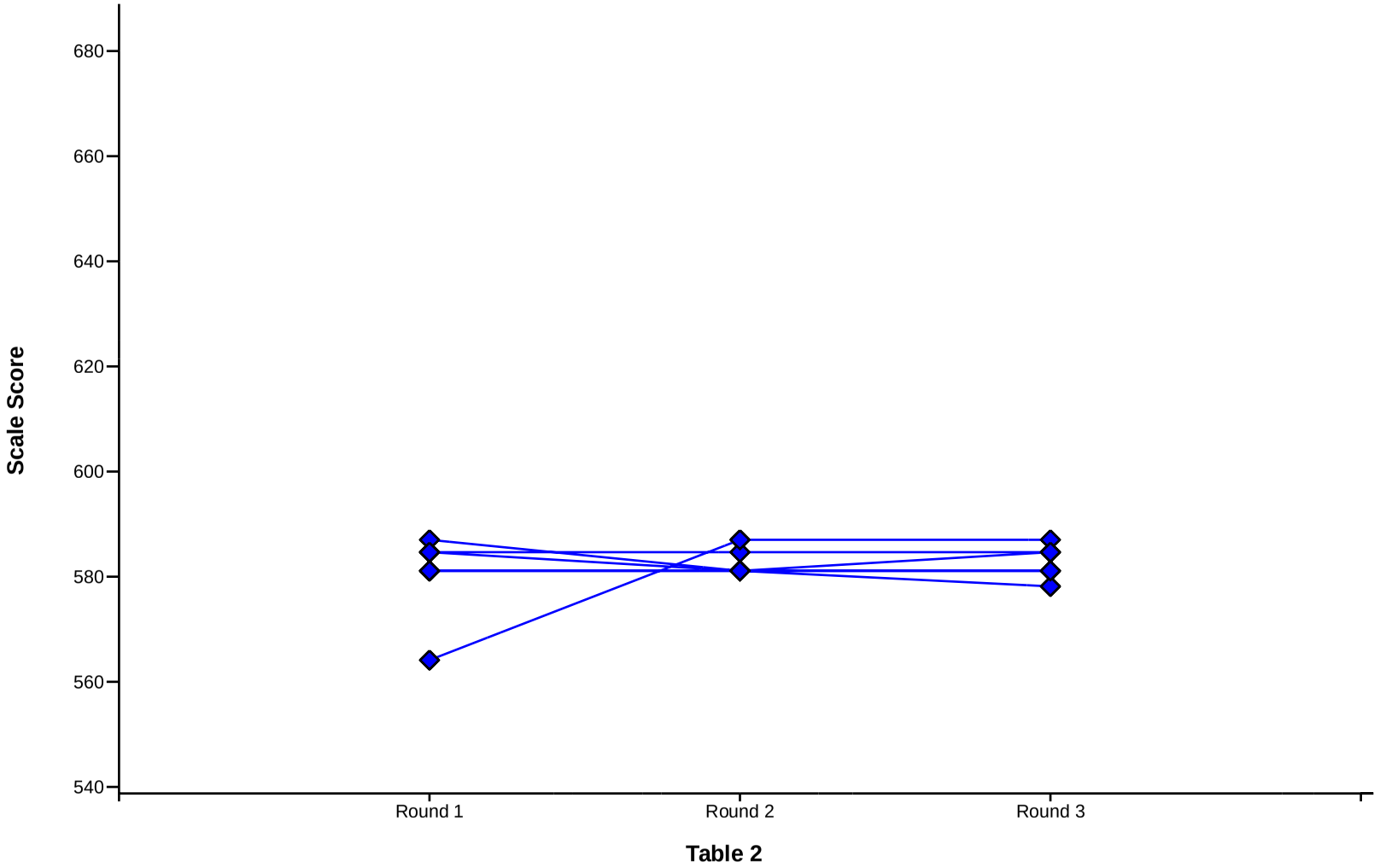

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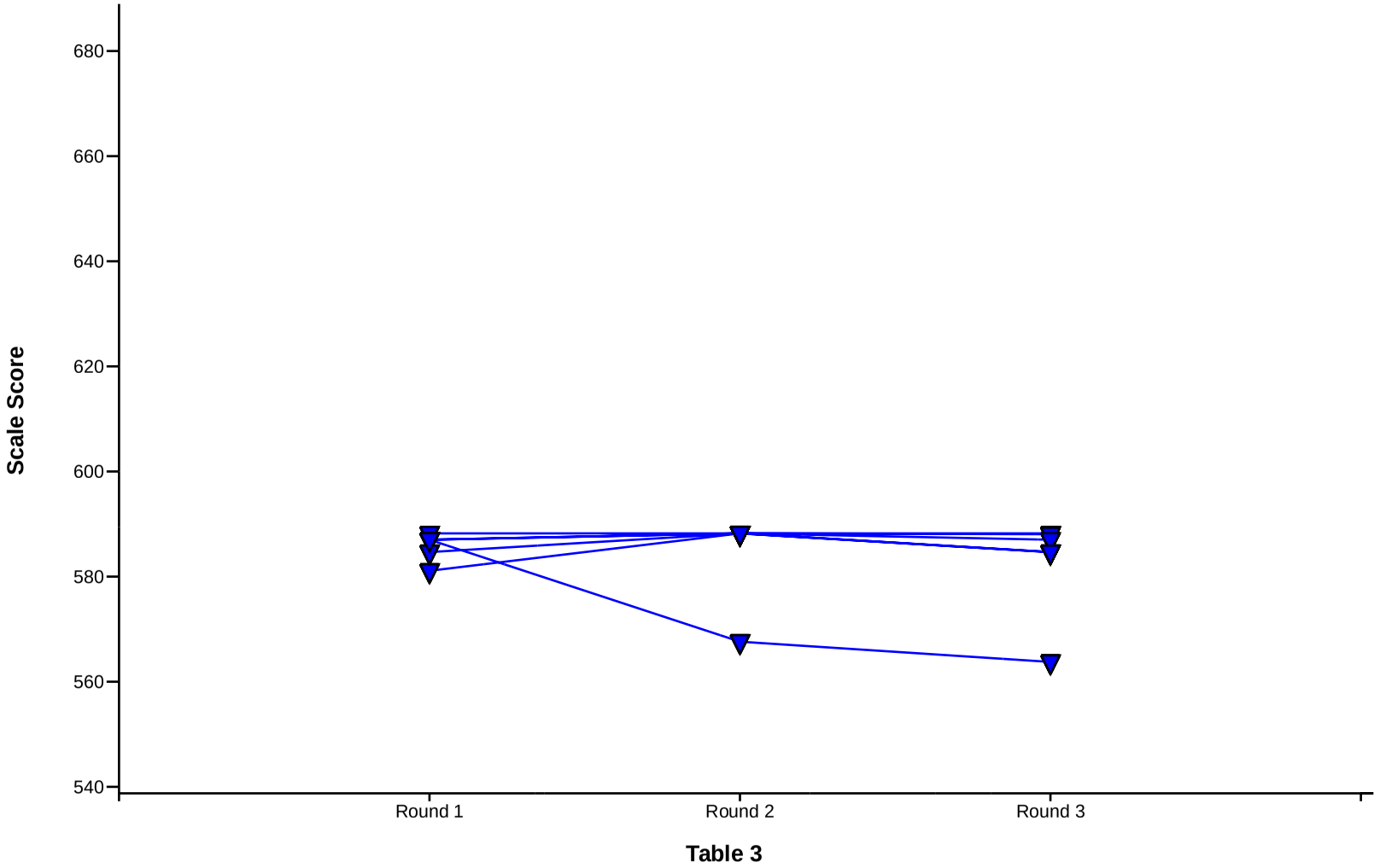

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New York State Mathematics Standard Setting Grade 6 Mathematics Partially Meeting Cut Point

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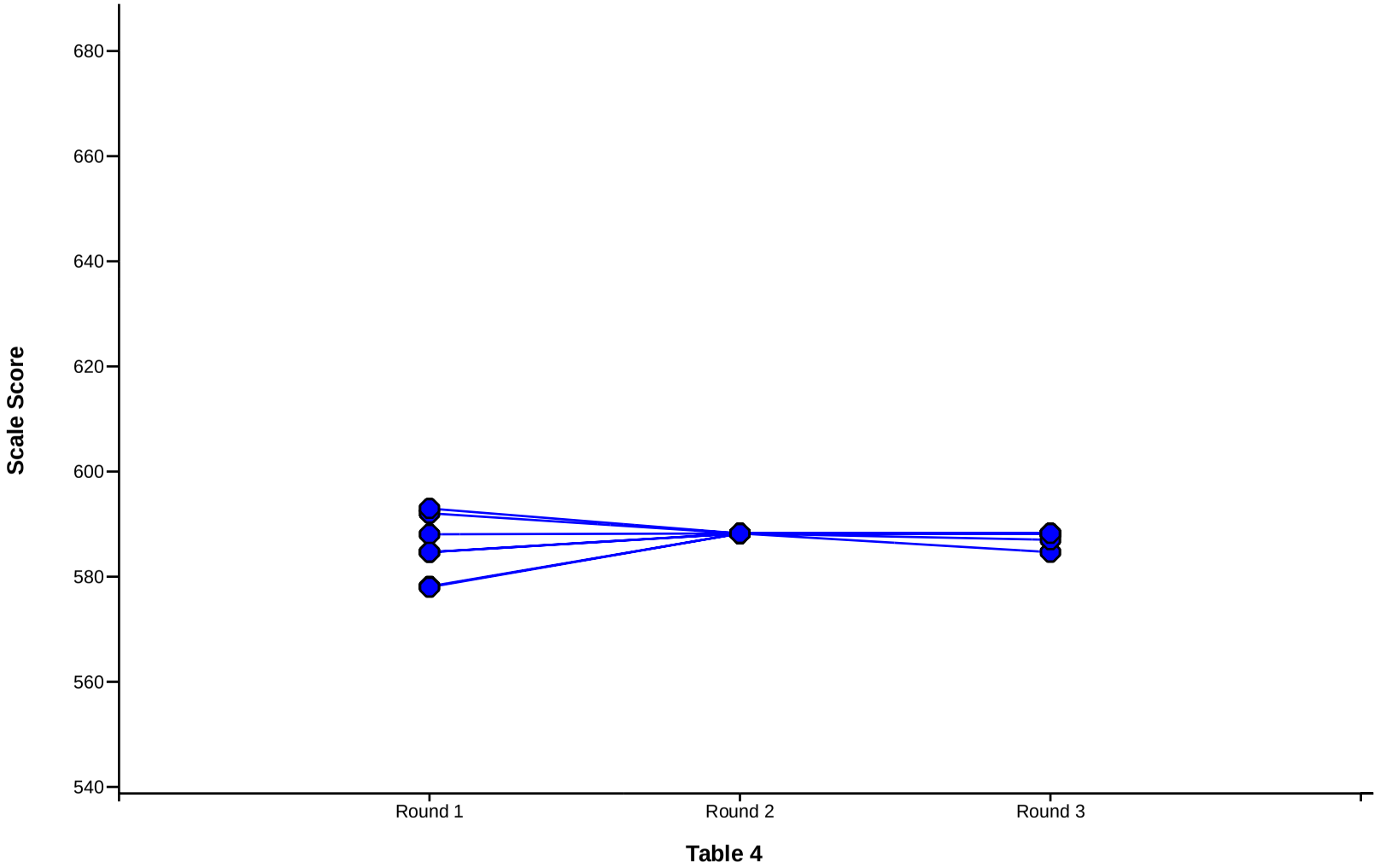

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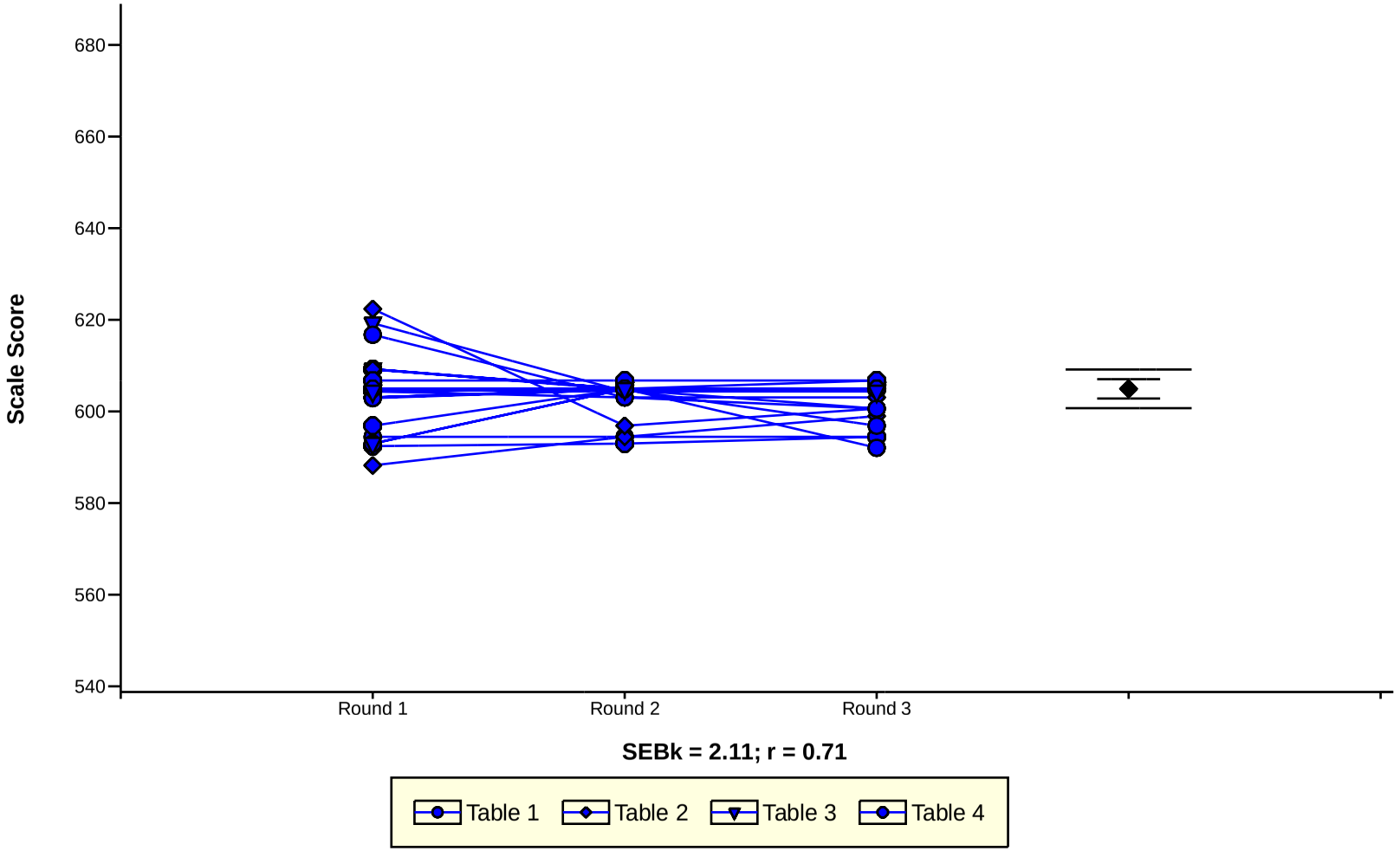

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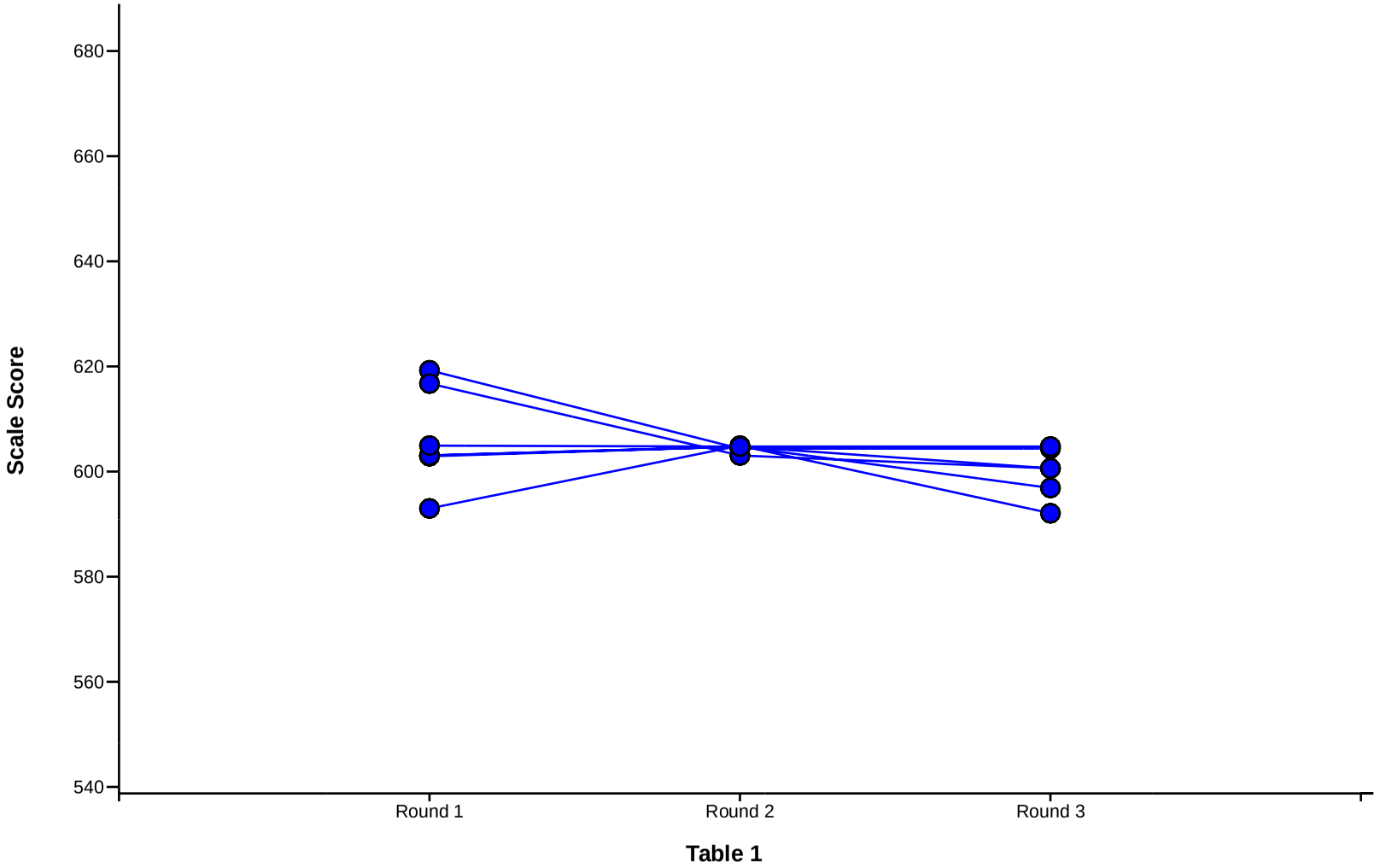

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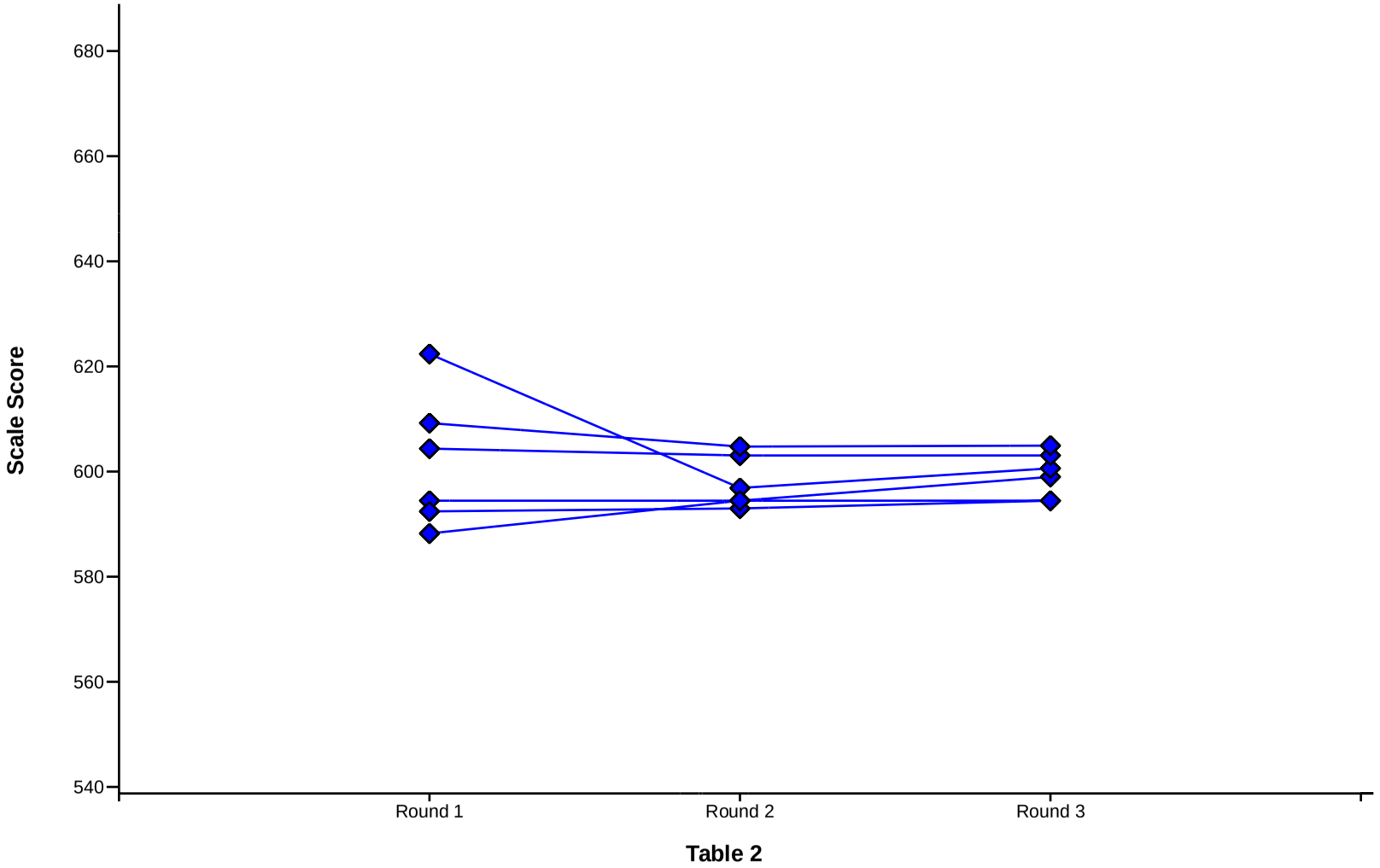

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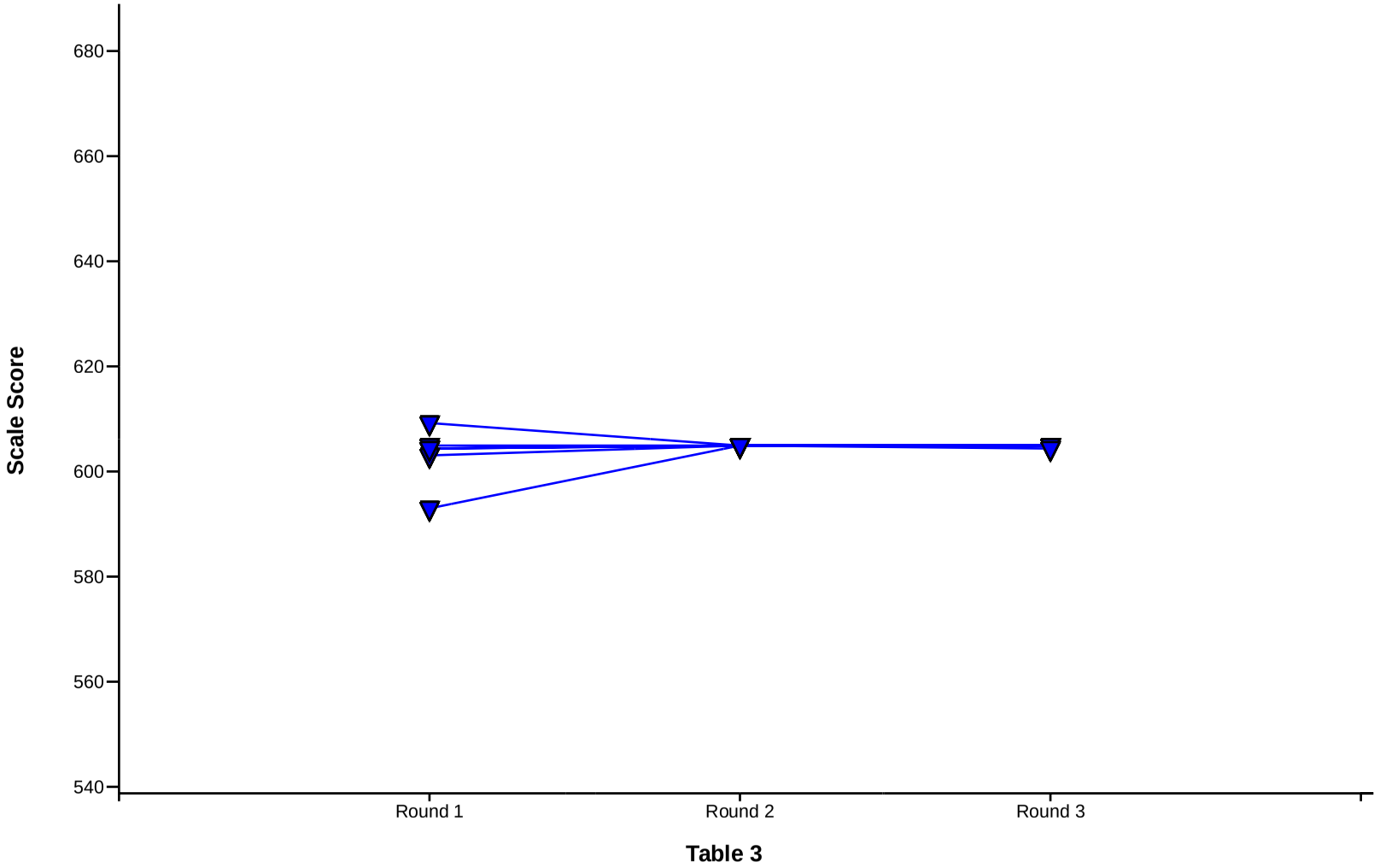

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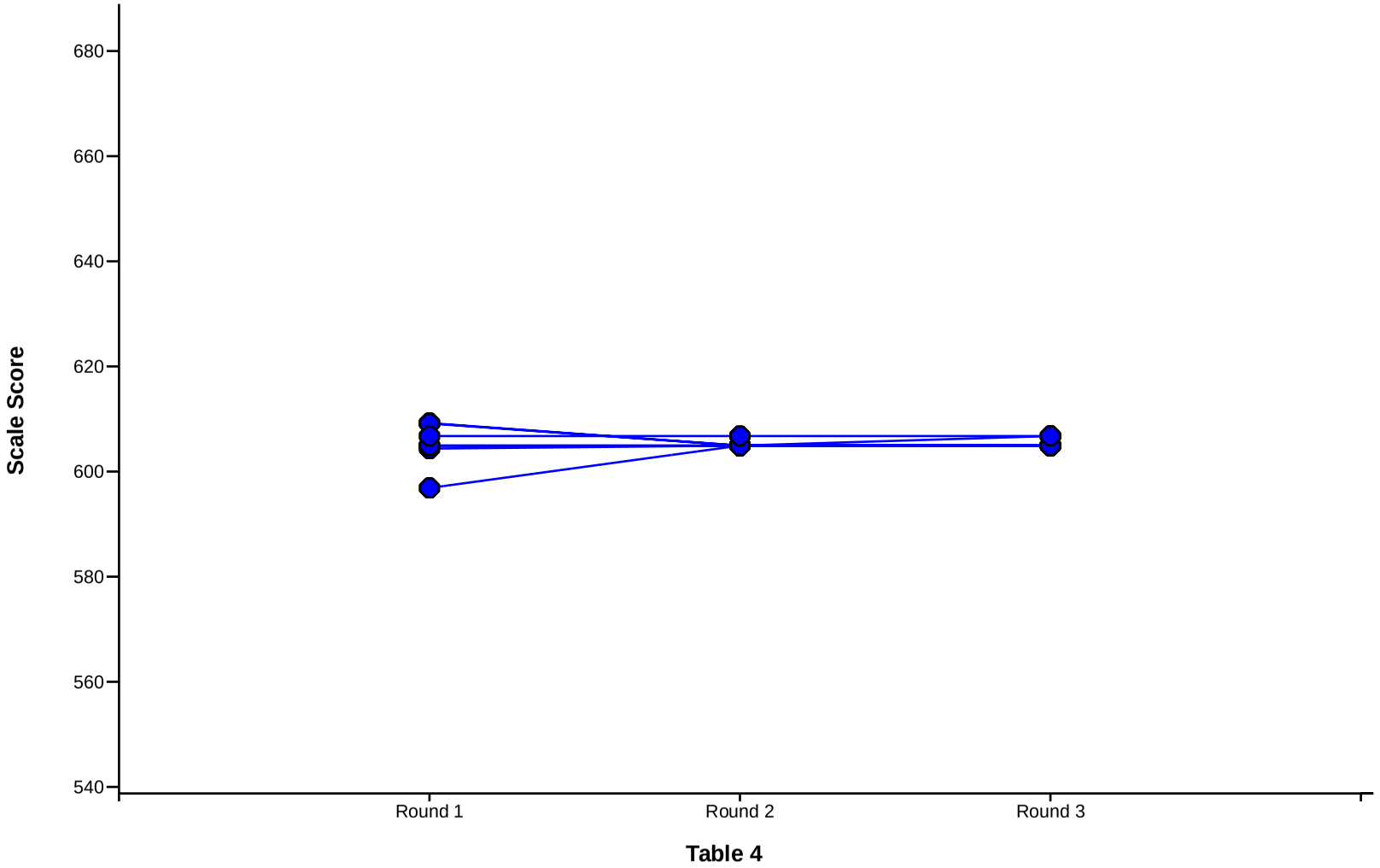

New York State Mathematics Standard Setting Grade 6 Mathematics Meeting with Distinction Cut Point

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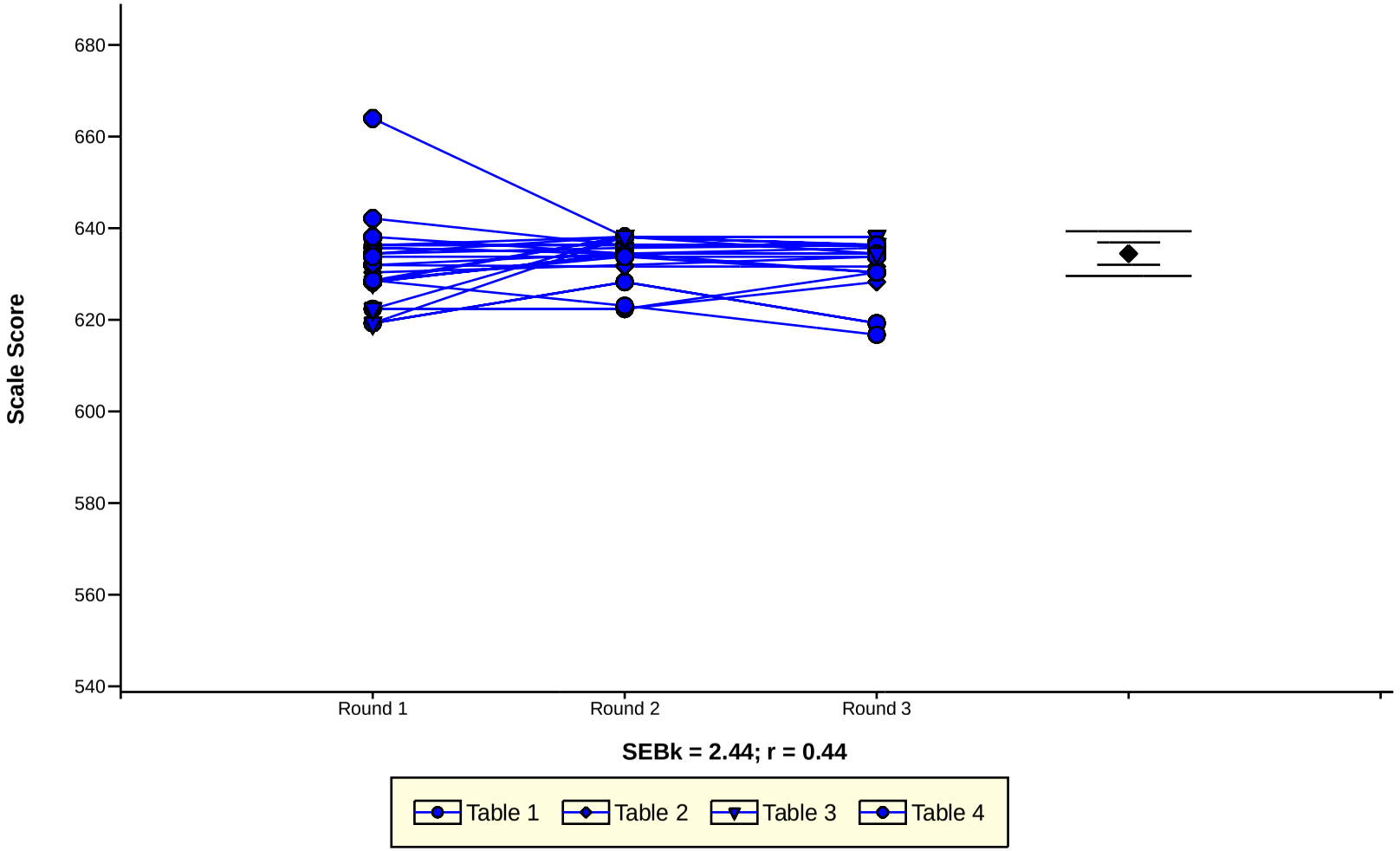

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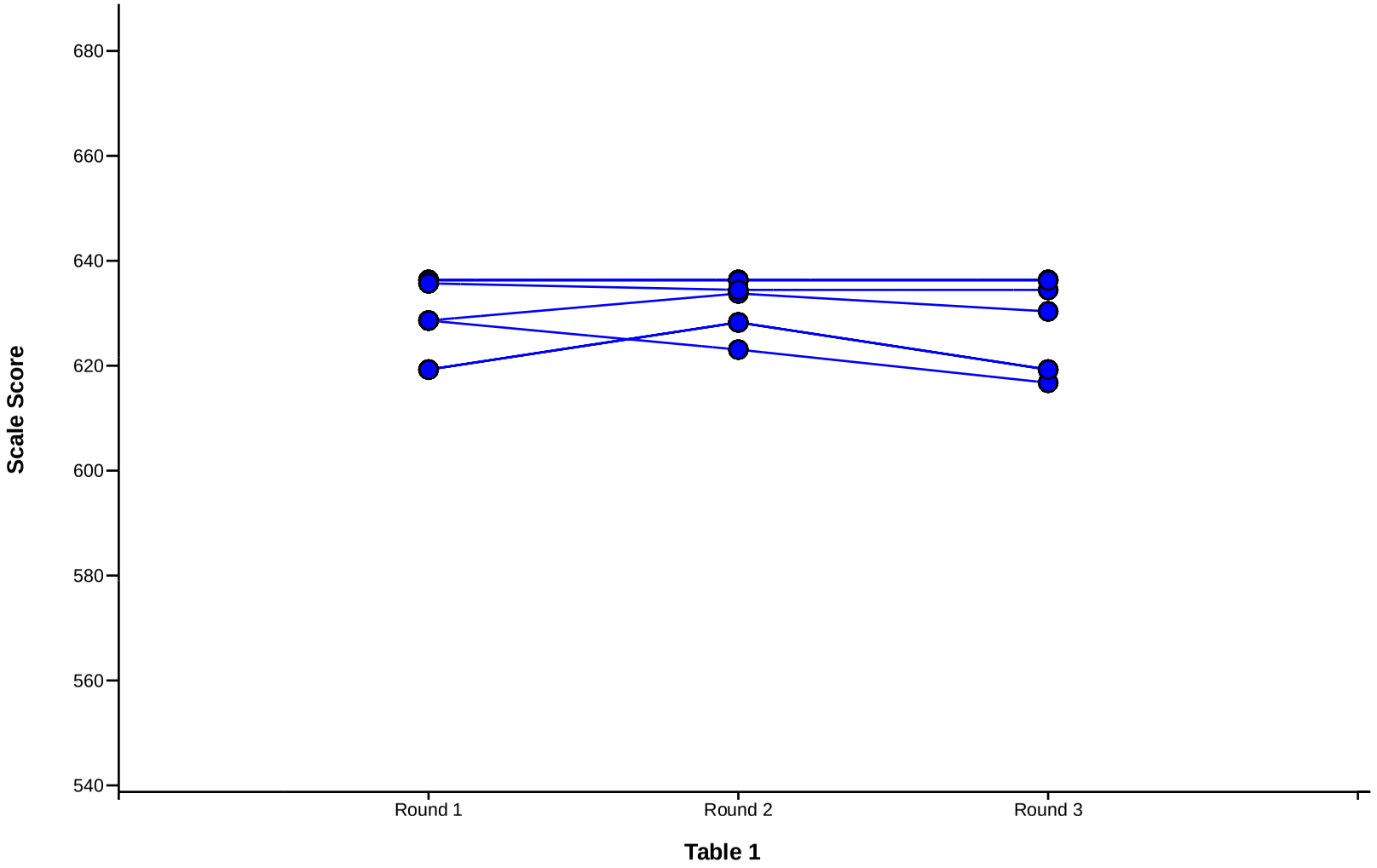

New York State Mathematics Standard Setting Grade 6 Mathematics Meeting with Distinction Cut Point

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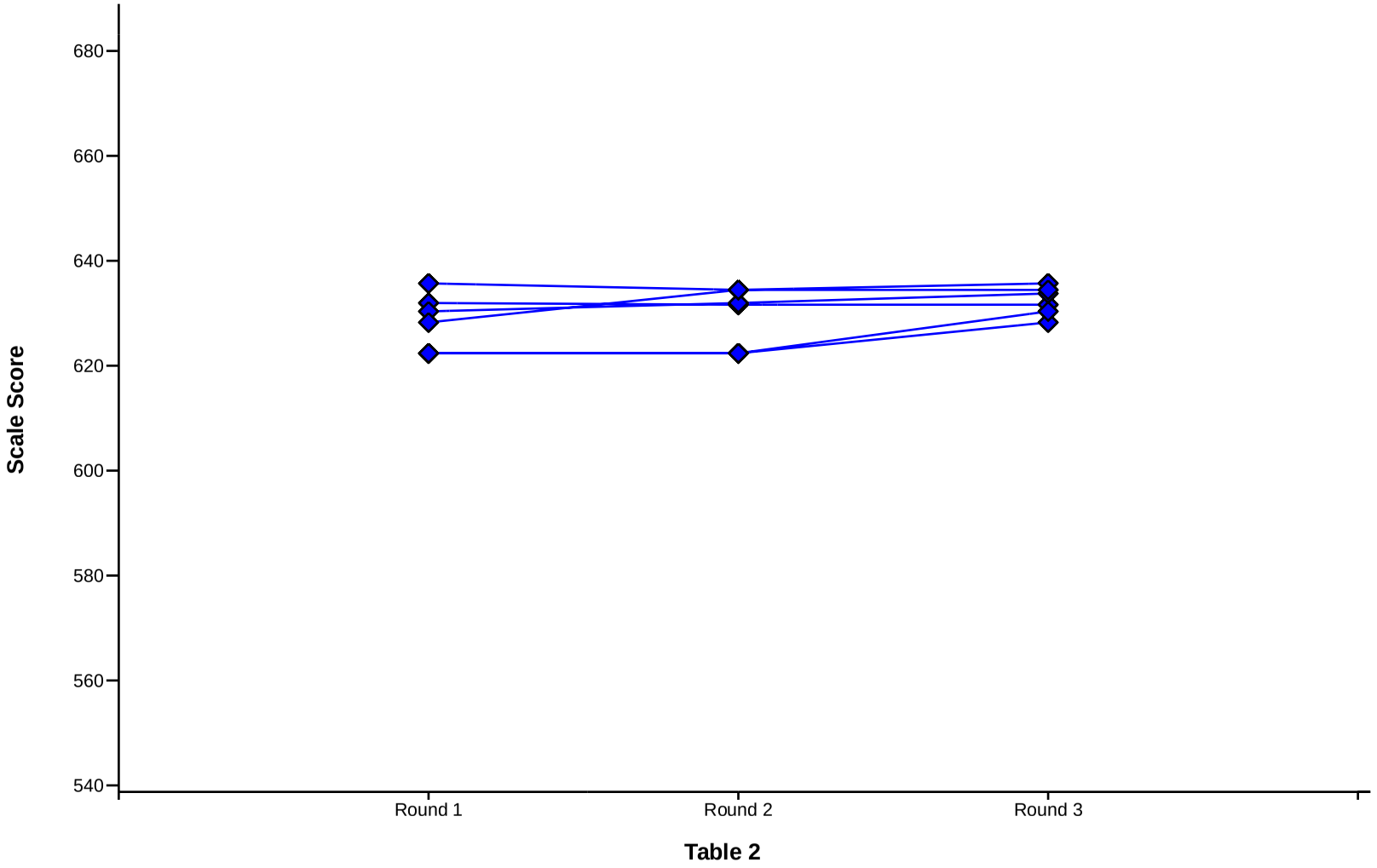

New York State Mathematics Standard Setting Grade 6 Mathematics Meeting with Distinction Cut Point

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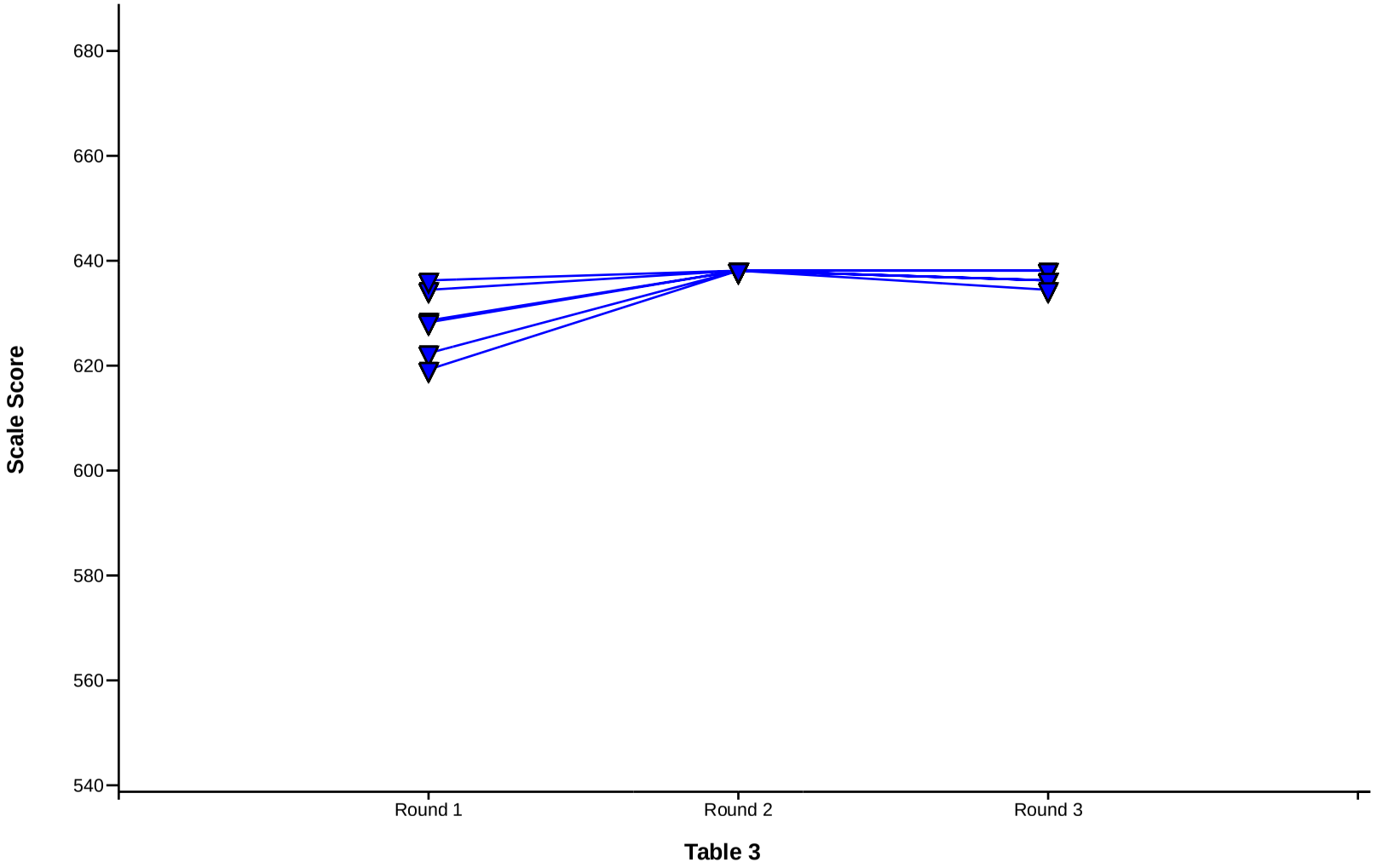

New York State Mathematics Standard Setting Grade 6 Mathematics Meeting with Distinction Cut Point

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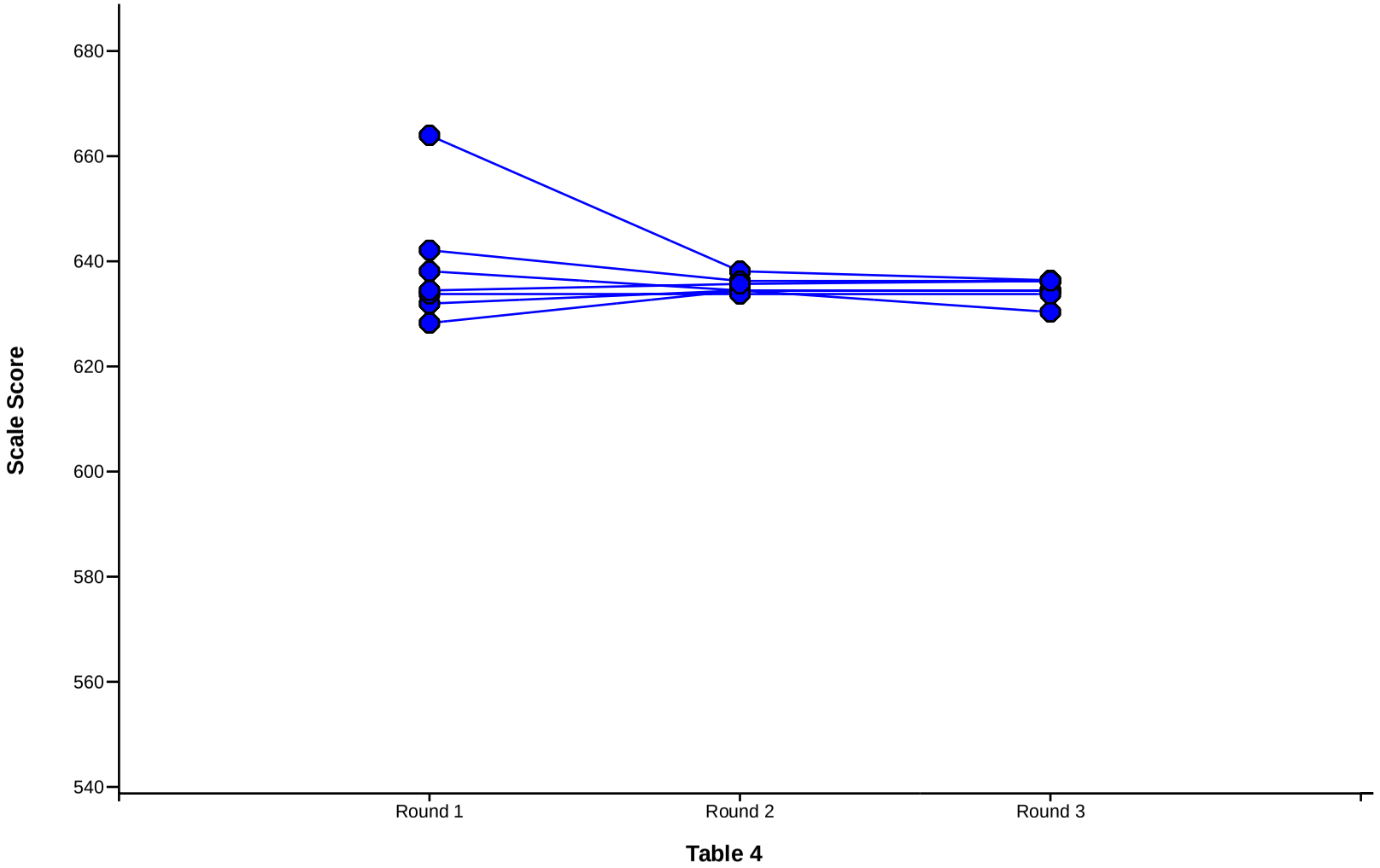

New York State Mathematics Standard Setting Grade 7 Mathematics Partially Meeting Cut Point

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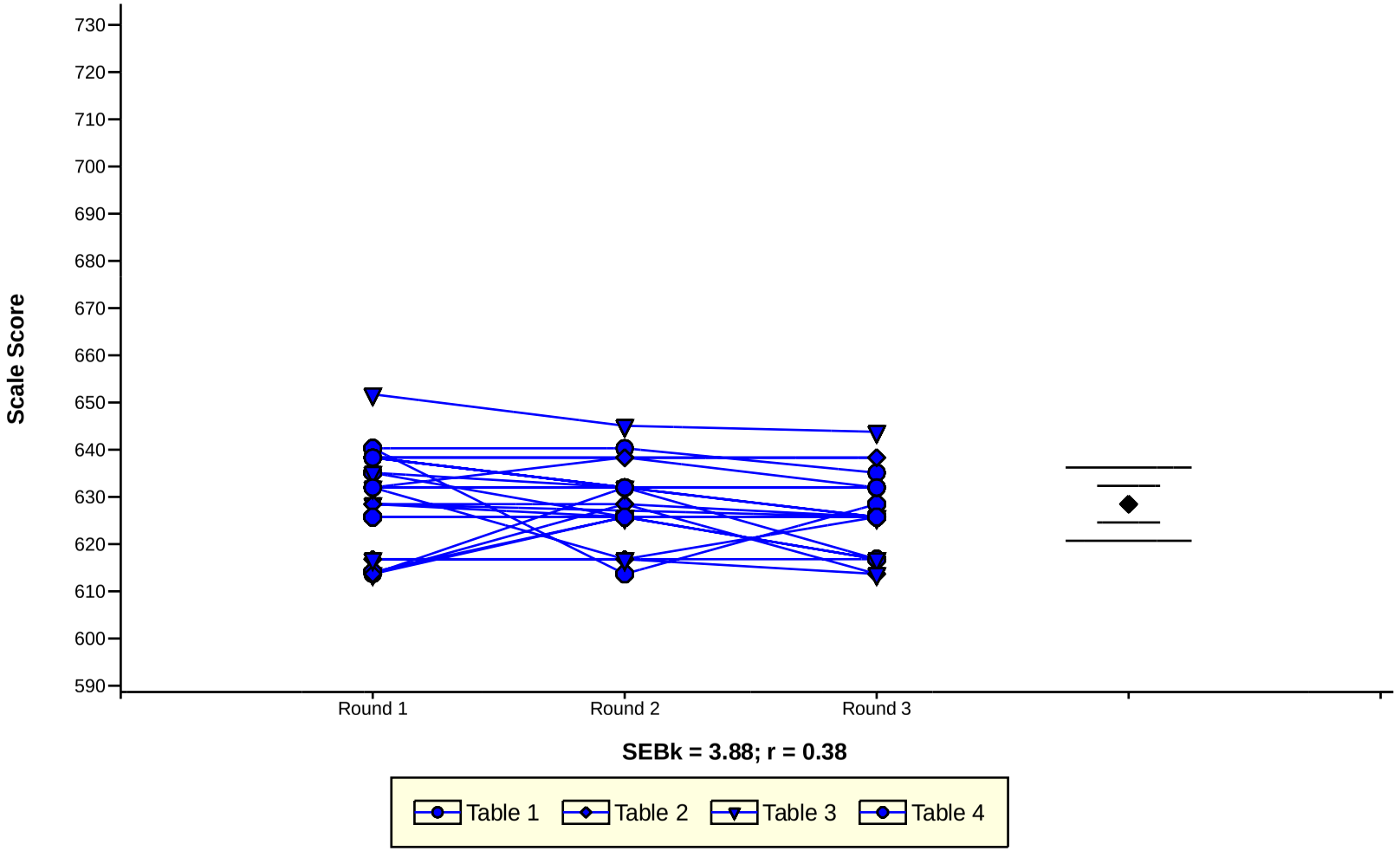
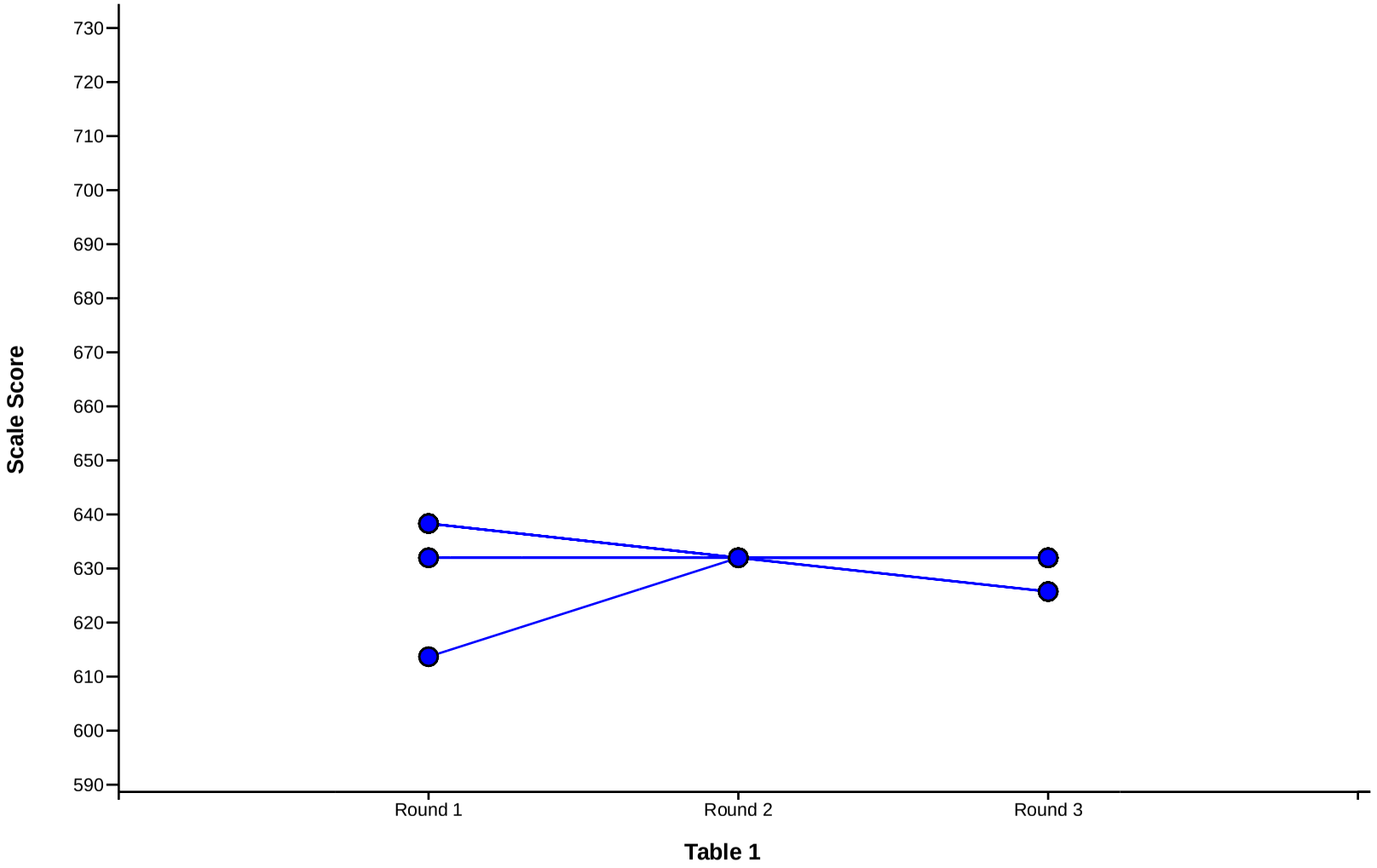


New York State Mathematics Standard Setting Grade 7 Mathematics Partially Meeting Cut Point



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New York State Mathematics Standard Setting Grade 7 Mathematics Partially Meeting Cut Point

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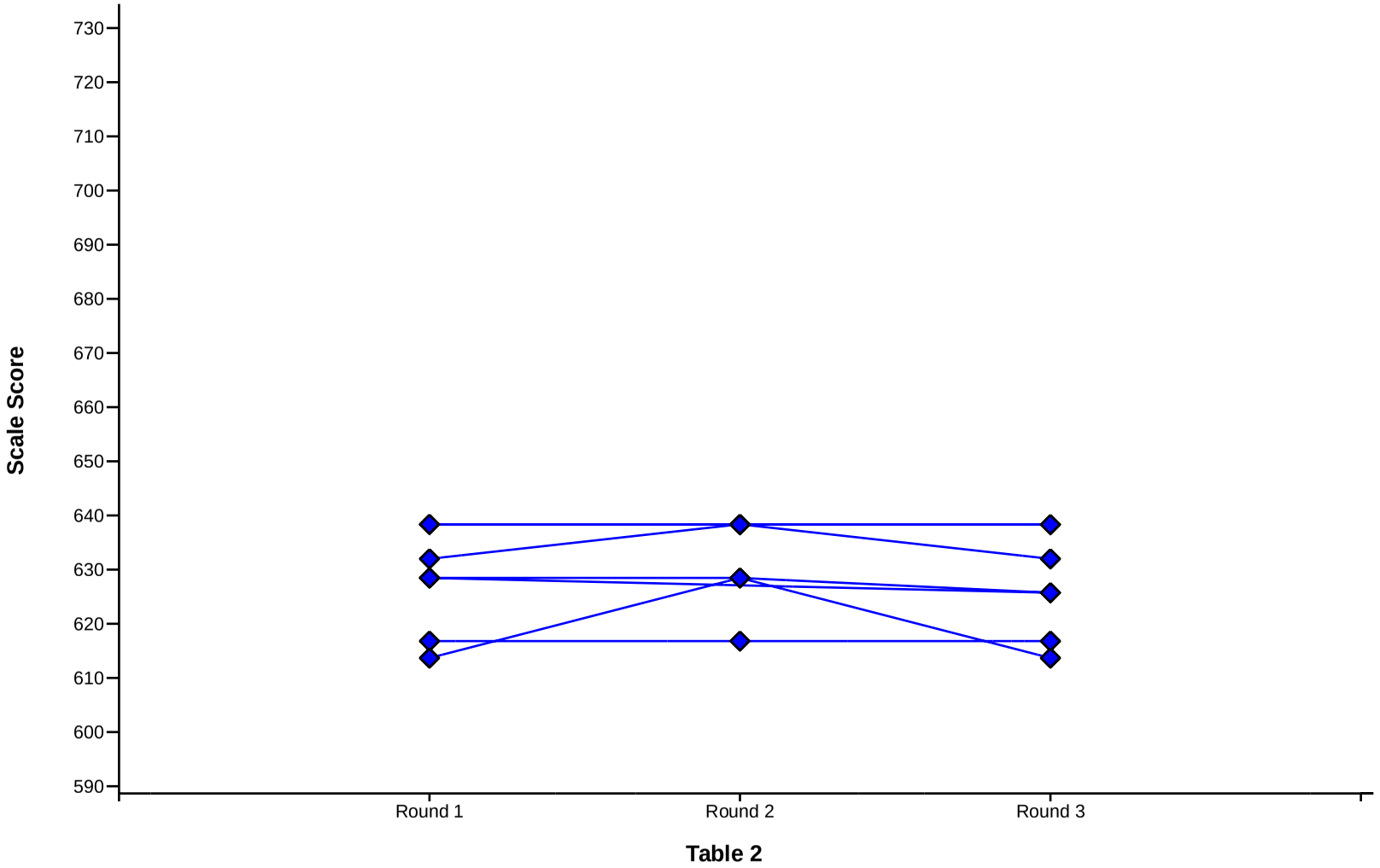
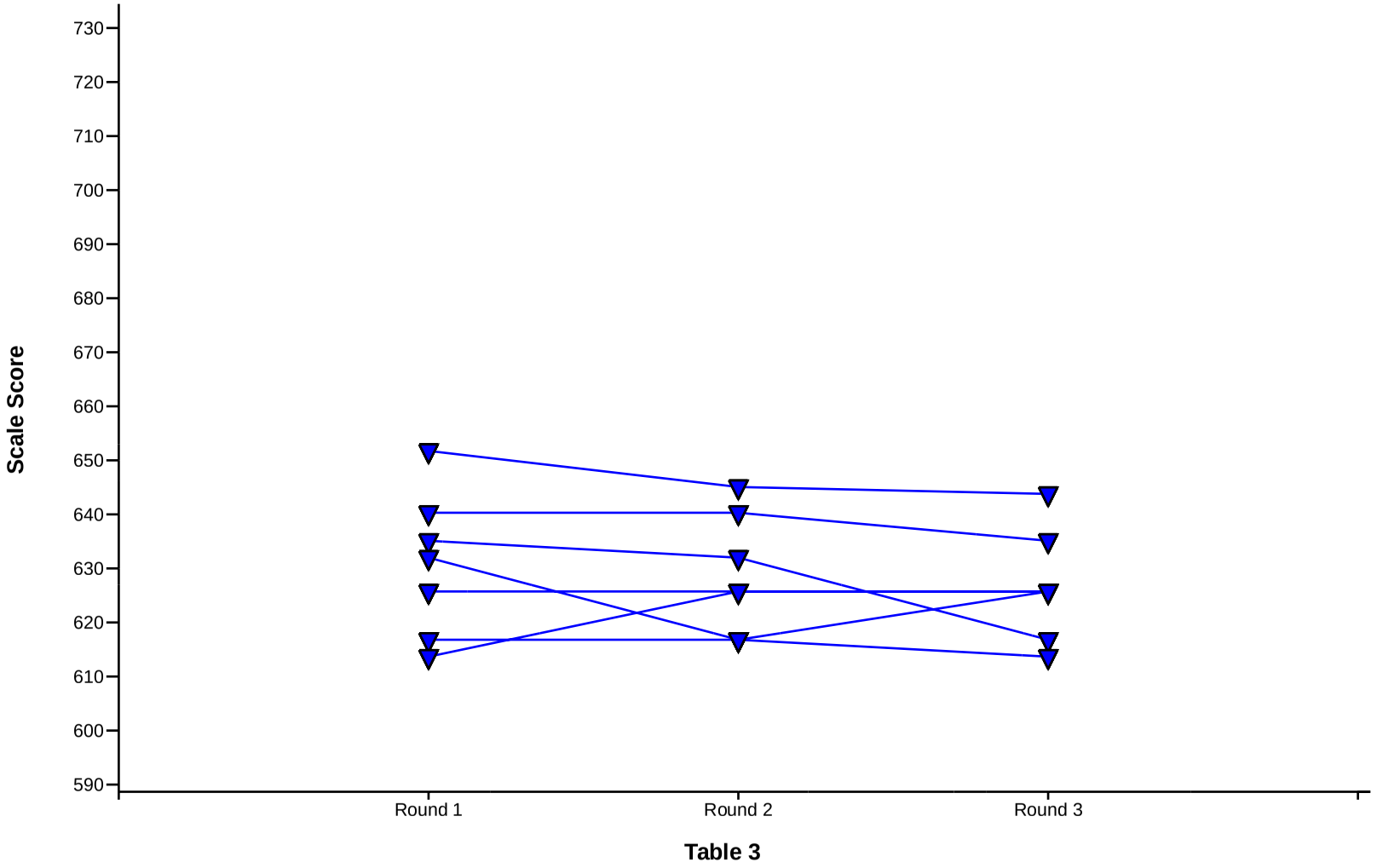


New York State Mathematics Standard Setting Grade 7 Mathematics Partially Meeting Cut Point



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New York State Mathematics Standard Setting Grade 7 Mathematics Partially Meeting Cut Point

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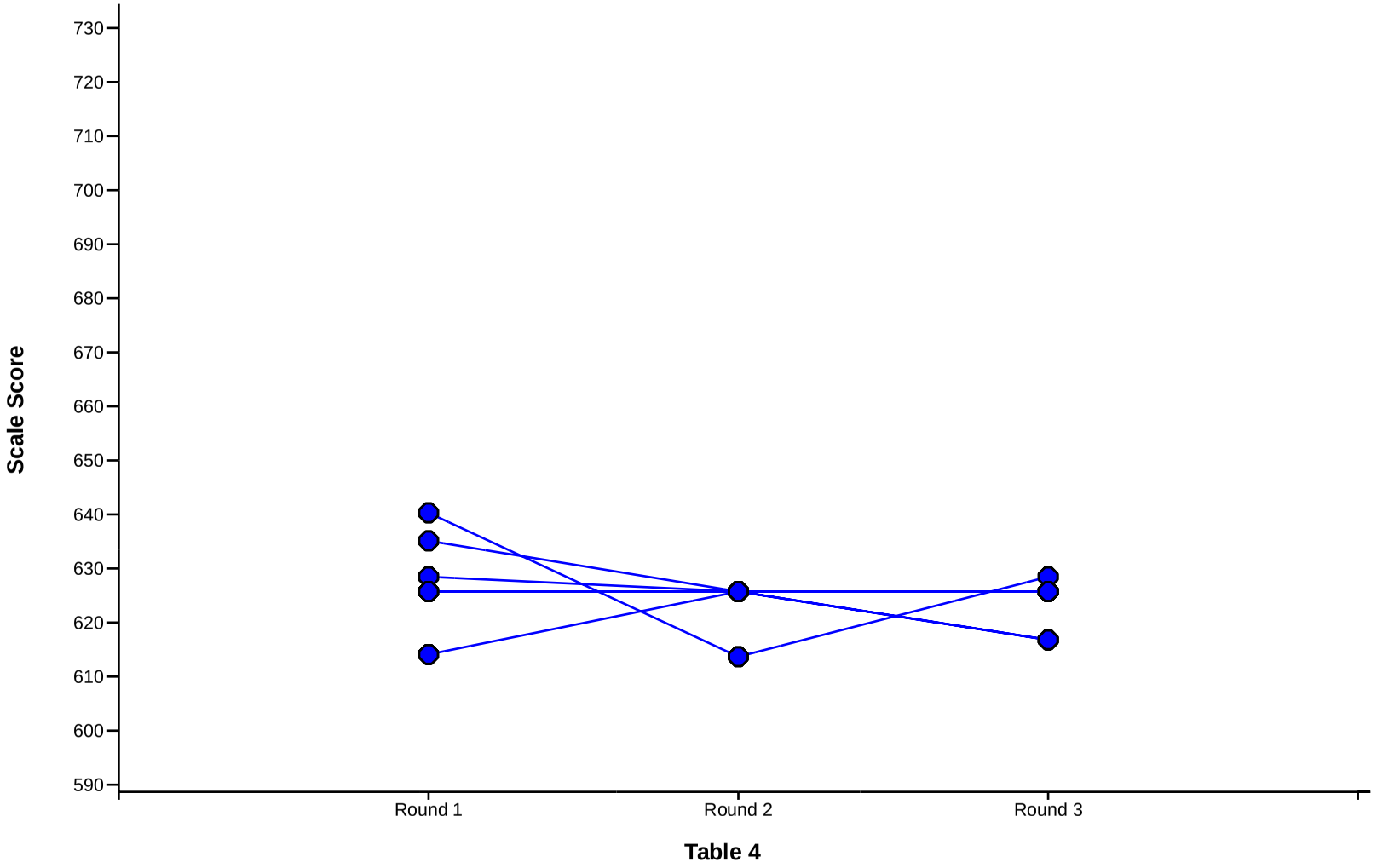

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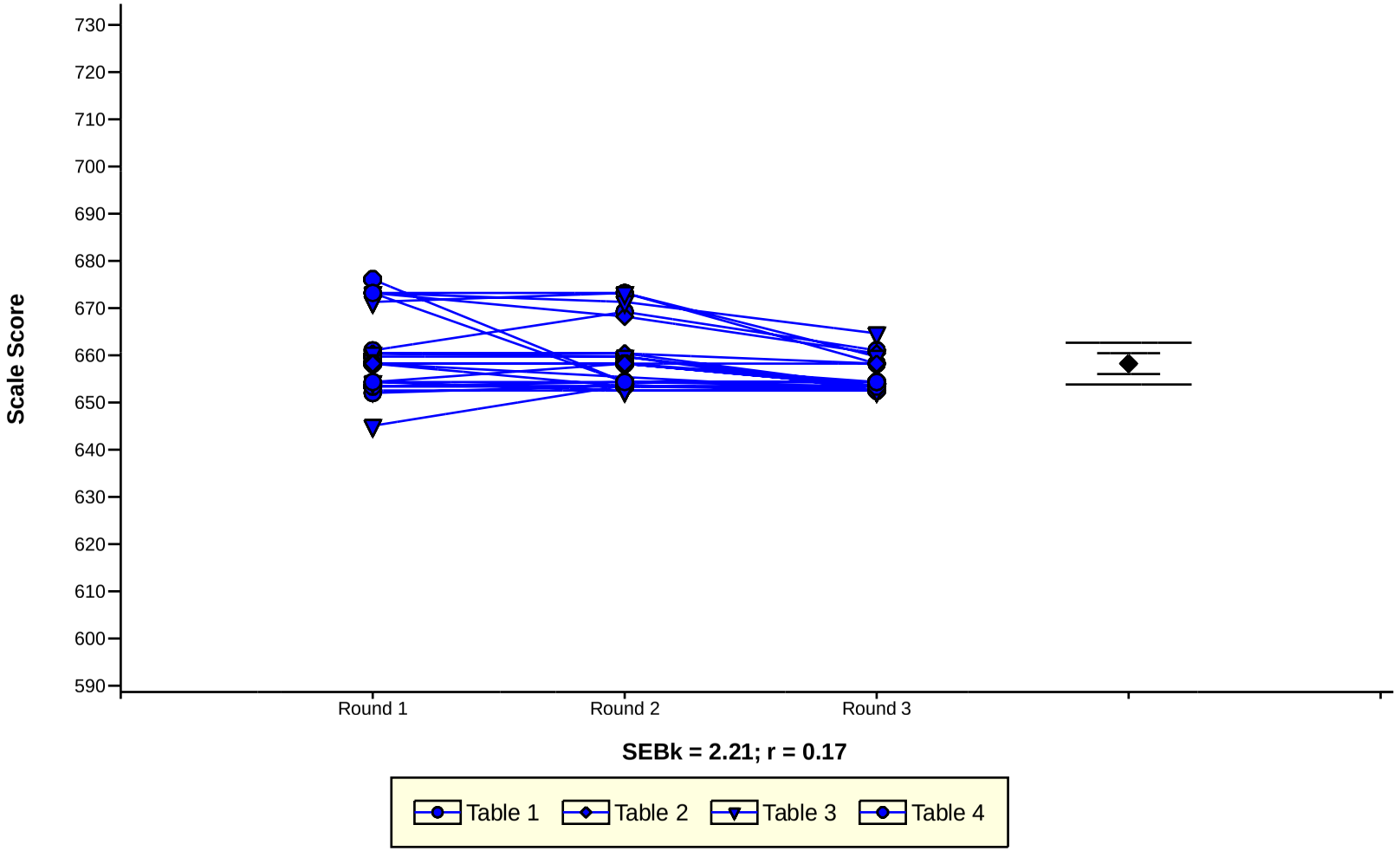

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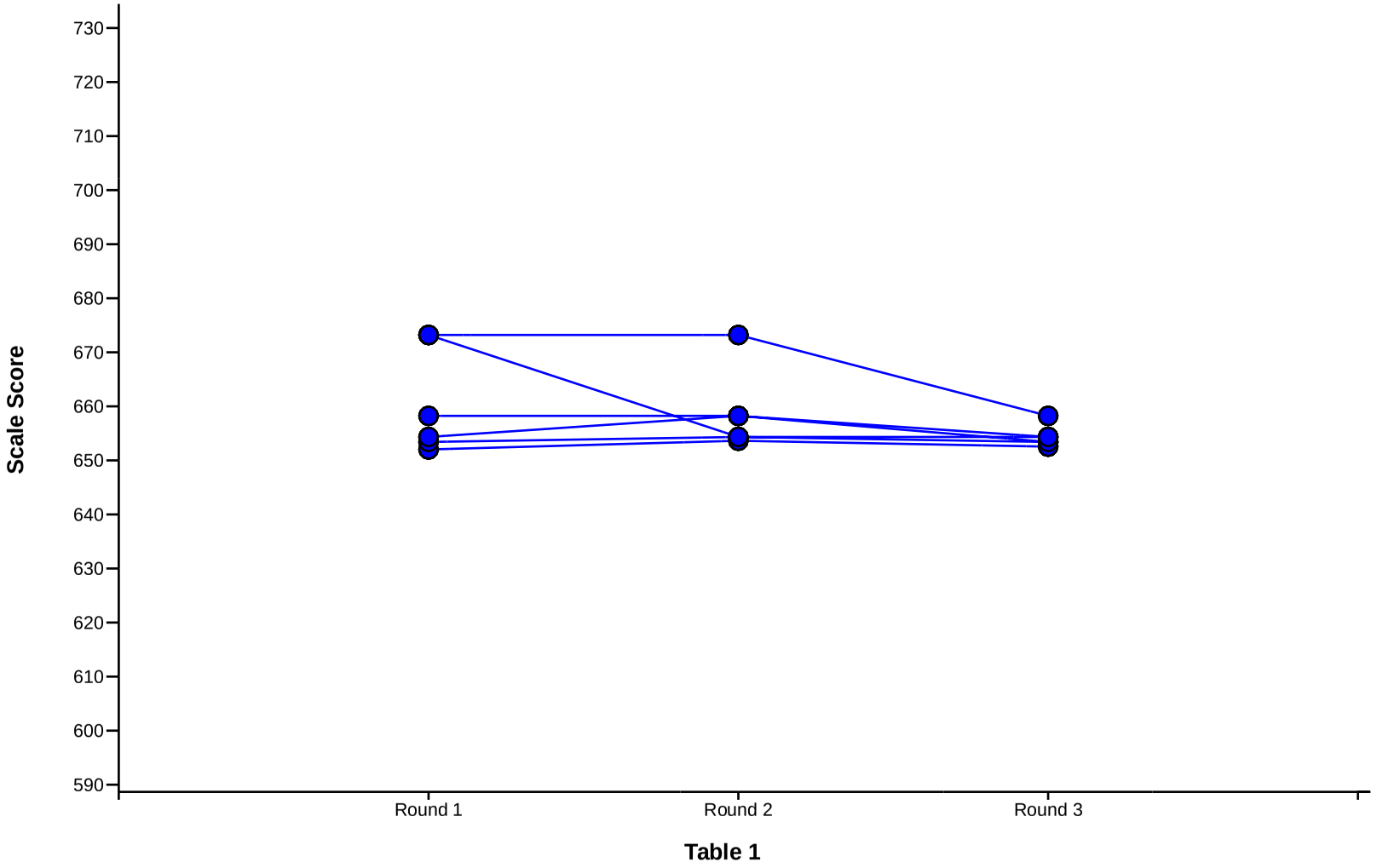

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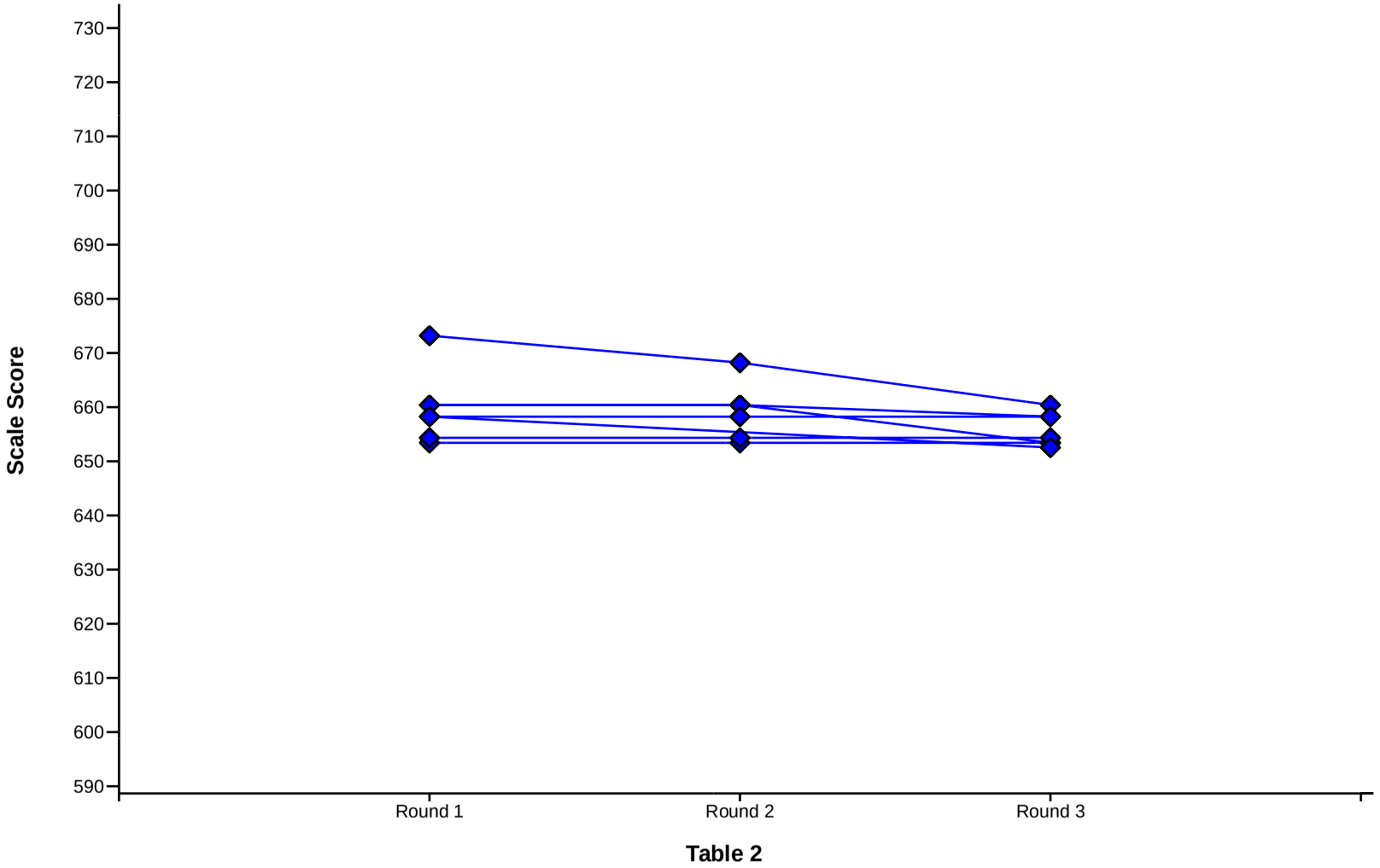

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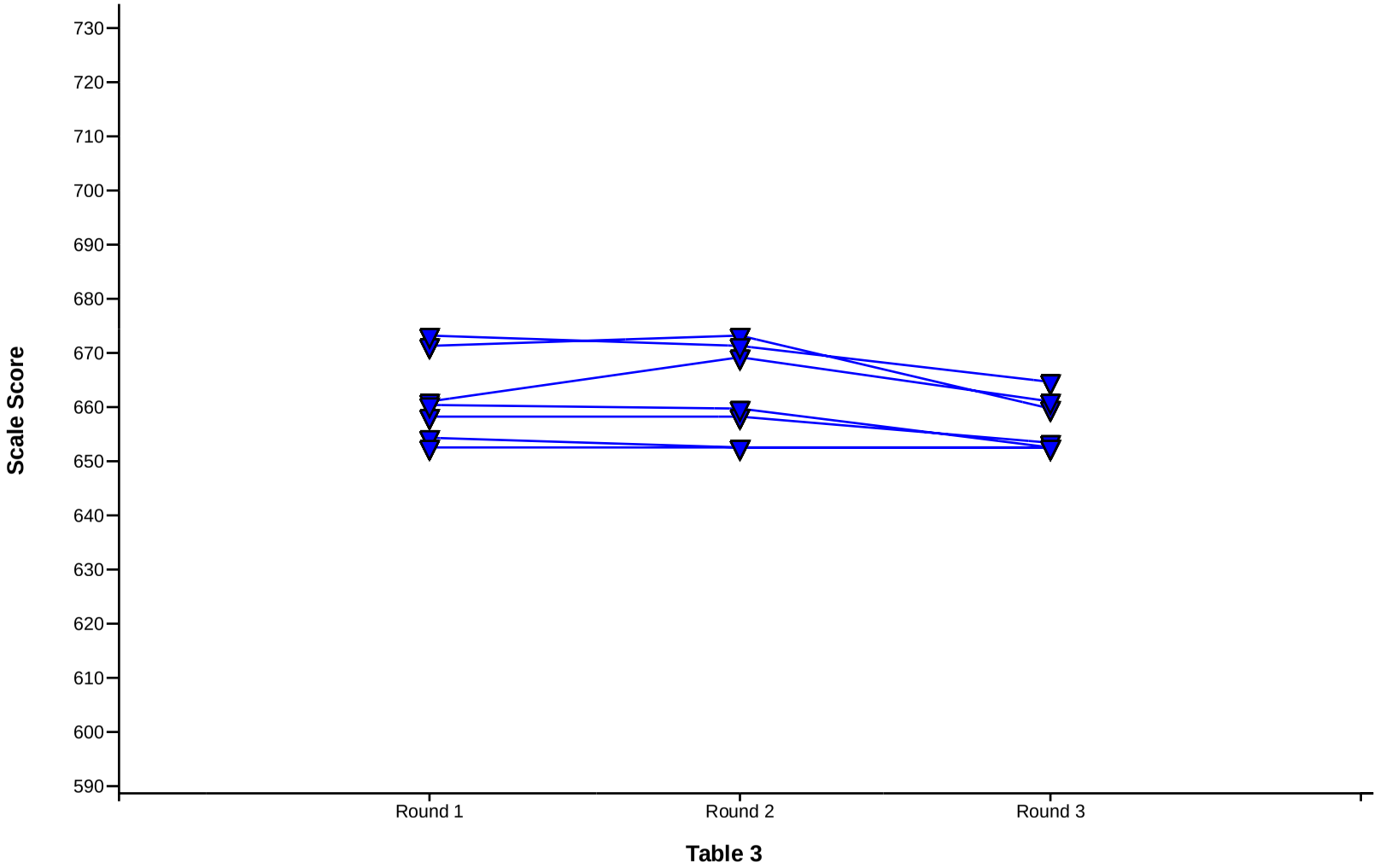

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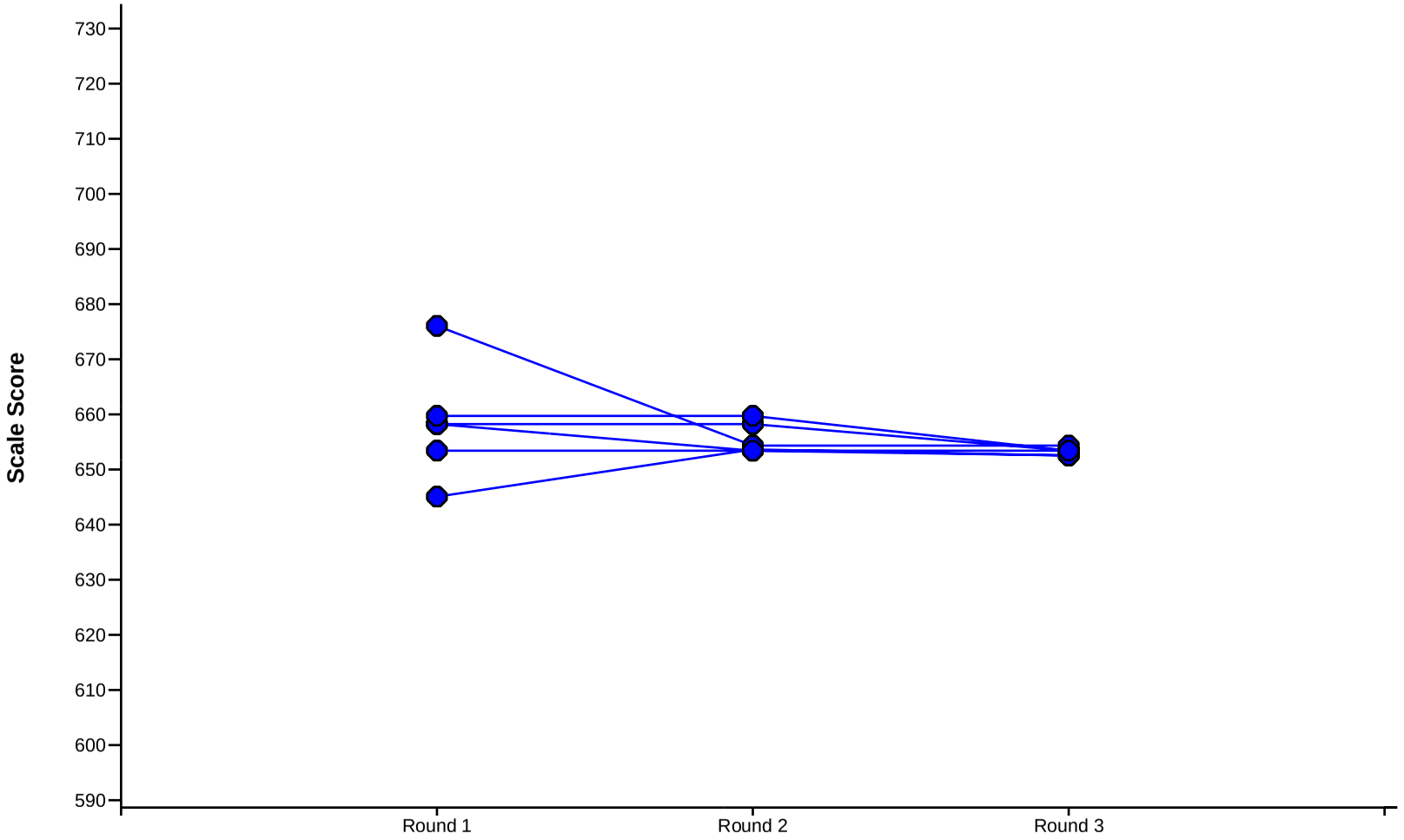

Table 4

New York State Mathematics Standard Setting Grade 7 Mathematics Meeting with Distinction Cut Point

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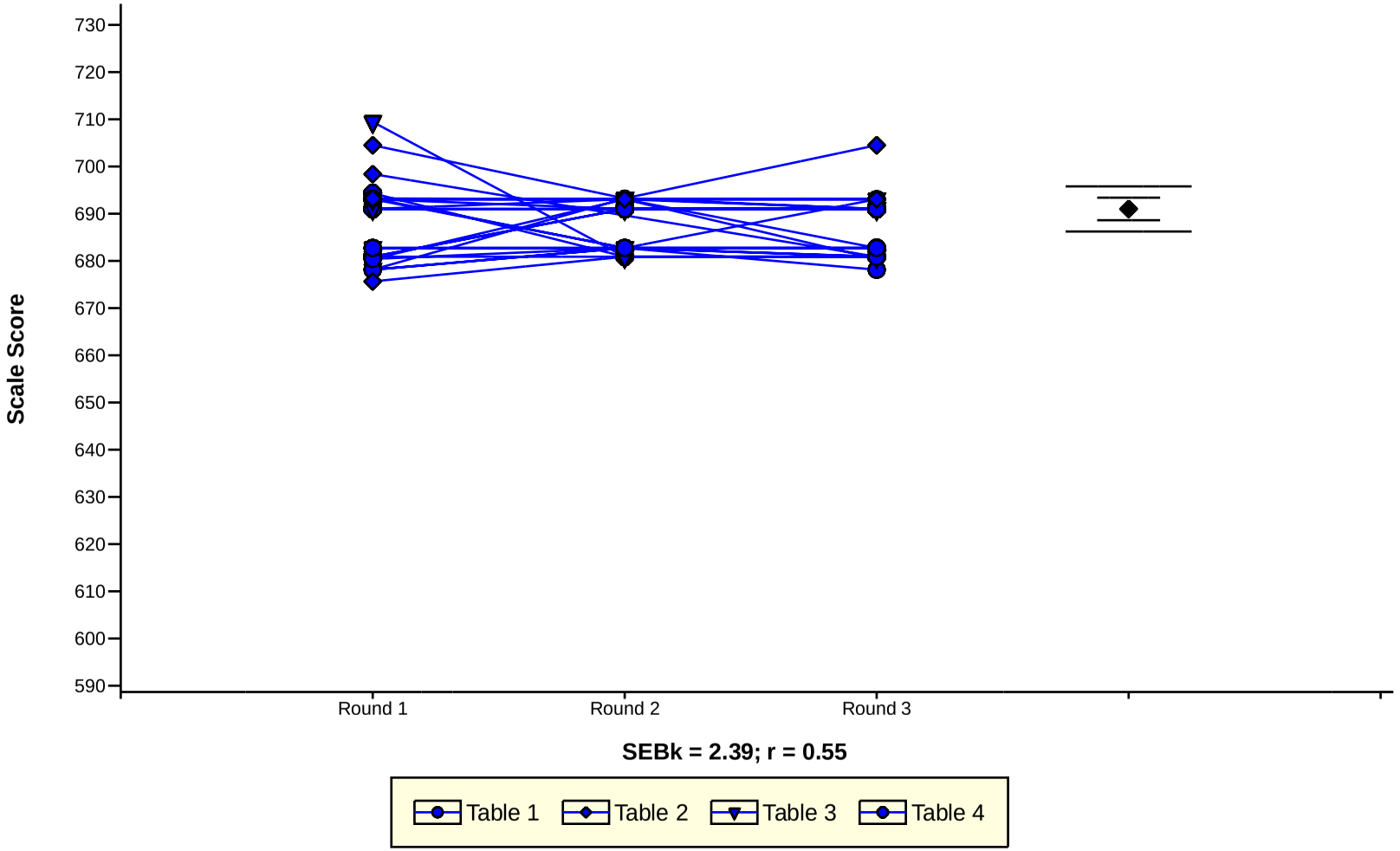

New York State Mathematics Standard Setting Grade 7 Mathematics Meeting with Distinction Cut Point

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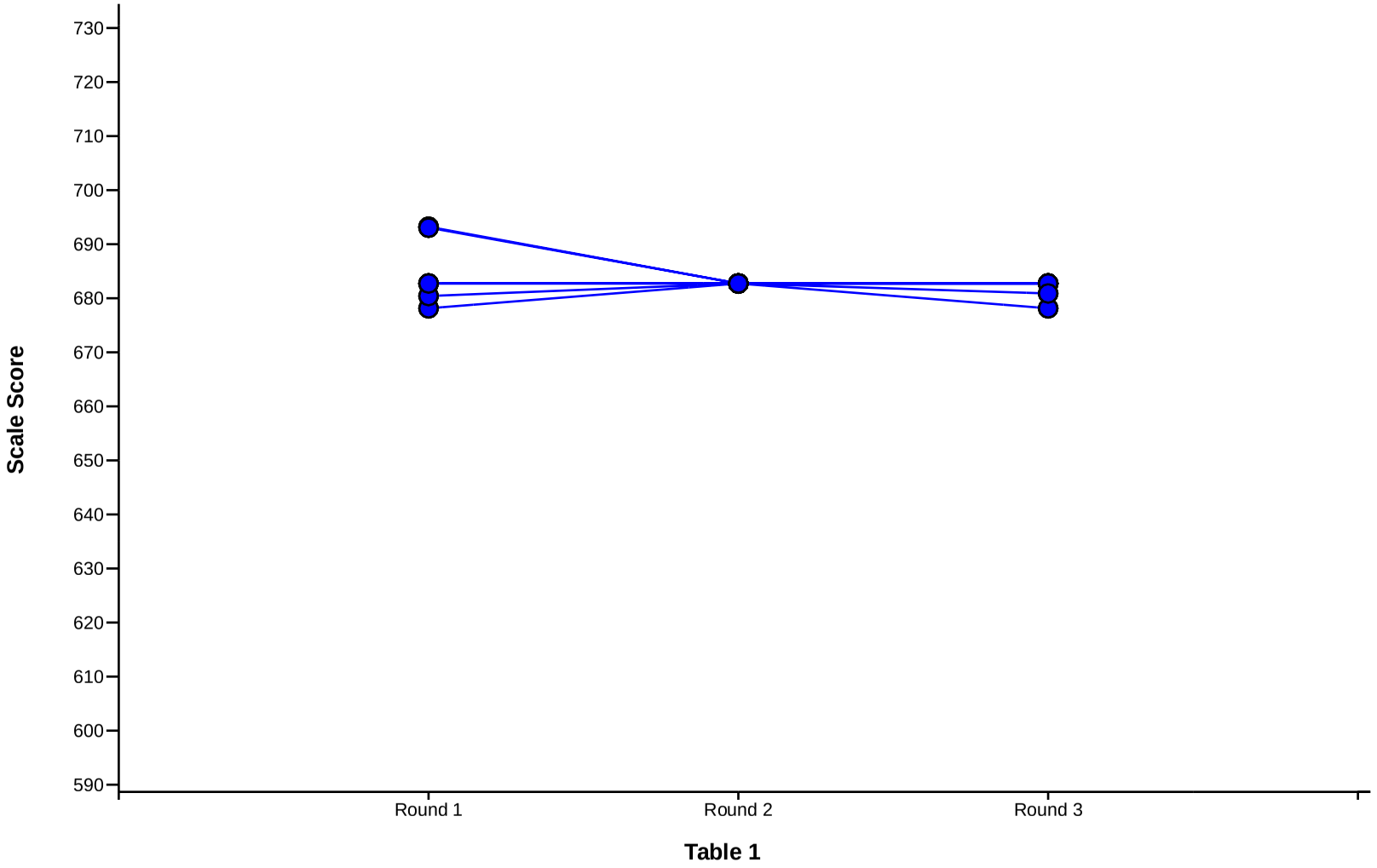

New York State Mathematics Standard Setting Grade 7 Mathematics Meeting with Distinction Cut Point

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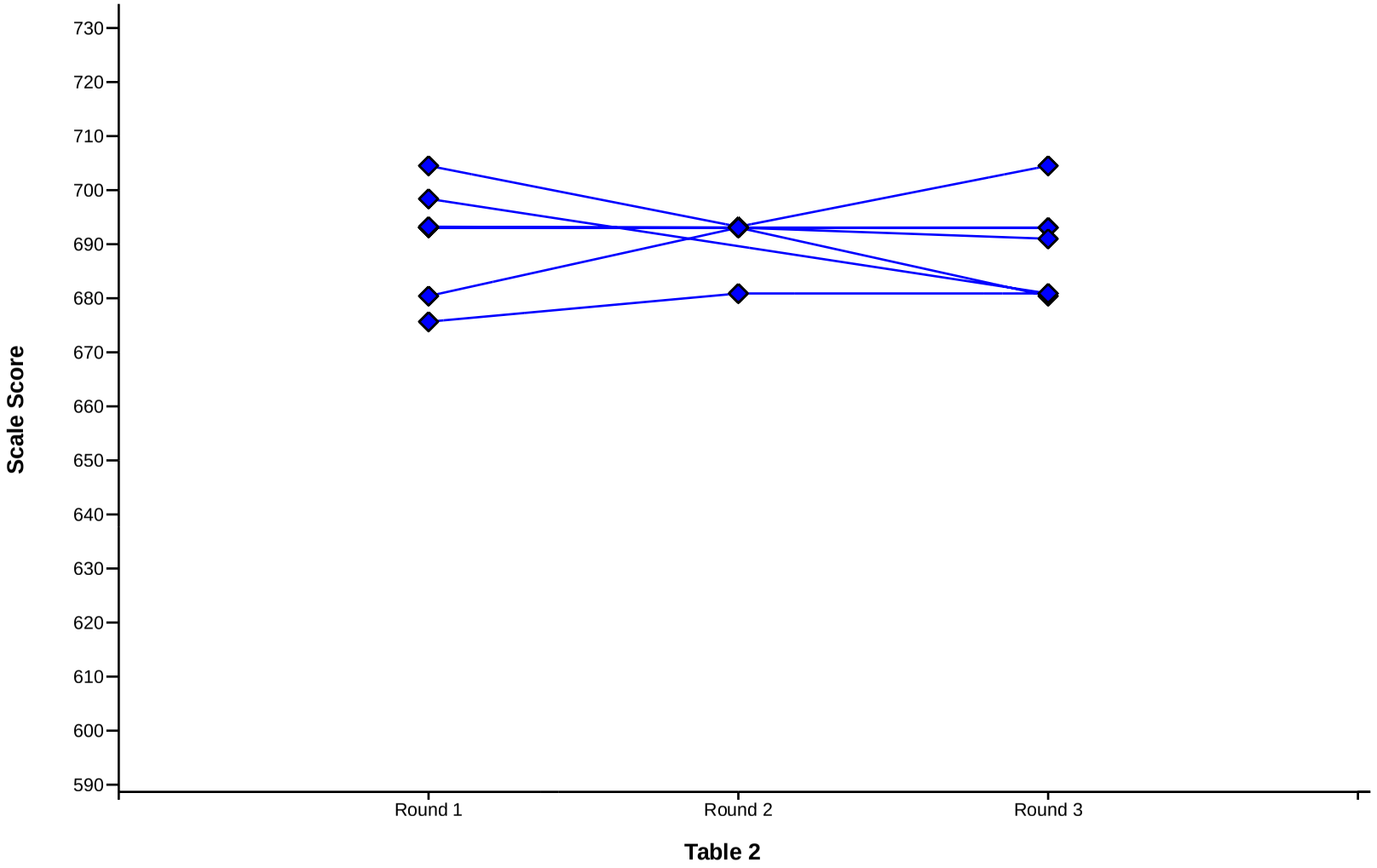

New York State Mathematics Standard Setting Grade 7 Mathematics Meeting with Distinction Cut Point

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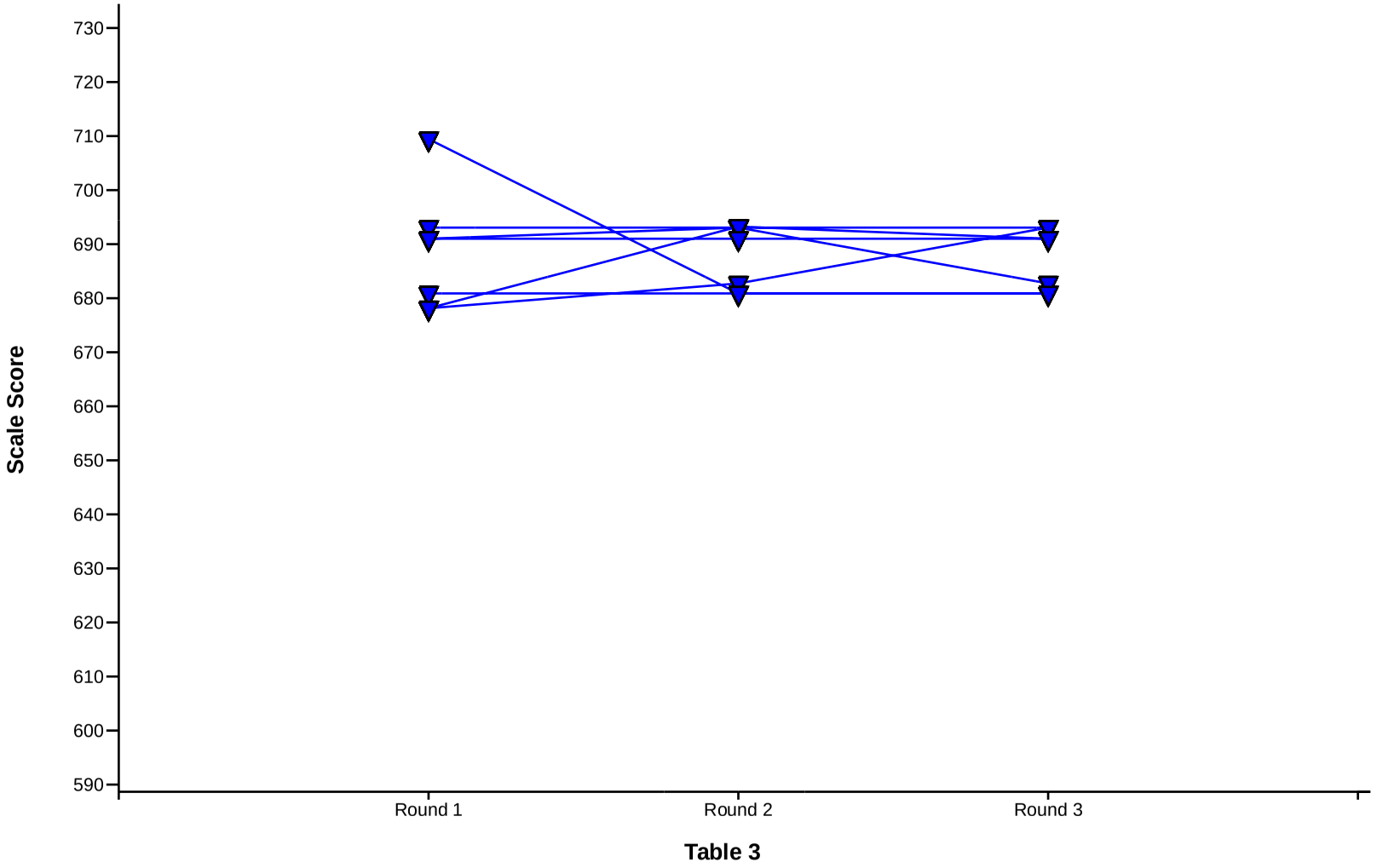

New York State Mathematics Standard Setting Grade 7 Mathematics Meeting with Distinction Cut Point

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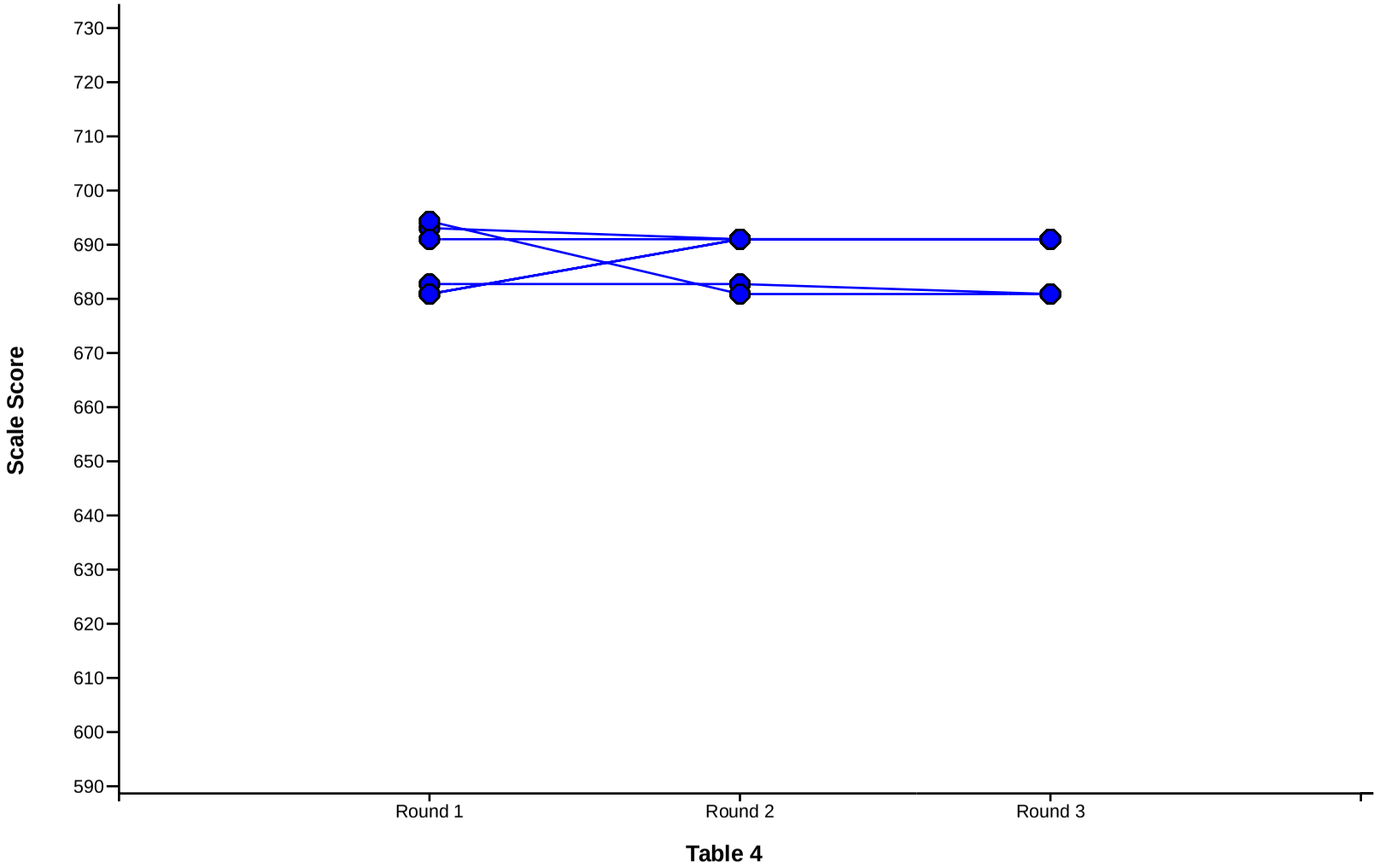

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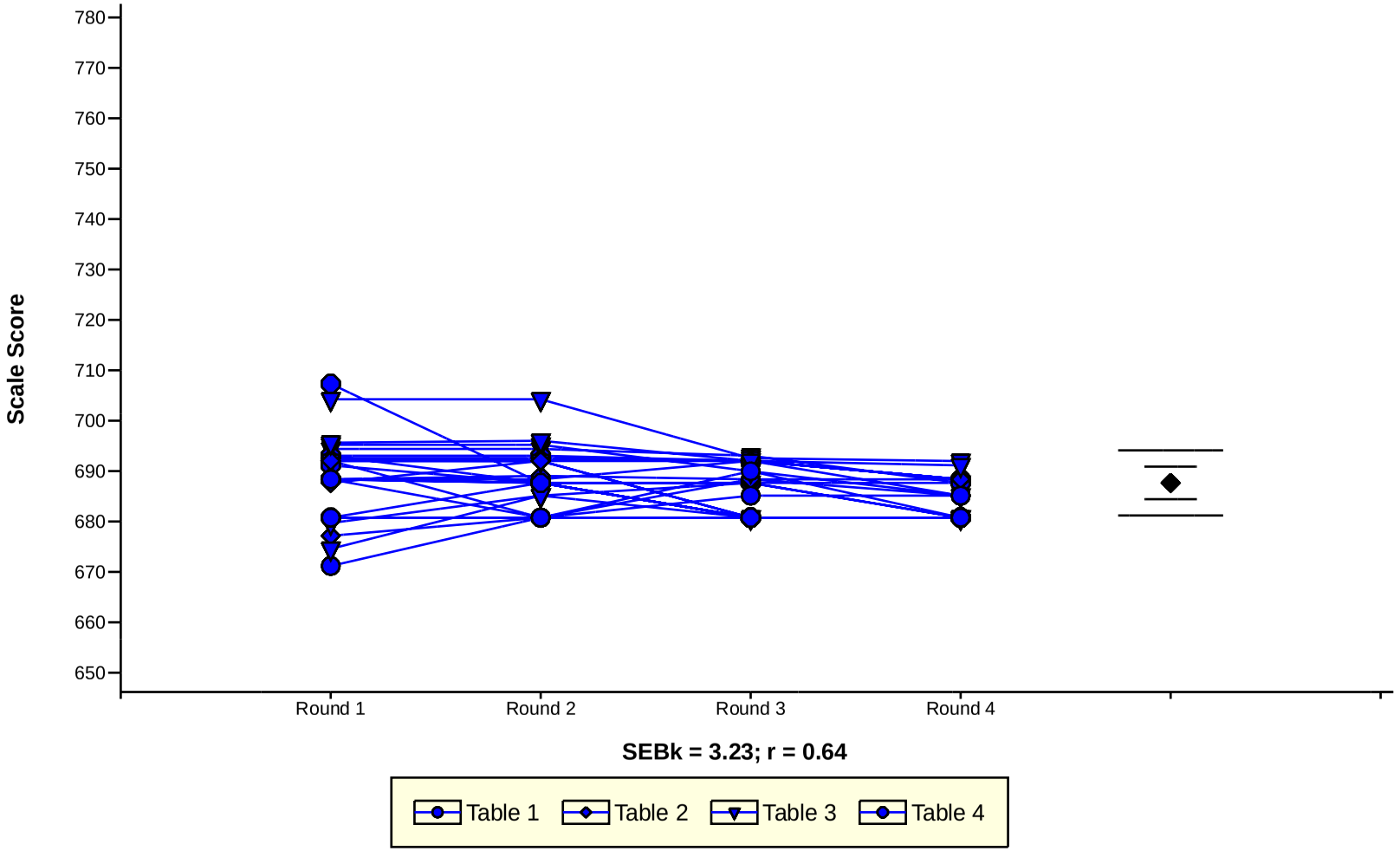

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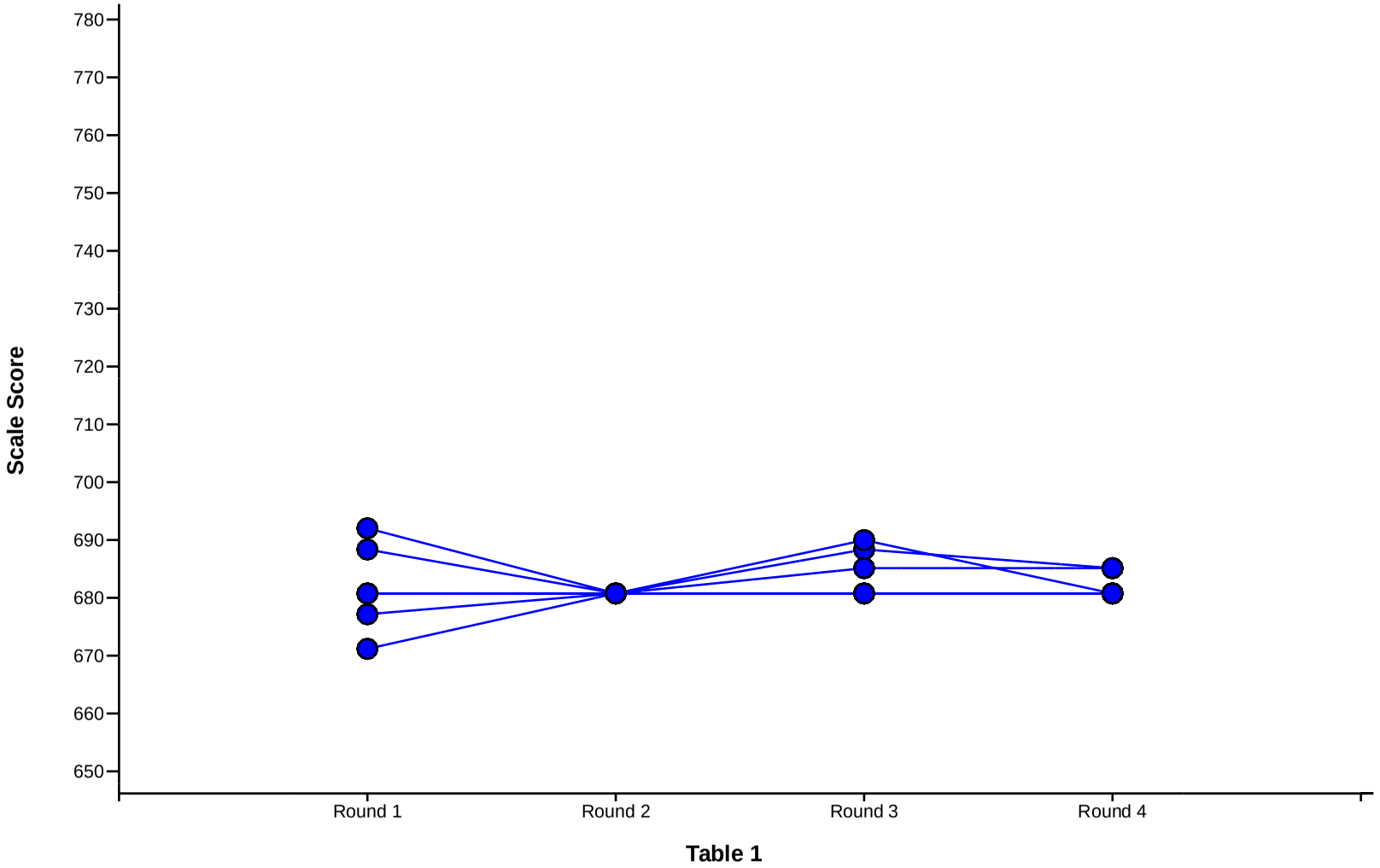

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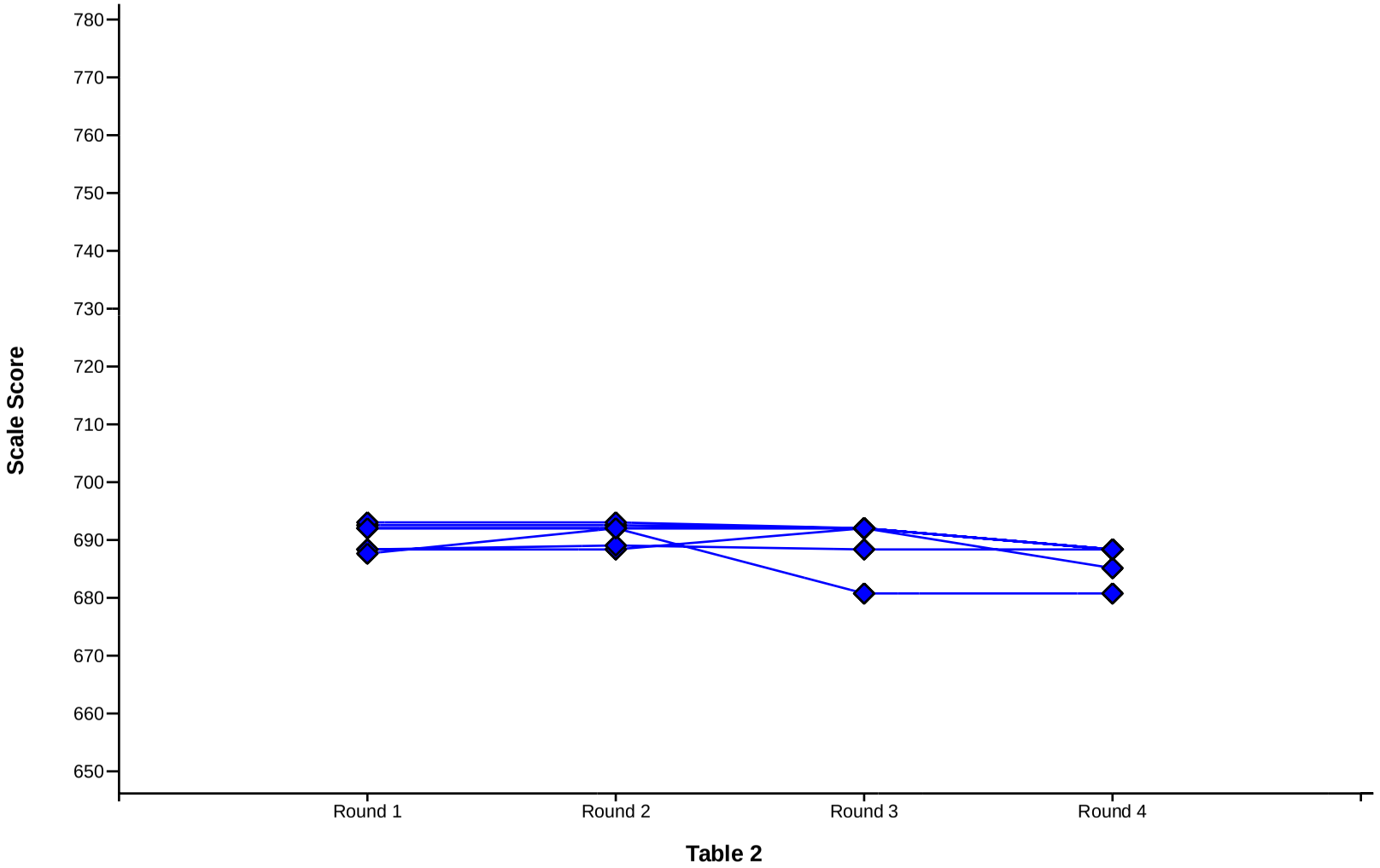

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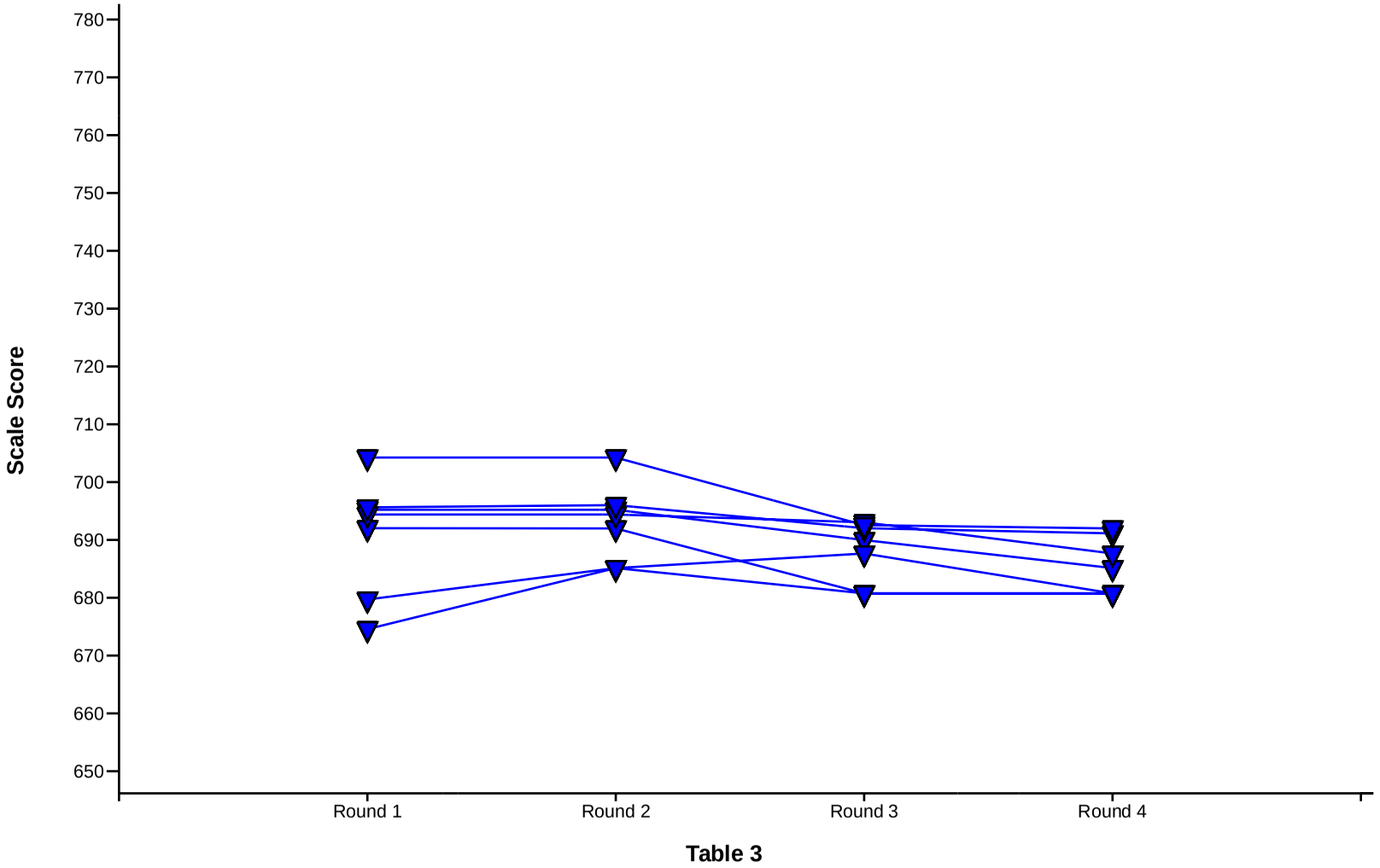

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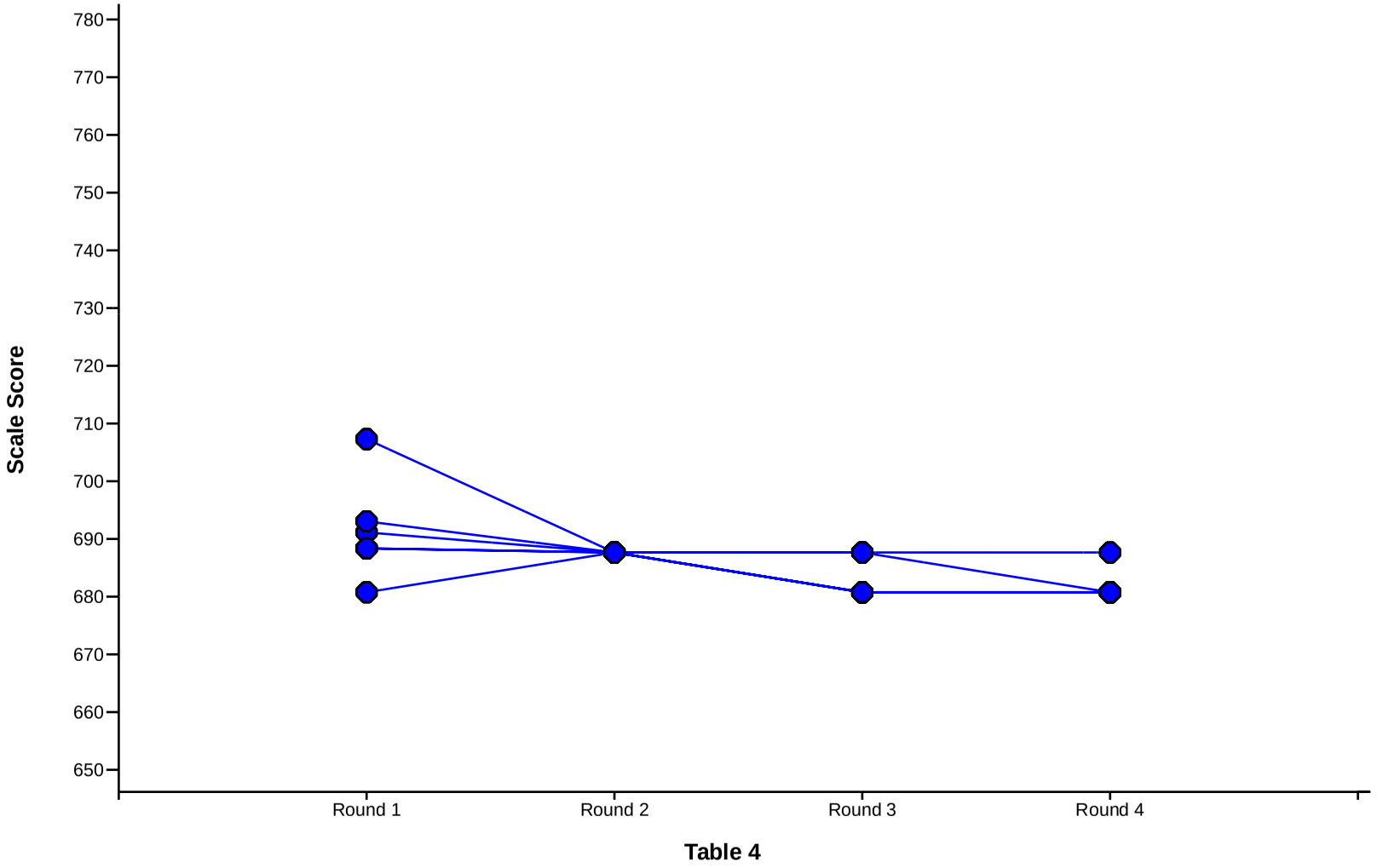

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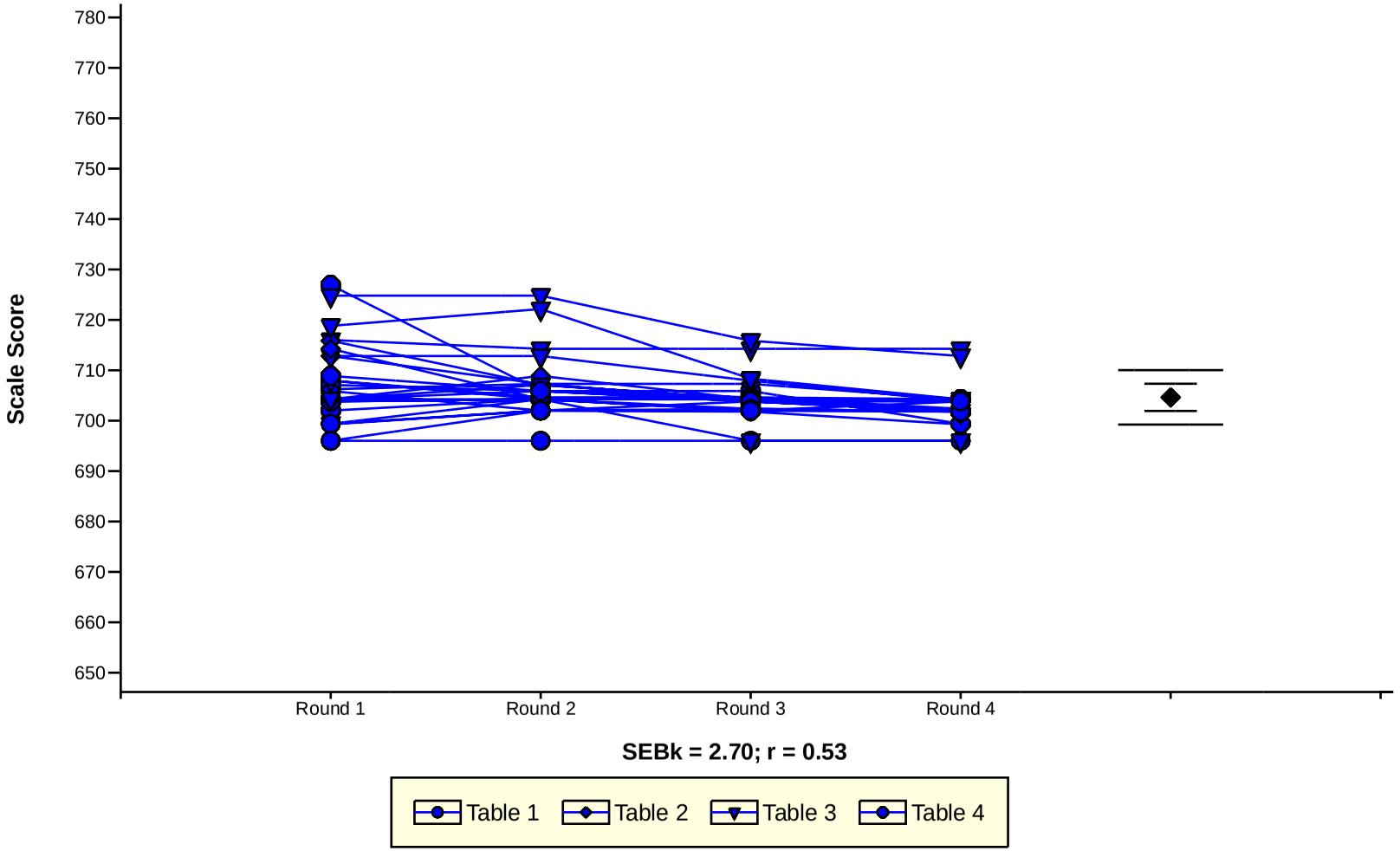

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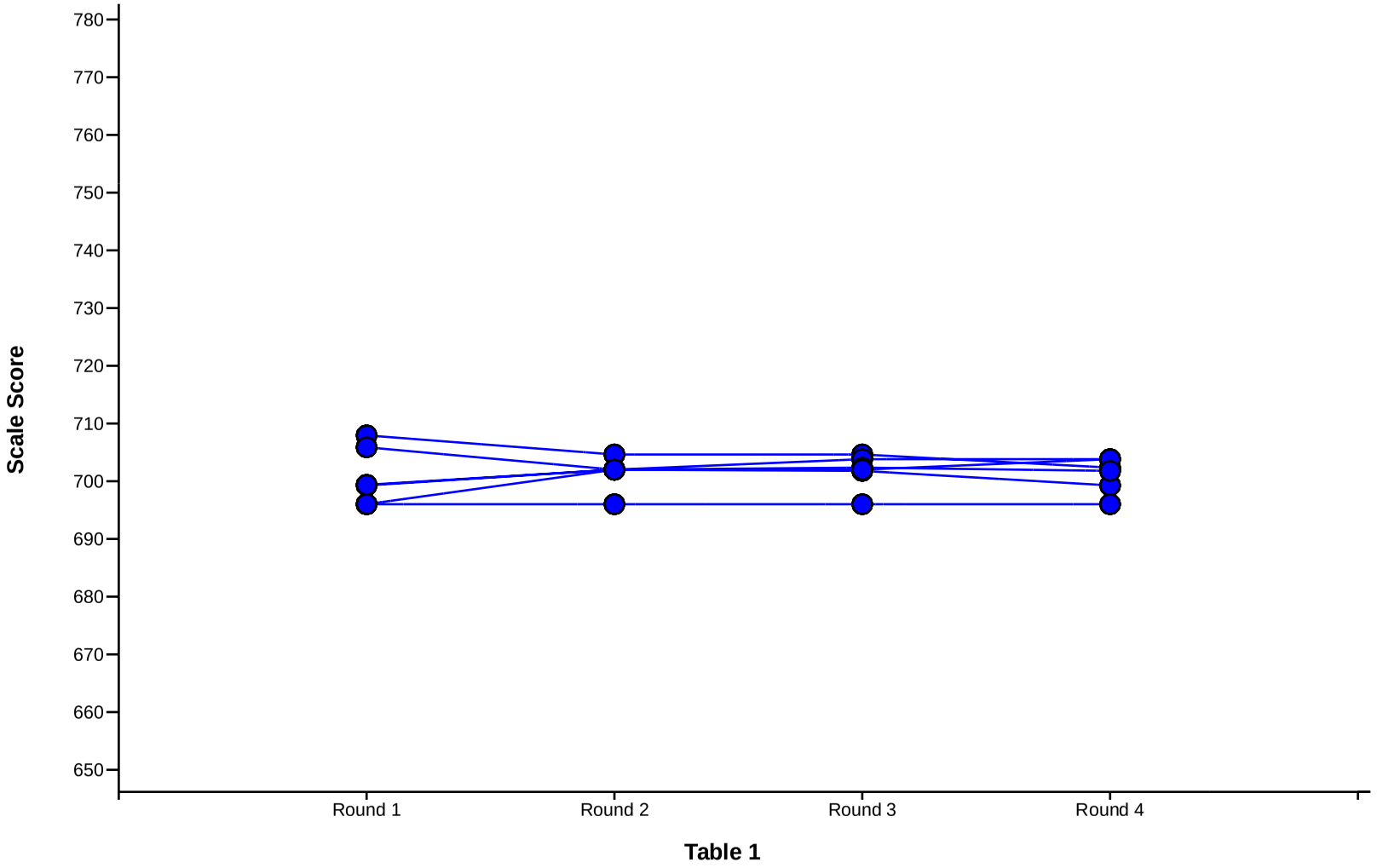

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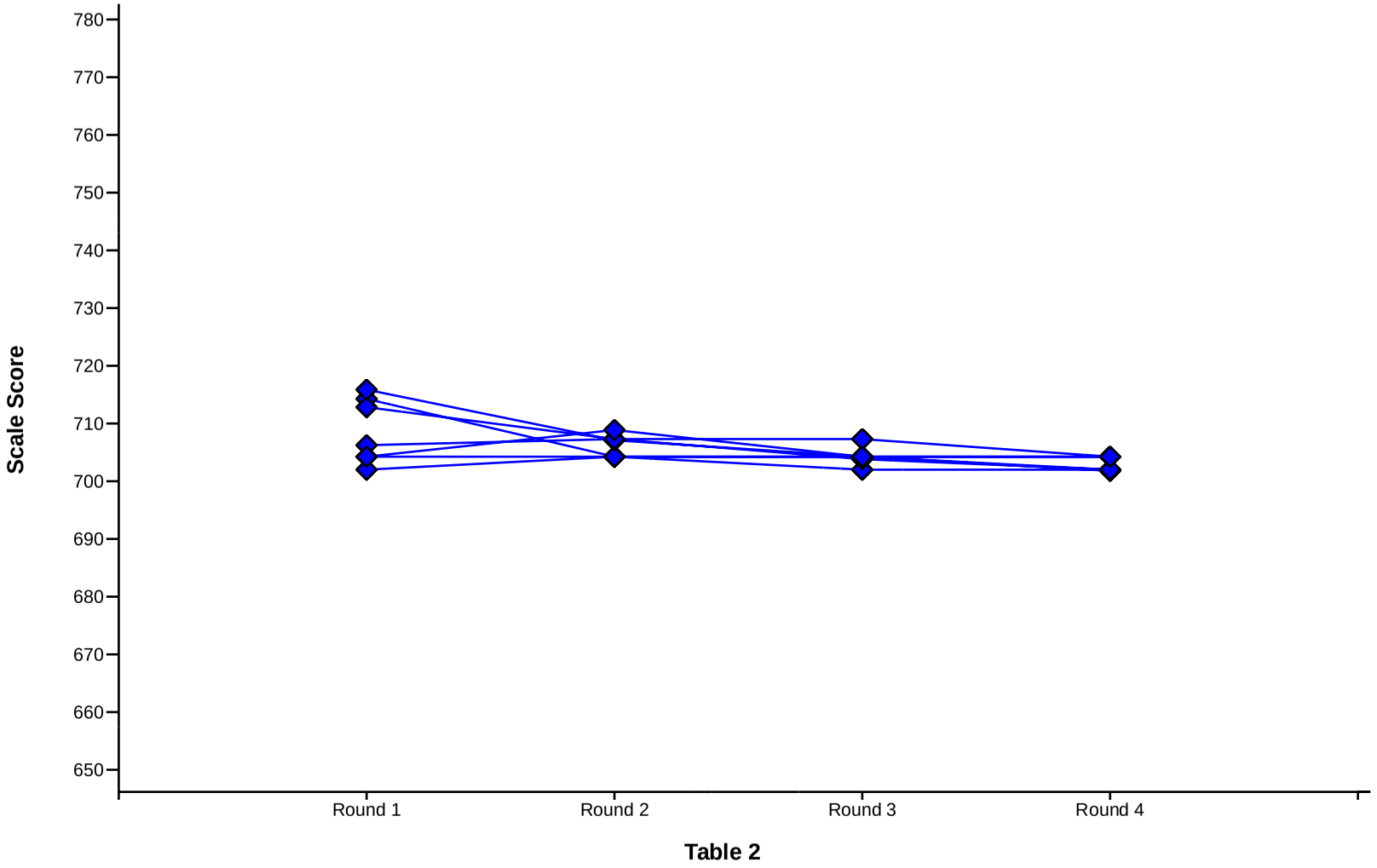

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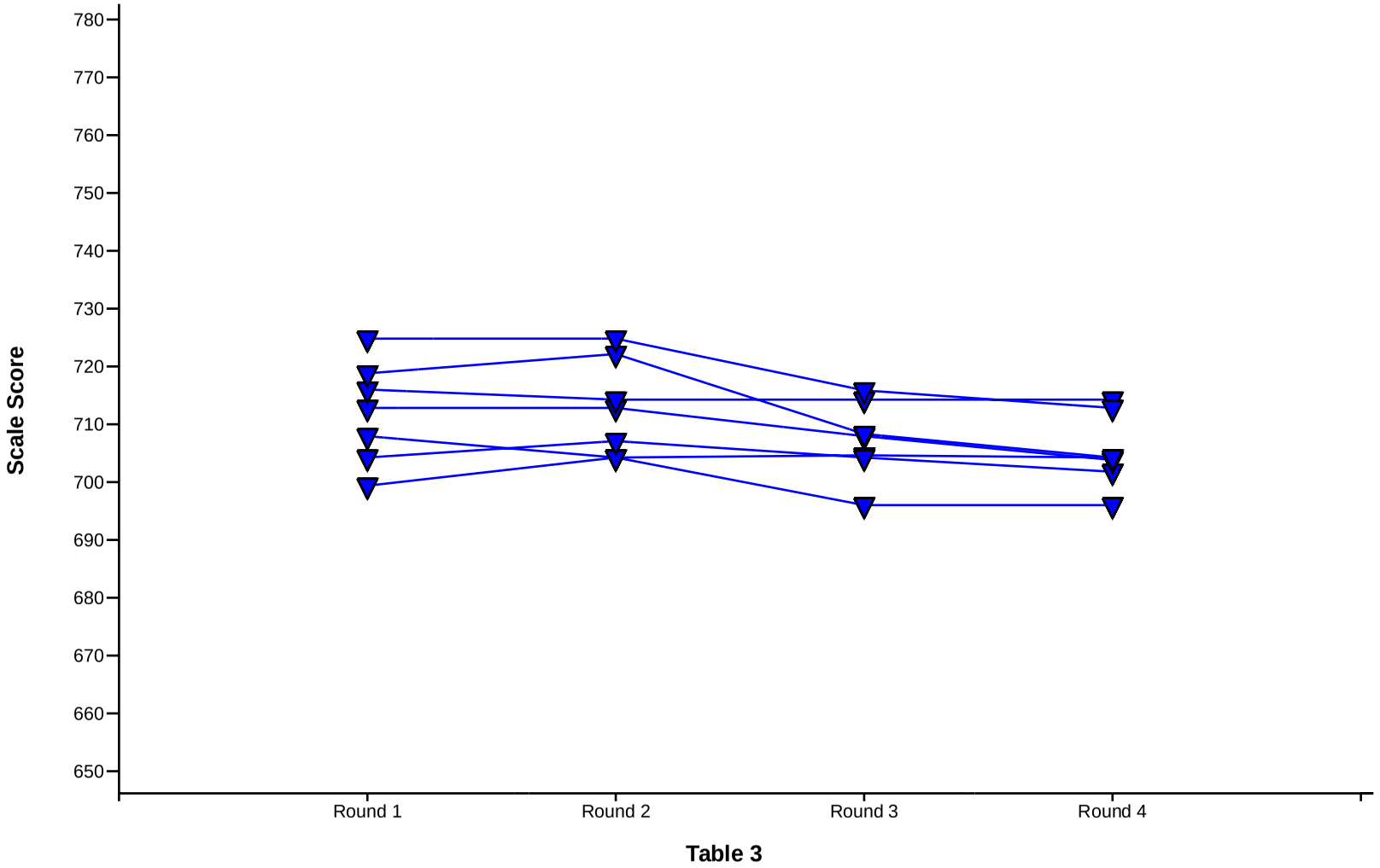
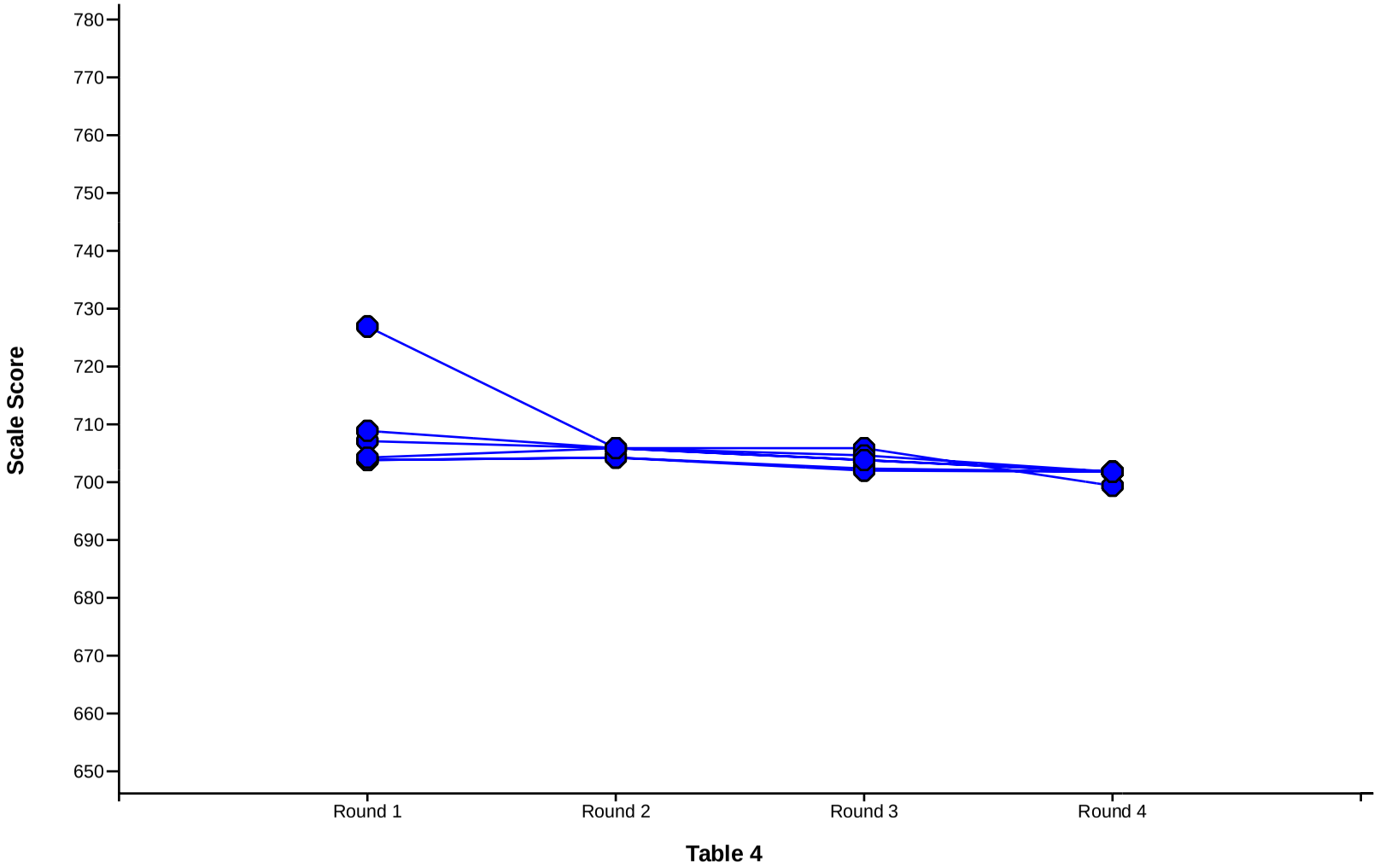


New York State Mathematics Standard Setting Grade 8 Mathematics Meeting Cut Point



New York State Mathematics Standard Setting Grade 8 Mathematics Meeting with Distinction Cut Point

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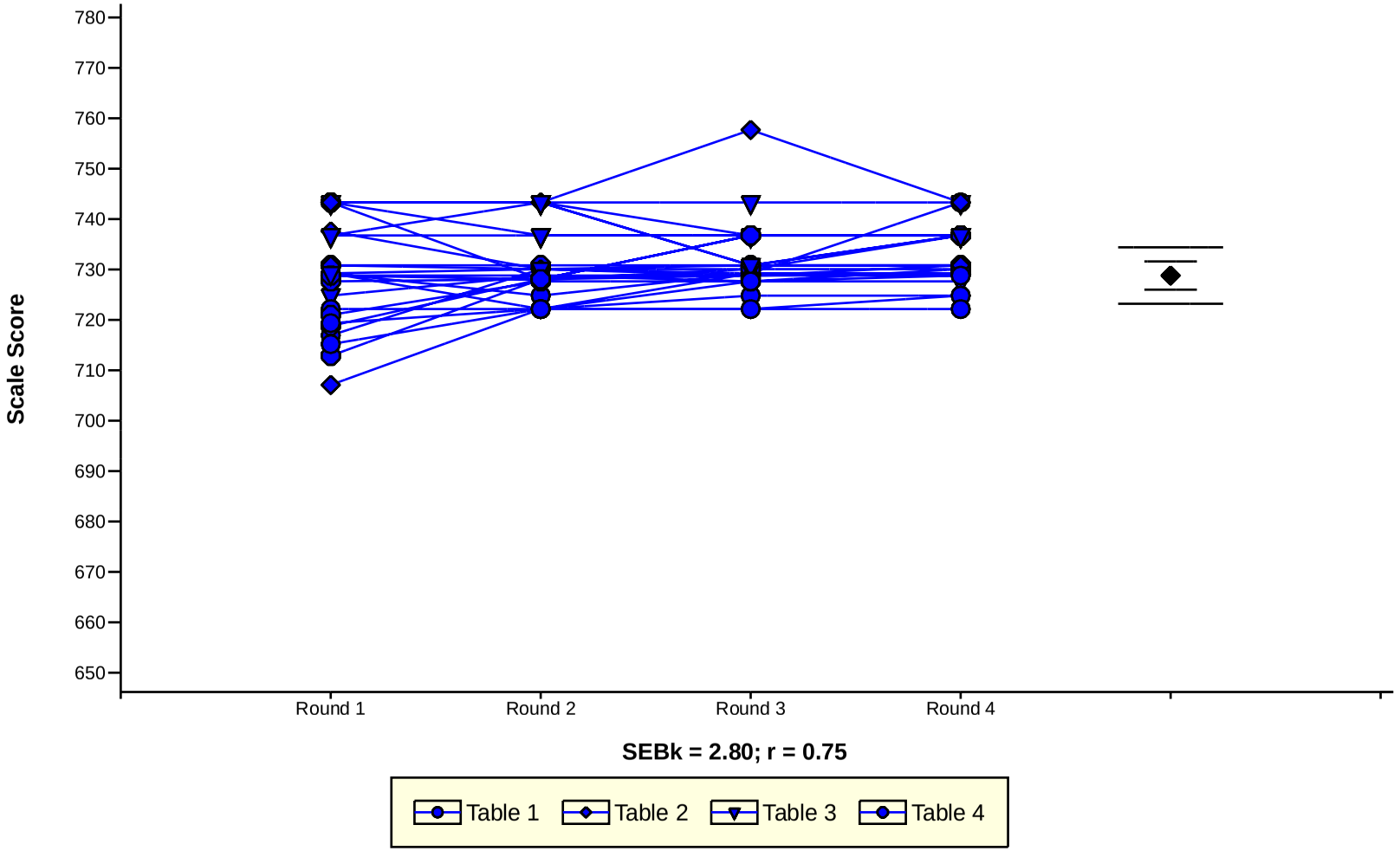

New York State Mathematics Standard Setting Grade 8 Mathematics Meeting with Distinction Cut Point

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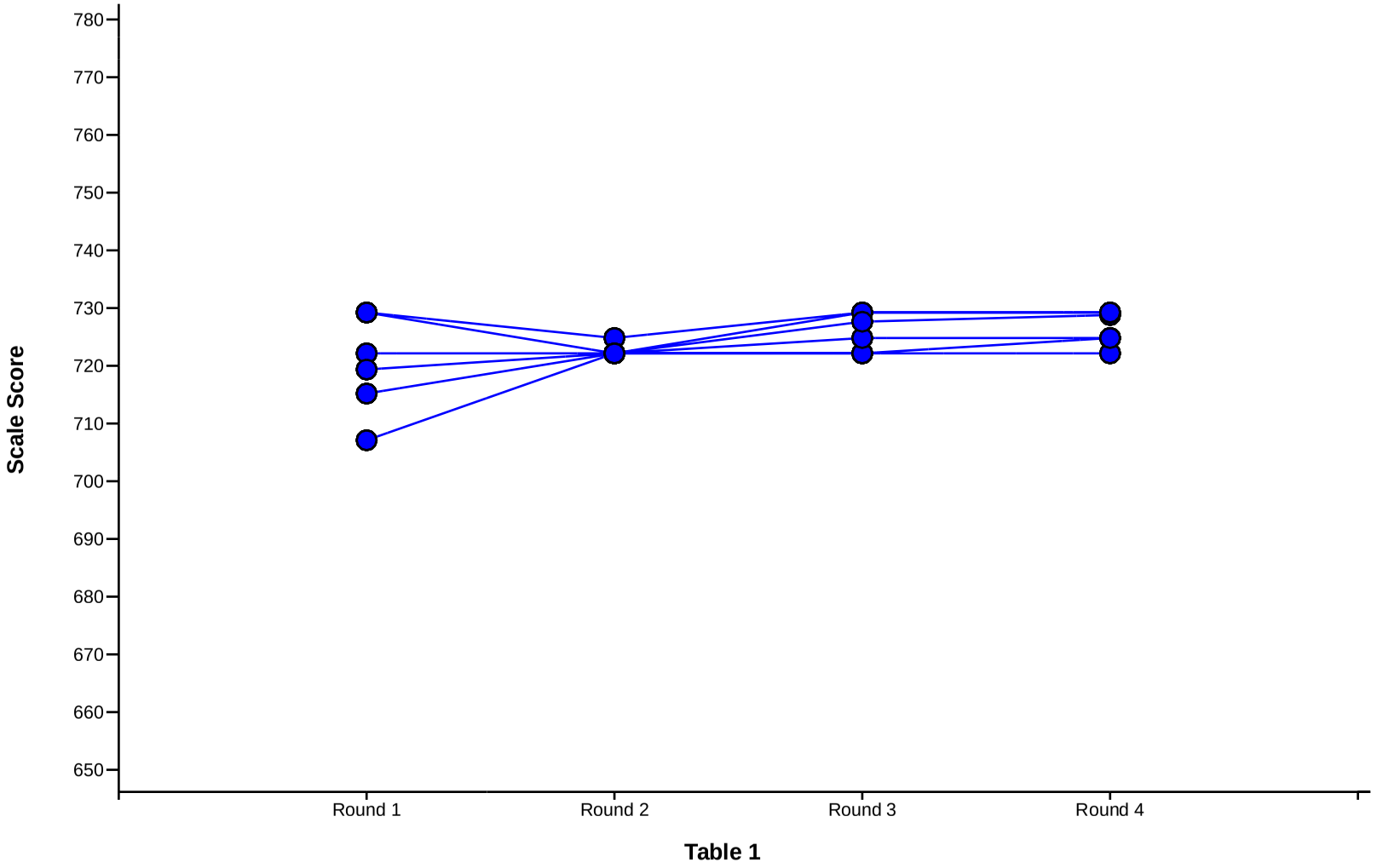

New York State Mathematics Standard Setting Grade 8 Mathematics Meeting with Distinction Cut Point

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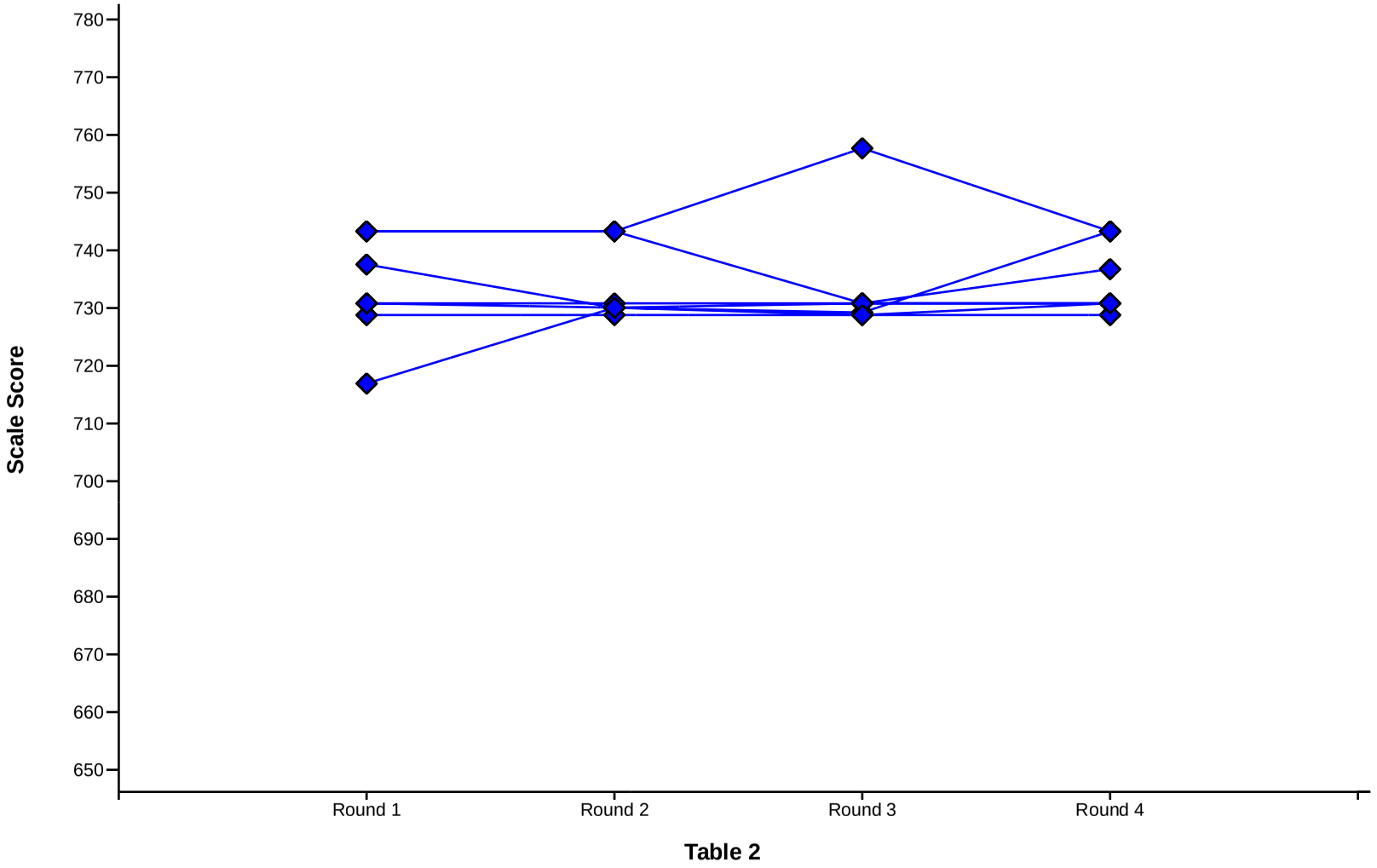

New York State Mathematics Standard Setting Grade 8 Mathematics Meeting with Distinction Cut Point

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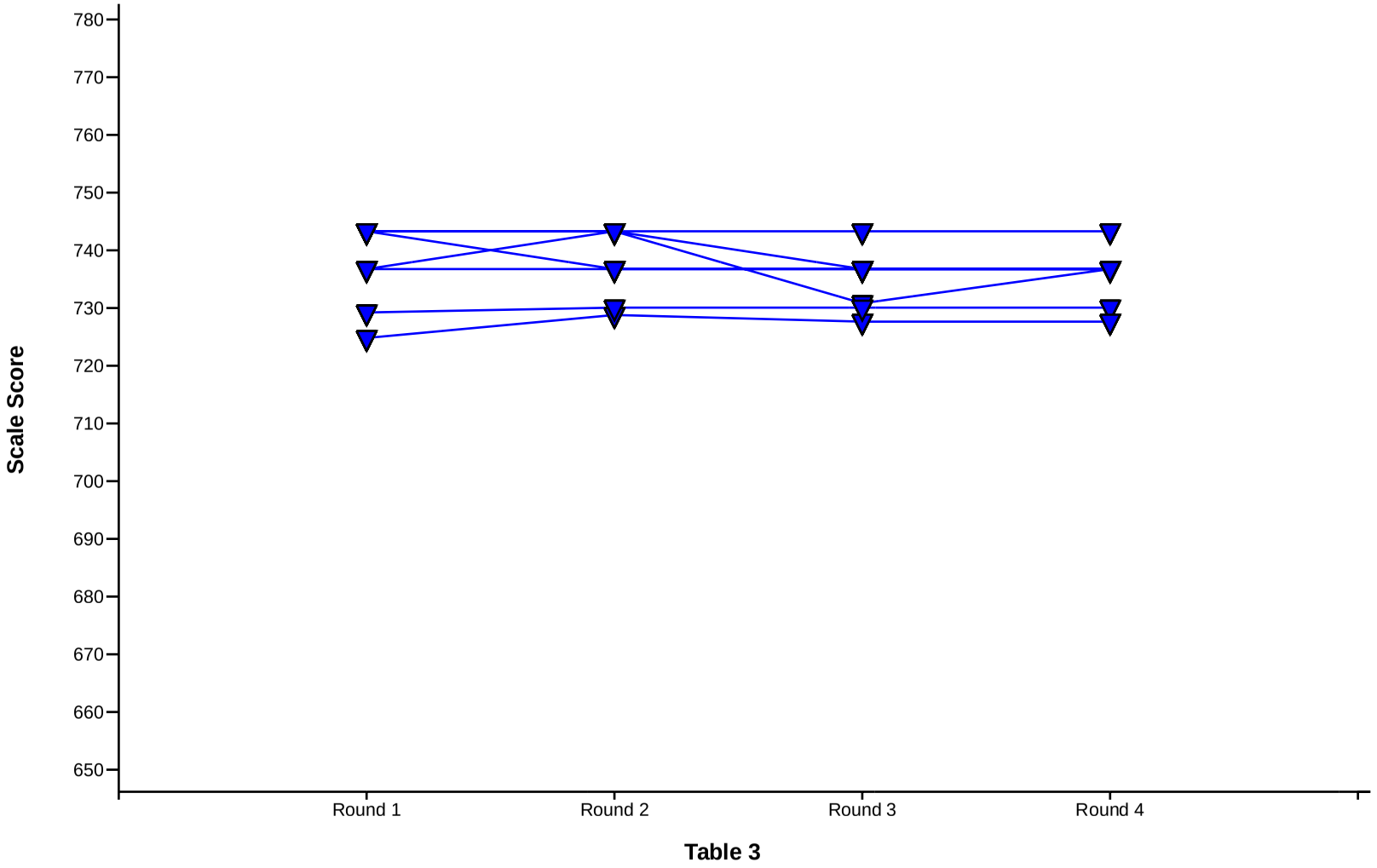

New York State Mathematics Standard Setting Grade 8 Mathematics Meeting with Distinction Cut Point

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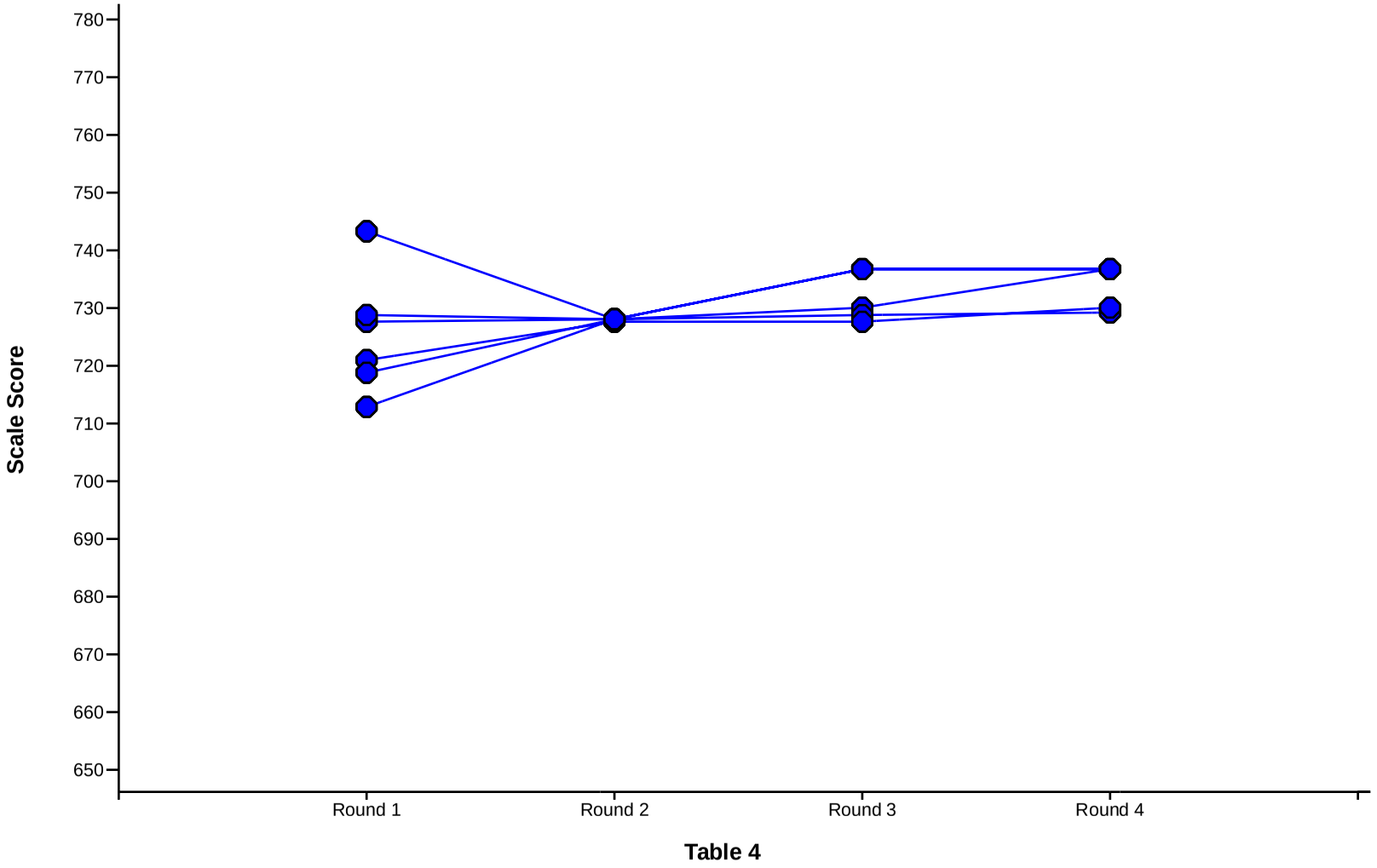
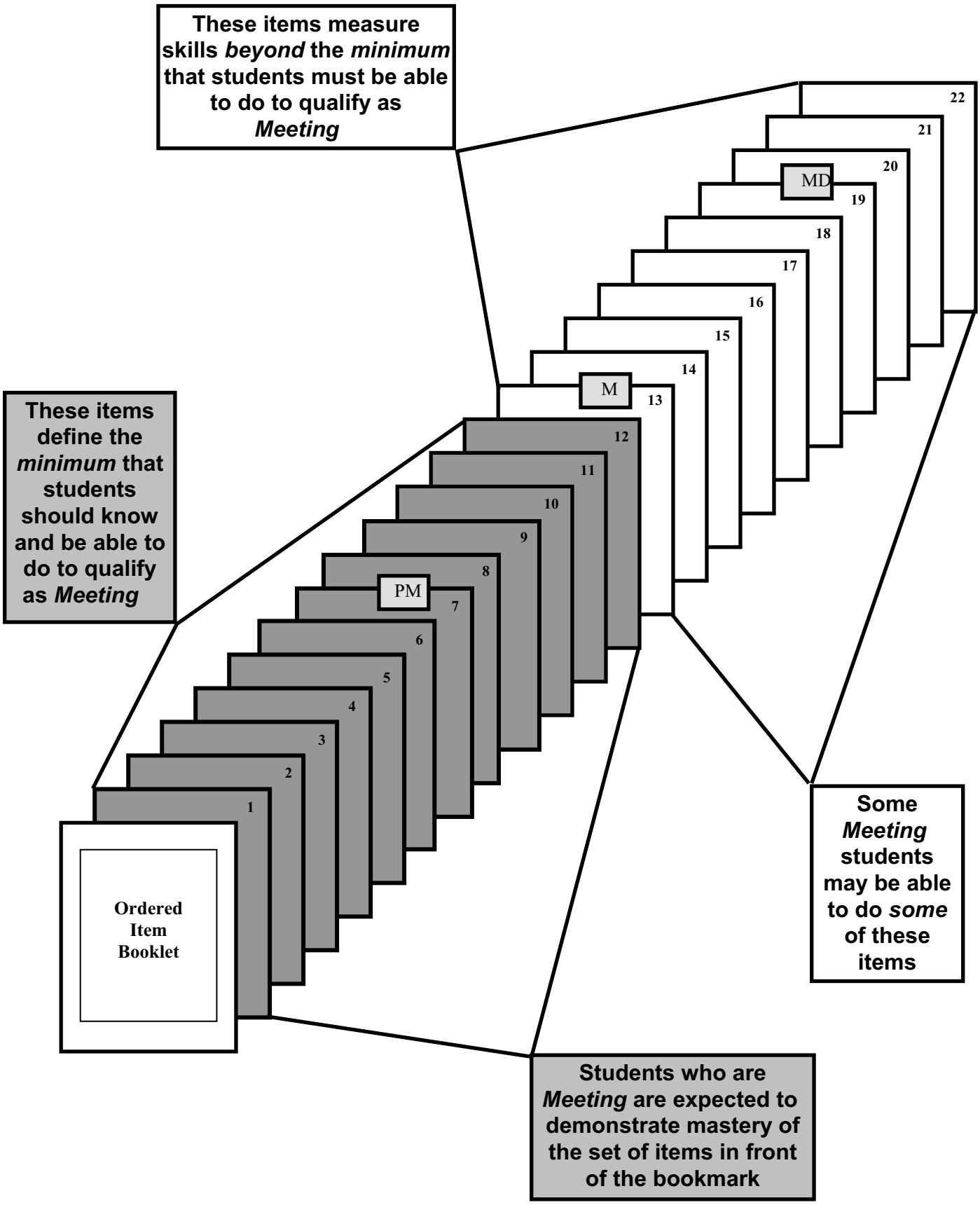


Section H

Participant Training Materials



Bookmark Placement

These directions are written for placing the *Meeting* bookmark and apply analogously to the *Partially Meeting* and *Meeting with Distinction* bookmarks.

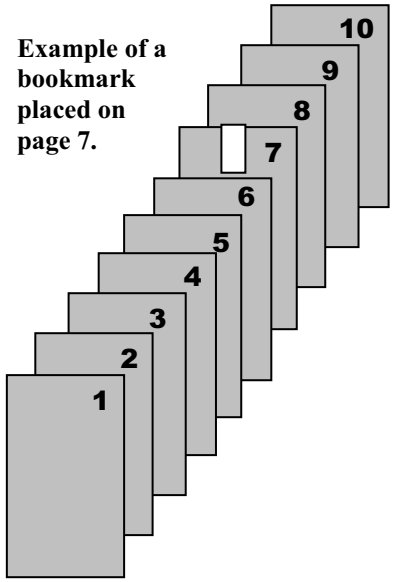
For whom am I placing this bookmark? The Target Student

When you place your *Meeting* bookmark, you are separating the highest ability *Partially Meeting* students from the lowest ability *Meeting* students. In other words, you are keeping in mind the Target Student who will just make it into the *Meeting* level.

How do I place my bookmark? The Mechanics

The bookmark is exactly that: a bookmark. It separates the content students are expected to master from the content they are *not* expected to master. In the example below, a participant has placed the *Meeting* bookmark on page 7. With this bookmark placement, the participant says that a student must master the content represented by items 1 through 6 to be *Meeting*.

To place your bookmark, start at page 1 in the Ordered Item Booklet (OIB). Page through the OIB **looking at the content covered** until you find the ***first*** page where you think a student has demonstrated a sufficient body of evidence to indicate that the student is *Meeting* relative to the content standards. This is the content you are saying a *Meeting* Target Student needs to master to just make it into the *Meeting* level.



Hold the pages that contain the content you expect the student to master in your left hand. Place your bookmark on the page AFTER the last item you expect the student to master. This page number is your bookmark. Write it on your Rating Form.

Hint: *It may be helpful to first identify the interval of items in which you are reasonably certain the bookmark should be placed; then you can place the bookmark within that interval. If you are uncertain about where to place your bookmark, make your best decision; you will have two more rounds of voting to reconsider your bookmark.*

What does my *Meeting* Bookmark mean? Some Answers

- You expect *Meeting* students to master the knowledge, skills, and abilities contained in the items *before* your bookmark.
- *Meeting* students should know and be able to do the items *before* the bookmark. For multiple-choice items, *Meeting* students should know the correct response. For constructed-response items, *Meeting* students should most likely achieve the score points before the bookmark.

Is my bookmark the same as a raw score? NO

It is very important to remember that your bookmark placement is *not* equal to a raw score. In the example above, the *Meeting* bookmark was placed on page 7. The participant was *not* saying that a student must get six items correct to be classified as *Meeting*. This participant is saying that a just *Meeting* student must master the content measured by the items on pages 1 through 6. The numbers in the OIB correspond to the rank order of difficulty of each item. These numbers do *not* correspond to a raw score.

Frequently Asked Questions about Bookmark Placement

These questions are written in reference to the *Meeting* bookmark and apply analogously to the *Partially Meeting* and *Meeting with Distinction* bookmarks.

How do I know if I placed my bookmark in the "right" place?

The "right" place is a matter of judgment, *your* judgment. You are placing your bookmark based on the content you expect students to know and be able to do.

I set my bookmark based on the content I expect students to know and be able to do, that is, the content I expect students to master. What is the definition of mastery?

We look at mastery by considering the likelihood with which students will respond correctly to the items. This question is answered in more depth in the handout "Mastery."

If a student misses some items before the *Meeting* bookmark and gets some correct after the bookmark, is that student still *Meeting?*

A student does *not* have to get every item before the bookmark correct to be *Meeting*. *Meeting* students can miss some items *before* the bookmark and correctly respond to some items *after* the bookmark.

Does the page number on which I place my bookmark correspond to the raw score a student must get on the test?

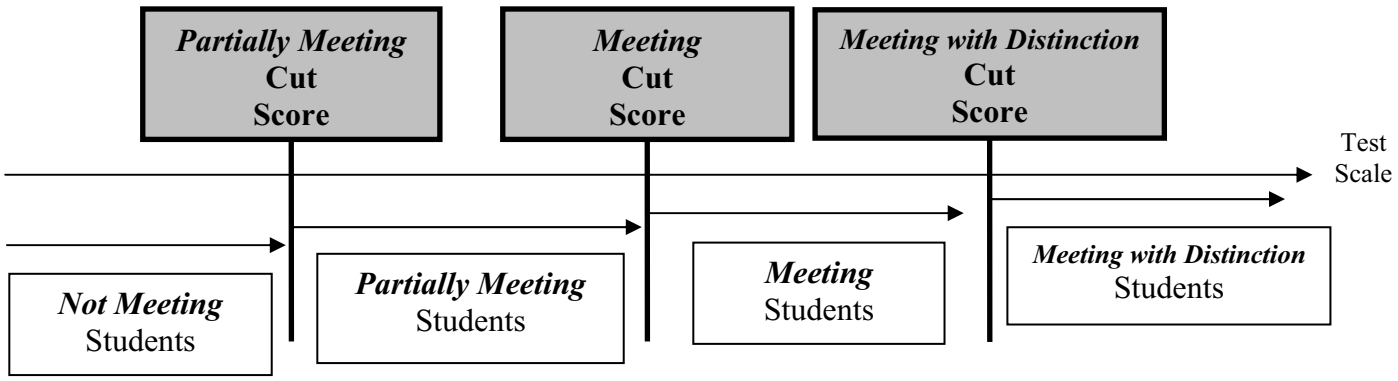
No. Remember, you are placing your bookmark based on the content you expect students to know and be able to do. You are *not* making your decision based on the number of items students must answer correctly. The bookmark is placed on a *page* in the Ordered Item Booklet. This page number corresponds to the difficulty ordering of the item, *not* to the raw score.

Should I place my bookmark in the first place in the Ordered Item Booklet where all the content standards have occurred?

Not necessarily. The test only samples the content domain. In some cases, some content standards will only be represented by difficult items that would be hard for most students to master.

How many bookmarks do I set?

You set one less bookmark than the number of performance levels. For New York State, you will set 3 bookmarks to separate students into 4 performance levels.

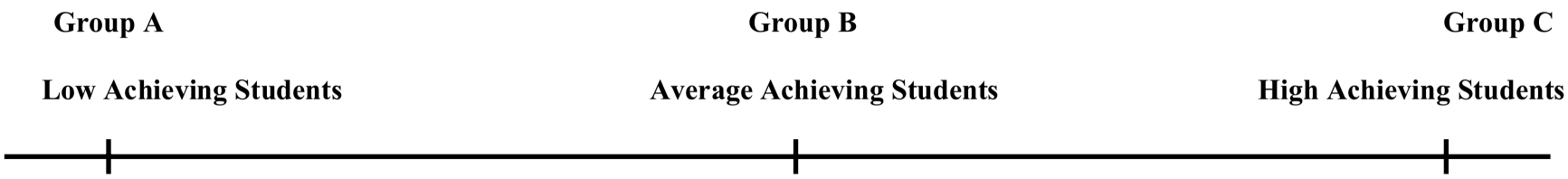


How Participants' Bookmark Judgments Relate to Expected Student Achievement within Each Performance Level

You are participating in this standard setting because of your experience with students and your knowledge of the state content standards, curriculum, and current instructional practices. You will be making judgments that will operationalize your expectations for the level of achievement students must demonstrate in order to place in each performance level. To understand how your judgments relate to expected student achievement within each performance level, consider the following examples.

Consider how students at various scale locations might perform on an imaginary assessment that consists of a total of 50 score points. In particular, we will consider the performance of groups of students who are at three specific points on the test scale. Group A consists of 100 low achieving students, Group B consists of 100 average achieving students, and Group C consists of 100 high achieving students. Assume that the students have all taken the assessment and that the 100 students within each group have all obtained the exact same scale score. Note the location of the obtained scale score for each of the three groups on the test scale below.

Test Scale



The following three figures show how students in each of the three groups might perform on the assessment.

H 4

Figure A shows how many students in Group A responded correctly to each item in the ordered item booklet. Observe that the students in Group A performed well on the items that appear early in the ordered item booklet but performed poorly on the items that appear later in the ordered item booklet. This makes sense, because the items appear in order of difficulty, with the easiest item first and the hardest item last. For example, 99 of the 100 Group A students responded correctly to item 1, 67 of the Group A students responded correctly to item 10, but only 1 of the Group A students responded correctly to item 50.

We say that *a group of like students have demonstrated mastery of the content represented by an item if at least 2/3 of the students (about 67 out of 100) in the group can be expected to respond successfully to the item*. According to Figure A, Group A students have demonstrated mastery of items 1 through 10, but have not demonstrated mastery of items 11 through 50.

Figure A. The number (or percent) of Group A students who responded correctly to each item in the ordered item booklet.

item 1	item 2	item 3	item 4	item 5	item 6	item 7	item 8	item 9	item 10
99	95	93	87	83	82	78	74	69	67
100	100	100	100	100	100	100	100	100	100

item 11	item 12	item 13	item 14	item 15	item 16	item 17	item 18	item 19	item 20	item 21	item 22	item 23	item 24	item 25	item 26	item 27	item 28	item 29	item 30
63	60	59	58	57	53	52	50	50	49	49	48	47	43	41	39	37	35	34	31
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

item 31	item 32	item 33	item 34	item 35	item 36	item 37	item 38	item 39	item 40	item 41	item 42	item 43	item 44	item 45	item 46	item 47	item 48	item 49	item 50
30	29	25	22	20	18	17	14	11	10	9	7	5	5	4	3	2	2	1	1
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Definition of Mastery

We say that a group of like students have demonstrated mastery of the content represented by an item if at least 2/3 (67/100) of the students in the group can be expected to respond successfully to the item.

Figure B shows how many students in Group B responded correctly to each item in the ordered item booklet. Observe that the students in Group B performed much better than students in Group A. That makes sense because Group B students are average achieving students while Group A students are low achieving students.

Before you read further, use Figure B and the definition of mastery stated in the box above to determine which items Group B has mastered.

Group B students have demonstrated mastery of the content reflected in items 1 through 30 of the ordered item booklet, but have not demonstrated mastery of the content reflected by items 31 through 50. This is true according to the definition, because at least 67 of the 100 Group B students responded successfully to each of items 1 through 30, but fewer than 67 of them responded correctly to items 31 through 50.

Figure B. The number (or percent) of Group B students who responded correctly to each item in the ordered item booklet.

item 1	item 2	item 3	item 4	item 5	item 6	item 7	item 8	item 9	item 10
99/100	99/100	99/100	99/100	99/100	98/100	98/100	98/100	97/100	97/100

item 11	item 12	item 13	item 14	item 15	item 16	item 17	item 18	item 19	item 20	item 21	item 22	item 23	item 24	item 25	item 26	item 27	item 28	item 29	item 30
96/100	96/100	95/100	93/100	89/100	85/100	84/100	83/100	83/100	81/100	79/100	79/100	78/100	73/100	72/100	72/100	71/100	70/100	69/100	67/100

item 31	item 32	item 33	item 34	item 35	item 36	item 37	item 38	item 39	item 40	item 41	item 42	item 43	item 44	item 45	item 46	item 47	item 48	item 49	item 50
65/100	63/100	63/100	61/100	58/100	57/100	57/100	55/100	55/100	54/100	53/100	53/100	52/100	51/100	44/100	41/100	39/100	37/100	35/100	33/100

Definition of Mastery

We say that a group of like students have demonstrated mastery of the content represented by an item if at least 2/3 (67/100) of the students in the group can be expected to respond successfully to the item.

Figure C shows how many students in Group C responded correctly to each item in the ordered item booklet. Observe that Group C performed much better than Groups A or B. That makes sense because Group C consists of high achieving students while Groups A and B consist of low and average achieving students, respectively.

Before you read further, use Figure C and the definition of mastery stated in the box above to determine which items Group C has mastered. Group C students have demonstrated mastery of the content reflected in items 1 through 45 of the ordered item booklet, but have not demonstrated mastery of the content reflected by items 46 through 50. This is true according to the definition, because at least 67 of the 100 Group C students responded successfully to each of items 1 through 45, but fewer than 67 of them responded correctly to items 46 through 50.

Figure C. The number (or percent) of Group C students who responded correctly to each item in the ordered item booklet.

item 1	item 2	item 3	item 4	item 5	item 6	item 7	item 8	item 9	item 10
99/100	99/100	99/100	99/100	99/100	99/100	99/100	99/100	97/100	97/100

item 11	item 12	item 13	item 14	item 15	item 16	item 17	item 18	item 19	item 20	item 21	item 22	item 23	item 24	item 25	item 26	item 27	item 28	item 29	item 30
97/100	97/100	95/100	95/100	94/100	93/100	92/100	92/100	91/100	89/100	89/100	89/100	88/100	88/100	88/100	87/100	87/100	86/100	85/100	84/100

item 31	item 32	item 33	item 34	item 35	item 36	item 37	item 38	item 39	item 40	item 41	item 42	item 43	item 44	item 45	item 46	item 47	item 48	item 49	item 50
83/100	81/100	81/100	81/100	80/100	80/100	79/100	78/100	77/100	75/100	74/100	72/100	70/100	68/100	67/100	64/100	58/100	53/100	49/100	46/100

You have seen from the above examples that by using a specific definition of mastery, we can identify the content in the ordered item booklet that students at any location of the test scale have mastered.

Also, if *you* identify a set of items in the ordered item booklet, the specific point on the test scale at which students have demonstrated mastery of the content you have specified can be determined. This is how the various cut scores are ascertained.

As experts, you will first specify the content in the ordered item booklet that you expect students to master in order to be classified as ***Meeting***. This means that you will identify the items that reflect the knowledge, skills, and abilities you expect all ***Meeting*** students to master. When you have made that judgment, the point on the scale at which students achieve that level of mastery can be identified.

SAMPLE Mathematics Item Map

Print Name:_____ ***Group Number:***_____

Order of difficulty (easy to hard)	Location	Form	Item No.	Item Type	Score Key	Content Strand *	What does this item measure? That is, what do you know about a student who can respond successfully to this item/score point?	Why is this item more difficult than the preceding items?
1	220	12	1	MC	2	1		**N/A**
2	225	9	4	MC	3	4		
3	229	9	3	MC	2	5		
4	240	12	2	MC	4	1		
5	241	12	4	MC	2	4		
6	256	12	7	CR	1/2	1		
7	262	9	5	MC	1	1		
8	282	12	7	CR	2/2	1		
9	303	9	6	MC	2	2		
10	321	9	8	MC	2	2		
11	401	9	9	MC	3	4		

* 1 = Number Sense, Properties, & Operations; 2 = Measurement; 3 = Geometry; 4 = Data Analysis, Statistics, & Probability; 5 = Algebra & Functions

SAMPLE

Standard Setting Workshop

Grade 4

Mathematics

Ordered Item Booklet

Publicly released items from the National Assessment of Educational Progress 1996 State Assessment Program in Mathematics.

1. Kitty is taking a trip on which she plans to drive 300 miles each day. Her trip is 1,723 miles long. She has already driven 849 miles. How much farther must she drive?

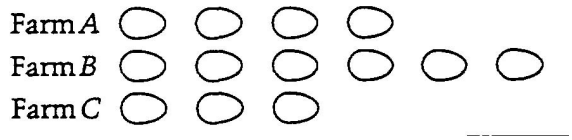
Ⓐ 574 miles

Ⓑ 874 miles

Ⓒ 1,423 miles

Ⓓ 2,872 miles

CARTONS OF EGGS SOLD LAST MONTH



Each ⬭ = 100 cartons

4. According to the graph, how many cartons of eggs were sold altogether by farms *A, B,* and C last month?

Ⓐ 13

Ⓑ 130

Ⓒ 1,300

Ⓓ 13,000

3. *N* stands for the number of stamps John had. He gave 12 stamps to his sister. Which expression tells how many stamps John has now?

Ⓐ N+12

Ⓑ N–12

Ⓒ 12- N

Ⓓ 12 x N

2. A whole number is multiplied by 5. Which of these could be the result?

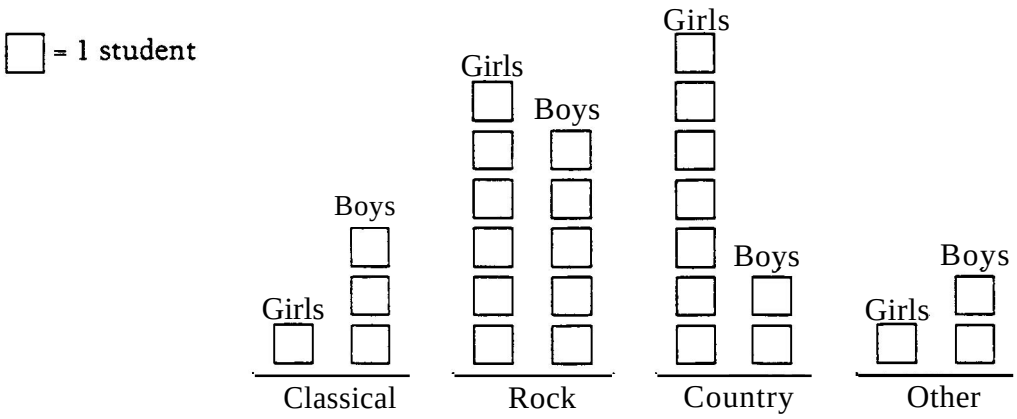
Ⓐ 652

Ⓑ 562

Ⓒ 526

Ⓓ 265

4. Each boy and girl in the class voted for his or her favorite kind of music. Here are the results.



Which kind of music did most students in the class prefer?

Ⓐ Classical

Ⓑ Rock

Ⓒ Country

Ⓓ Other

6
Score Point
1 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

6 rubric

Item Number: 7 Accession Number: AP000522

Key: None

Classification Codes:
N25M 1 A 04 a PS RECM 02

Open Codes: NA NA NA 3

Rationale Text:
SOLUTION:

For one day the sum is $1.75. For 5 days, the sum is $8.75. Therefore he should ask his mother for nine one-dollar bills (or 1 $5 bill and 4 $1 bills)

Answer may be given pictorially.

Note: No explanation is asked for, so paper could have small error, such as copying a number incorrectly and still get a score of 2, provided method and answer are correct.

Scoring Guide:

0 Incorrect response -- includes $1.75 or $2: also $875 or $875.00

(1) $8.75 or 875
OR
One day is $1.75 so he needs $2 each day, so $10 for a week
(picture of $10 bill is acceptable)
OR
correct method but rounded down to $8 (this requires work to be shown)
OR
correct method but small error and incorrect response of $7 to $11, inclusive

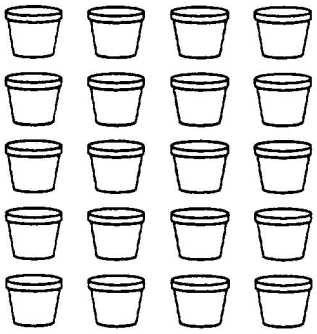
2 Correct response

6 exemplar

Student Sample Response

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days? $8.75

Level:
Partial (1)



5. The picture shows the flowerpots in which Kevin will plant flower seeds. He needs 3 seeds for each pot. Which of the following number sentences shows how many seeds Kevin will need for all of the pots?

Ⓐ 5 x 4 x 3 = ☐

Ⓑ (5 x 4) + 3 = ☐

Ⓒ (5 + 4) x 3 = ☐

Ⓓ 5 + 4 + 3 = ☐

8
Score Point
2 of 2

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

8 rubric

Item Number: 7 Accession Number: AP000522

Key: None

Classification Codes:
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Rationale Text:
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Note: No explanation is asked for, so paper could have small error, such as copying a number incorrectly and still get a score of 2, provided method and answer are correct.

Scoring Guide:

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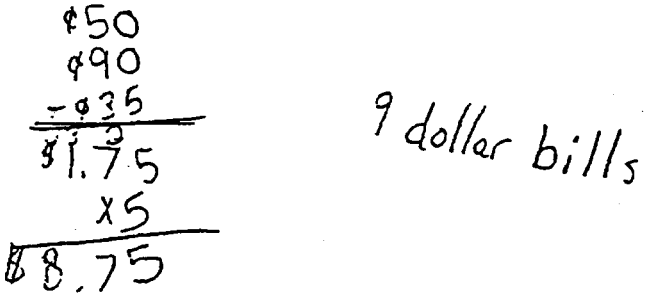
OR
One day is $1.75 so he needs $2 each day, so $10 for a week
(picture of $10 bill is acceptable)
OR
correct method but rounded down to $8 (this requires work to be shown)
OR
correct method but small error and incorrect response of $7 to $11, inclusive

(2) Correct response

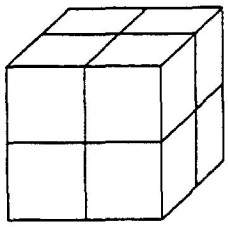
8 exemplar

Student Sample Response

7. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?



Level:
Complete (2)



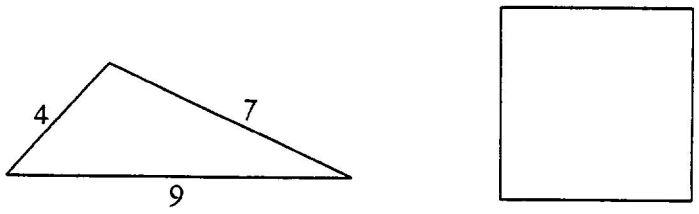
6. In this figure, how many small cubes were put together to form the large cube?

Ⓐ 7

Ⓑ 8

Ⓒ 12

Ⓓ 24



8. If both the square and the triangle above have the same perimeter, what is the length of each side of the square?

Ⓐ 4

Ⓑ 5

Ⓒ 6

Ⓓ 7

9. There are 3 fifth graders and 2 sixth graders on the swim team. Everyone's name is put in a hat and the captain is chosen by picking one name. What are the chances that the captain will be a fifth grader?

Ⓐ l out of 5

Ⓑ l out of 3

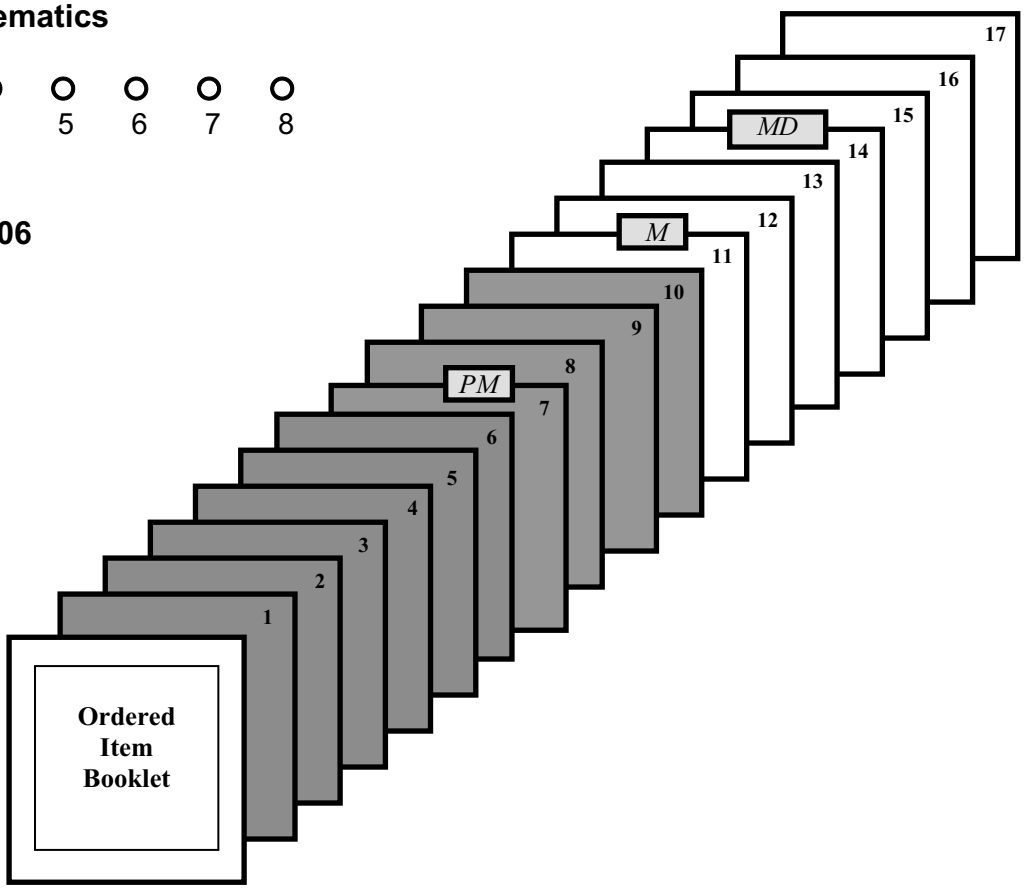
Ⓒ 3 out of 5

Ⓓ 2 out of 3

Content Area: ○ **Mathematics**

Grade: ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8

New York State 2006



Suppose the bookmarks were placed in this sample ordered item booklet as follows:

	Partially Meeting Bookmark on Page #	*Meeting* Bookmark on Page #	*Meeting with Distinction* Bookmark on Page #
Round 1	**7**	**11**	**14**

1. Which items does a student need to master to just make it into the *Meeting* performance level?
   ○ 1 to 6 ○ 1 to 7 ○ 1 to 10 ○ 1 to 11

2. If a student mastered only items 1 through 5, in which performance level would this student be?
   ○ *Not Meeting* ○ *Partially Meeting* ○ *Meeting* ○ *Meeting with Distinction*

3. Suppose a student mastered items 1 through 10. Which performance level is this student in?
   ○ *Not Meeting* ○ *Partially Meeting* ○ *Meeting* ○ *Meeting with Distinction*

4. For students who are classified as *Meeting*, with at least what likelihood will they be able to answer item 10?
   ○ 1/3 ○ 1/2 ○ 2/3 ○ 3/4

5. Will the items BEFORE the *Meeting* bookmark be more or less difficult to answer than the items AFTER the bookmark or about the same?
   ○ More difficult to answer ○ About the same ○ Less difficult to answer

Section I

Participants' Evaluation of the Standard Setting

New York State Mathematics Standard Setting Evaluation– July 2006

Key: SD=Strongly Disagree D=Disagree N=Neutral A=Agree SA=Strongly Agree	SD	D	N	A	SA
1. During Round 1, I placed my bookmarks without consulting other participants.	O	O	O	O	O
2. I am confident that the Bookmark Procedure produced valid standards.	O	O	O	O	O
3. I considered the Content Standards when I placed my bookmarks.	O	O	O	O	O
4. I felt that this procedure was fair.	O	O	O	O	O
5. I had enough time to consider my Round 1 bookmarks.	O	O	O	O	O
6. I learned how to do the Bookmark placement as I went along, so my later ones may not be comparable to my earlier ones.	O	O	O	O	O
7. I understood how to place my bookmarks.	O	O	O	O	O
8. Overall, I believe that my opinions were considered and valued by my group.	O	O	O	O	O
9. Overall, I valued the conference as a professional development experience.	O	O	O	O	O
10. Overall, I was satisfied with my group's final bookmarks.	O	O	O	O	O
11. Overall, my table's discussions were open and honest.	O	O	O	O	O
12. Participating in the Bookmark Standard Setting Procedure increased my understanding of the test.	O	O	O	O	O
13. Reviewing the Target Student helped me place my bookmarks.	O	O	O	O	O
14. Taking the test helped me place my bookmarks.	O	O	O	O	O
15. The Bookmark Standard Setting Procedure was well described.	O	O	O	O	O
16. The conference was well organized.	O	O	O	O	O
17. The goals for this procedure were clear.	O	O	O	O	O
18. The ordering of the items in the ordered item booklet agreed with my perception of the relative difficulty of the items.	O	O	O	O	O
19. The training materials were helpful.	O	O	O	O	O
20. The presentation of the impact data was helpful to me.	O	O	O	O	O
21. The training on Bookmark placement made the task clear to me.	O	O	O	O	O
22. This experience will help me target instruction for the students in my classroom.	O	O	O	O	O
23. I would defend the Partially Meeting cut score against criticism that it is too high.	O	O	O	O	O
24. I would defend the Partially Meeting cut score against criticism that it's too low.	O	O	O	O	O
25. I would defend the Meeting cut score against criticism that it is too high.	O	O	O	O	O
26. I would defend the Meeting cut score against criticism that it is too low.	O	O	O	O	O
27. I would defend the Meeting with Distinction cut score against criticism that it is too high.	O	O	O	O	O
28. I would defend the Meeting with Distinction cut score against criticism that it is too low.	O	O	O	O	O

29. What is your occupation?

O Teacher
O Administrator
O Other

30. How many years in your current profession?

O 1-5
O 6-10
O 11-15
O 16-20
O 21+

31. What is your education level?

O Bachelor's
O Master's
O Doctorate

32. What is your gender?

O Male
O Female

33. What is your racial/ethnic background?

O Asian/Pacific Islander
O African American
O American Indian
O Hispanic
O White
O Other

34. Have you taught Special Education?

O Yes
O No

35. Have you taught ESL/ELL?

O Yes
O No

36. Have you taught Vocational Education?

O Yes
O No

37. Have you taught Alternative Education?

O Yes
O No

38. Have you taught Adult Education?

O Yes
O No

39. Which grade did you work on during this standard setting?

O 4
O 6
O 8

On the back of this evaluation, please add your comments. Thank you!

New York State Mathematics

Bookmark Standard Setting July 2006

Evaluation Results

About these results

Each question is shown, along with its answer choices and associated response percentages. For Likert-type questions, there are five possible responses: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." For each question, the number of respondents is shown in the column labeled "N." Grade 4 participants also set standards for Grade 3, Grade 6 for Grade 5, and Grade 8 for Grade 7.

Question 1

During Round 1, I placed my bookmarks without consulting other participants.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	2.6%	0.0%	21.8%	75.6%
	Grade 4	26	0.0%	0.0%	0.0%	30.8%	69.2%
	Grade 6	26	0.0%	3.8%	0.0%	19.2%	76.9%
	Grade 8	26	0.0%	3.8%	0.0%	15.4%	80.8%

Question 2

I am confident that the Bookmark Procedure produced valid standards.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	1.3%	11.5%	62.8%	23.1%
	Grade 4	26	0.0%	0.0%	7.7%	76.9%	15.4%
	Grade 6	26	0.0%	0.0%	11.5%	53.8%	34.6%
	Grade 8	26	3.8%	3.8%	15.4%	57.7%	19.2%

Question 3

I considered the Content Standards when I placed my bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	0.0%	28.2%	71.8%
	Grade 4	26	0.0%	0.0%	0.0%	30.8%	69.2%
	Grade 6	26	0.0%	0.0%	0.0%	30.8%	69.2%
	Grade 8	26	0.0%	0.0%	0.0%	23.1%	76.9%

Question 4

I felt that this procedure was fair.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	1.3%	2.6%	44.9%	51.3%
	Grade 4	26	0.0%	0.0%	0.0%	50.0%	50.0%
	Grade 6	26	0.0%	0.0%	3.8%	50.0%	46.2%
	Grade 8	26	0.0%	3.8%	3.8%	34.6%	57.7%

Question 5

I had enough time to consider my Round 1 bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	0.0%	11.5%	88.5%
	Grade 4	26	0.0%	0.0%	0.0%	11.5%	88.5%
	Grade 6	26	0.0%	0.0%	0.0%	15.4%	84.6%
	Grade 8	26	0.0%	0.0%	0.0%	7.7%	92.3%

Question 6

I learned how to do the Bookmark placement as I went along, so my later ones may not be comparable to my earlier ones.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		77	19.5%	37.7%	10.4%	22.1%	10.4%
	Grade 4	25	20.0%	24.0%	8.0%	36.0%	12.0%
	Grade 6	26	23.1%	53.8%	11.5%	11.5%	0.0%
	Grade 8	26	15.4%	34.6%	11.5%	19.2%	19.2%

Question 7

I understood how to place my bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	0.0%	43.6%	56.4%
	Grade 4	26	0.0%	0.0%	0.0%	50.0%	50.0%
	Grade 6	26	0.0%	0.0%	0.0%	42.3%	57.7%
	Grade 8	26	0.0%	0.0%	0.0%	38.5%	61.5%

Question 8

Overall, I believe that my opinions were considered and valued by my group.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	1.3%	1.3%	30.8%	66.7%
	Grade 4	26	0.0%	0.0%	0.0%	23.1%	76.9%
	Grade 6	26	0.0%	0.0%	0.0%	42.3%	57.7%
	Grade 8	26	0.0%	3.8%	3.8%	26.9%	65.4%

Question 9

Overall, I valued the conference as a professional development experience.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	0.0%	12.8%	87.2%
	Grade 4	26	0.0%	0.0%	0.0%	7.7%	92.3%
	Grade 6	26	0.0%	0.0%	0.0%	19.2%	80.8%
	Grade 8	26	0.0%	0.0%	0.0%	11.5%	88.5%

Question 10

Overall, I was satisfied with my group's final bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		76	1.3%	1.3%	1.3%	46.1%	50.0%
	Grade 4	26	0.0%	0.0%	0.0%	38.5%	61.5%
	Grade 6	25	0.0%	0.0%	4.0%	48.0%	48.0%
	Grade 8	25	4.0%	4.0%	0.0%	52.0%	40.0%

Question 11

Overall, my table's discussions were open and honest.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	1.3%	15.4%	83.3%
	Grade 4	26	0.0%	0.0%	0.0%	15.4%	84.6%
	Grade 6	26	0.0%	0.0%	0.0%	15.4%	84.6%
	Grade 8	26	0.0%	0.0%	3.8%	15.4%	80.8%

Question 12

Participating in the Bookmark Standard Setting Procedure increased my understanding of the test.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		77	0.0%	1.3%	2.6%	13.0%	83.1%
	Grade 4	25	0.0%	0.0%	0.0%	12.0%	88.0%
	Grade 6	26	0.0%	3.8%	7.7%	15.4%	73.1%

	Grade 8	26	0.0%	0.0%	0.0%	11.5%	88.5%

Question 13

Reviewing the Target Student helped me place my bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	3.8%	48.7%	47.4%
	Grade 4	26	0.0%	0.0%	3.8%	53.8%	42.3%
	Grade 6	26	0.0%	0.0%	0.0%	53.8%	46.2%
	Grade 8	26	0.0%	0.0%	7.7%	38.5%	53.8%

Question 14

Taking the test helped me place my bookmarks.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	9.0%	17.9%	35.9%	35.9%
	Grade 4	26	0.0%	7.7%	19.2%	42.3%	30.8%
	Grade 6	26	0.0%	11.5%	26.9%	19.2%	42.3%
	Grade 8	26	3.8%	7.7%	7.7%	46.2%	34.6%

Question 15

The Bookmark Standard Setting Procedure was well described.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	1.3%	42.3%	56.4%
	Grade 4	26	0.0%	0.0%	0.0%	34.6%	65.4%
	Grade 6	26	0.0%	0.0%	3.8%	46.2%	50.0%
	Grade 8	26	0.0%	0.0%	0.0%	46.2%	53.8%

Question 16

The conference was well organized.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	2.6%	26.9%	70.5%
	Grade 4	26	0.0%	0.0%	0.0%	19.2%	80.8%
	Grade 6	26	0.0%	0.0%	3.8%	26.9%	69.2%
	Grade 8	26	0.0%	0.0%	3.8%	34.6%	61.5%

Question 17

The goals for this procedure were clear.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		76	0.0%	0.0%	3.9%	46.1%	50.0%
	Grade 4	25	0.0%	0.0%	0.0%	48.0%	52.0%
	Grade 6	25	0.0%	0.0%	8.0%	48.0%	44.0%
	Grade 8	26	0.0%	0.0%	3.8%	42.3%	53.8%

Question 18

The ordering of items in the ordered item booklet agreed with my perception of the relative difficulty of the items.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		76	1.3%	27.6%	19.7%	43.4%	7.9%
	Grade 4	25	0.0%	36.0%	16.0%	40.0%	8.0%
	Grade 6	26	0.0%	11.5%	23.1%	57.7%	7.7%
	Grade 8	25	4.0%	36.0%	20.0%	32.0%	8.0%

Question 19

The training materials were helpful.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	0.0%	5.1%	51.3%	43.6%
	Grade 4	26	0.0%	0.0%	0.0%	53.8%	46.2%
	Grade 6	26	0.0%	0.0%	3.8%	57.7%	38.5%
	Grade 8	26	0.0%	0.0%	11.5%	42.3%	46.2%

Question 20

The presentation of the impact data was helpful to me.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	2.6%	23.1%	41.0%	32.1%
	Grade 4	26	3.8%	3.8%	19.2%	42.3%	30.8%
	Grade 6	26	0.0%	0.0%	19.2%	34.6%	46.2%
	Grade 8	26	0.0%	3.8%	30.8%	46.2%	19.2%

Question 21

The training on Bookmark placement made the task clear to me.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		77	0.0%	0.0%	1.3%	44.2%	54.5%
	Grade 4	25	0.0%	0.0%	4.0%	36.0%	60.0%
	Grade 6	26	0.0%	0.0%	0.0%	50.0%	50.0%
	Grade 8	26	0.0%	0.0%	0.0%	46.2%	53.8%

Question 22

This experience will help me target instruction for the students in my classroom.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		76	0.0%	2.6%	7.9%	27.6%	61.8%
	Grade 4	25	0.0%	0.0%	8.0%	24.0%	68.0%
	Grade 6	26	0.0%	3.8%	15.4%	26.9%	53.8%
	Grade 8	25	0.0%	4.0%	0.0%	32.0%	64.0%

Question 23

I would defend the Partially Meeting cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	5.1%	6.4%	51.3%	35.9%
	Grade 4	26	0.0%	0.0%	11.5%	53.8%	34.6%
	Grade 6	26	0.0%	3.8%	3.8%	50.0%	42.3%
	Grade 8	26	3.8%	11.5%	3.8%	50.0%	30.8%

Question 24

I would defend the Partially Meeting cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	6.4%	3.8%	52.6%	35.9%
	Grade 4	26	0.0%	3.8%	7.7%	53.8%	34.6%
	Grade 6	26	0.0%	11.5%	0.0%	50.0%	38.5%
	Grade 8	26	3.8%	3.8%	3.8%	53.8%	34.6%

Question 25

I would defend the Meeting cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		77	1.3%	3.9%	5.2%	53.2%	36.4%
	Grade 4	25	0.0%	0.0%	4.0%	52.0%	44.0%
	Grade 6	26	0.0%	3.8%	7.7%	50.0%	38.5%
	Grade 8	26	3.8%	7.7%	3.8%	57.7%	26.9%

Question 26

I would defend the Meeting cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	1.3%	5.1%	2.6%	53.8%	37.2%
	Grade 4	26	0.0%	3.8%	3.8%	53.8%	38.5%
	Grade 6	26	3.8%	7.7%	0.0%	50.0%	38.5%
	Grade 8	26	0.0%	3.8%	3.8%	57.7%	34.6%

Question 27

I would defend the Meeting with Distinction cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	2.6%	2.6%	7.7%	50.0%	37.2%
	Grade 4	26	0.0%	0.0%	3.8%	50.0%	46.2%
	Grade 6	26	0.0%	3.8%	11.5%	46.2%	38.5%
	Grade 8	26	7.7%	3.8%	7.7%	53.8%	26.9%

Question 28

I would defend the Meeting with Distinction cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		78	0.0%	3.8%	7.7%	52.6%	35.9%
	Grade 4	26	0.0%	0.0%	7.7%	57.7%	34.6%
	Grade 6	26	0.0%	7.7%	7.7%	46.2%	38.5%
	Grade 8	26	0.0%	3.8%	7.7%	53.8%	34.6%

Question 29

What is you occupation?

Content Area	Grade Level	N	Teacher	Administrator	Other
Overall		78	78.2%	15.4%	6.4%
	Grade 4	26	88.5%	3.8%	7.7%
	Grade 6	26	84.6%	11.5%	3.8%
	Grade 8	26	61.5%	30.8%	7.7%

Question 30

How many years in your current position?

Content Area	Grade Level	N	1-5	6-10	11-15
Overall		78	15.4%	20.5%	19.2%
	Grade 4	26	7.7%	15.4%	30.8%
	Grade 6	26	19.2%	23.1%	11.5%
	Grade 8	26	19.2%	23.1%	15.4%

Content Area	Grade Level	N	16-20	21+
Overall		78	11.5%	33.3%
	Grade 4	26	7.7%	38.5%
	Grade 6	26	15.4%	30.8%
	Grade 8	26	11.5%	30.8%

Question 31

What is your educational level?

Content Area	Grade Level	N	Bachelor's	Master's	Doctorate
Overall		78	2.6%	96.2%	1.3%
	Grade 4	26	7.7%	92.3%	0.0%
	Grade 6	26	0.0%	100.0%	0.0%
	Grade 8	26	0.0%	96.2%	3.8%

Question 32

What is your gender?

Content Area	Grade Level	N	Male	Female
Overall		78	19.2%	80.8%
	Grade 4	26	19.2%	80.8%
	Grade 6	26	11.5%	88.5%
	Grade 8	26	26.9%	73.1%

Question 33

What is your racial/ethnic background?

Content Area	Grade Level	N	Asian/Pacific Islander	African American	American Indian
Overall		78	2.6%	10.3%	0.0%
	Grade 4	26	3.8%	7.7%	0.0%
	Grade 6	26	0.0%	11.5%	0.0%
	Grade 8	26	3.8%	11.5%	0.0%

Content Area	Grade Level	N	Hispanic	White	Other
Overall		78	3.8%	83.3%	0.0%
	Grade 4	26	7.7%	80.8%	0.0%
	Grade 6	26	0.0%	88.5%	0.0%
	Grade 8	26	3.8%	80.8%	0.0%

Question 34

Have you taught Special Education?

Content Area	Grade Level	N	Yes	No
Overall		78	65.4%	34.6%
	Grade 4	26	61.5%	38.5%
	Grade 6	26	42.3%	57.7%
	Grade 8	26	92.3%	7.7%

Question 35

Have you taught ESL/ELL?

Content Area	Grade Level	N	Yes	No
Overall		78	32.1%	67.9%
	Grade 4	26	38.5%	61.5%
	Grade 6	26	26.9%	73.1%
	Grade 8	26	30.8%	69.2%

Question 36

Have you taught Vocational Education?

Content Area	Grade Level	N	Yes	No
Overall		78	7.7%	92.3%
	Grade 4	26	7.7%	92.3%
	Grade 6	26	7.7%	92.3%
	Grade 8	26	7.7%	92.3%

Question 37

Have you taught Alternative Education?

Content Area	Grade Level	N	Yes	No
Overall		78	16.7%	83.3%
	Grade 4	26	15.4%	84.6%
	Grade 6	26	15.4%	84.6%
	Grade 8	26	19.2%	80.8%

Question 38

Have you taught Adult Education?

Content Area	Grade Level	N	Yes	No
Overall		78	33.3%	66.7%
	Grade 4	26	34.6%	65.4%
	Grade 6	26	19.2%	80.8%
	Grade 8	26	46.2%	53.8%

Question 39

Which grade did you work on during this standard setting?

Content Area	Grade Level	N	Grade 4	Grade 6
Overall		78	33.3%	33.3%
	Grade 4	26	100.0%	0.0%
	Grade 6	26	0.0%	100.0%
	Grade 8	26	0.0%	0.0%

Content Area	Grade Level	N	Grade 8
Overall		78	33.3%
	Grade 4	26	0.0%
	Grade 6	26	0.0%
	Grade 8	26	100.0%

Section J

Vertical Articulation Panel's Recommended Cut Scores Plus and Minus One, Two, and Three Standard Errors with Associated Impact Data

New York State Testing Program - Grade 3 Math

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		9.00	10.00	21.00	
Participants Recommended Cut Point* + 3 SEs		437.00	468.00	539.00	
Percent of students Below each Performance Level		36.43%	74.82%	96.88%	**+ 3 SEs**
Percent of students in each Performance Level	36.43%	38.39%	22.06%	3.12%	
Participants Recommended Cut Point* + 2 SEs		428.00	458.00	518.00	
Percent of students Below each Performance Level		25.05%	59.39%	96.88%	**+ 2 SEs**
Percent of students in each Performance Level	25.05%	34.34%	37.49%	3.12%	
Participants Recommended Cut Point* + 1 SE		419.00	448.00	497.00	
Percent of students Below each Performance Level		17.06%	46.55%	90.79%	**+1 SE**
Percent of students in each Performance Level	17.06%	29.49%	44.24%	9.21%	
Participants Recommended Cut Point*		410.00	438.00	476.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		11.43%	36.43%	83.04%	
Percent of students in each Performance Level	11.43%	25.00%	46.61%	16.96%	
Participants Recommended Cut Point* - 1 SE		401.00	428.00	455.00	
Percent of students Below each Performance Level		8.58%	25.05%	59.39%	**- 1 SE**
Percent of students in each Performance Level	8.58%	16.47%	34.34%	40.61%	
Participants Recommended Cut Point* - 2 SEs		392.00	418.00	434.00	
Percent of students Below each Performance Level		5.35%	17.06%	32.18%	**- 2 SEs**
Percent of students in each Performance Level	5.35%	11.71%	15.12%	67.82%	
Participants Recommended Cut Point* - 3 SEs		383.00	408.00	413.00	
Percent of students Below each Performance Level		3.69%	11.43%	13.12%	**- 3 SEs**
Percent of students in each Performance Level	3.69%	7.74%	1.69%	86.88%	

New York State Testing Program - Grade 4 Math

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		7.00	7.00	12.00	
Participants Recommended Cut Point* + 3 SEs		484.00	509.00	565.00	
Percent of students Below each Performance Level		33.07%	63.71%	97.44%	**+ 3 SEs**
Percent of students in each Performance Level	33.07%	30.64%	33.73%	2.56%	
Participants Recommended Cut Point* + 2 SEs		477.00	502.00	553.00	
Percent of students Below each Performance Level		26.34%	57.39%	94.94%	**+ 2 SEs**
Percent of students in each Performance Level	26.34%	31.05%	37.55%	5.06%	
Participants Recommended Cut Point* + 1 SE		470.00	495.00	541.00	
Percent of students Below each Performance Level		20.56%	46.29%	91.94%	**+1 SE**
Percent of students in each Performance Level	20.56%	25.73%	45.65%	8.06%	
Participants Recommended Cut Point*		463.00	488.00	529.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		14.85%	39.18%	85.03%	
Percent of students in each Performance Level	14.85%	24.33%	45.85%	14.97%	
Participants Recommended Cut Point* - 1 SE		456.00	481.00	517.00	
Percent of students Below each Performance Level		11.08%	31.24%	74.05%	**- 1 SE**
Percent of students in each Performance Level	11.08%	20.16%	42.81%	25.95%	
Participants Recommended Cut Point* - 2 SEs		449.00	474.00	505.00	
Percent of students Below each Performance Level		8.02%	23.32%	60.47%	**- 2 SEs**
Percent of students in each Performance Level	8.02%	15.30%	37.15%	39.53%	
Participants Recommended Cut Point* - 3 SEs		442.00	467.00	493.00	
Percent of students Below each Performance Level		6.14%	18.15%	43.79%	**- 3 SEs**
Percent of students in each Performance Level	6.14%	12.01%	25.64%	56.21%	

New York State Testing Program - Grade 5 Math

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		10.00	9.00	14.00	
Participants Recommended Cut Point* + 3 SEs		545.00	576.00	622.00	
Percent of students Below each Performance Level		43.20%	80.82%	96.02%	**+ 3 SEs**
Percent of students in each Performance Level	43.20%	37.62%	15.20%	3.98%	
Participants Recommended Cut Point* + 2 SEs		535.00	567.00	608.00	
Percent of students Below each Performance Level		31.48%	72.61%	96.02%	**+ 2 SEs**
Percent of students in each Performance Level	31.48%	41.13%	23.41%	3.98%	
Participants Recommended Cut Point* + 1 SE		525.00	558.00	594.00	
Percent of students Below each Performance Level		21.68%	60.71%	92.69%	**+1 SE**
Percent of students in each Performance Level	21.68%	39.03%	31.98%	7.31%	
Participants Recommended Cut Point*		515.00	549.00	580.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		15.48%	49.83%	84.98%	
Percent of students in each Performance Level	15.48%	34.35%	35.15%	15.02%	
Participants Recommended Cut Point* - 1 SE		505.00	540.00	566.00	
Percent of students Below each Performance Level		10.26%	37.11%	68.56%	**- 1 SE**
Percent of students in each Performance Level	10.26%	26.85%	31.45%	31.44%	
Participants Recommended Cut Point* - 2 SEs		495.00	531.00	552.00	
Percent of students Below each Performance Level		5.97%	28.89%	53.36%	**- 2 SEs**
Percent of students in each Performance Level	5.97%	22.92%	24.47%	46.64%	
Participants Recommended Cut Point* - 3 SEs		485.00	522.00	538.00	
Percent of students Below each Performance Level		3.79%	19.50%	34.23%	**- 3 SEs**
Percent of students in each Performance Level	3.79%	15.71%	14.73%	65.77%	

New York State Testing Program - Grade 6 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		9.00	8.00	10.00	
Participants Recommended Cut Point* + 3 SEs		600.00	628.00	664.00	
Percent of students Below each Performance Level		50.82%	80.94%	97.10%	**+ 3 SEs**
Percent of students in each Performance Level	50.82%	30.12%	16.16%	2.90%	
Participants Recommended Cut Point* + 2 SEs		591.00	620.00	654.00	
Percent of students Below each Performance Level		39.45%	74.97%	94.89%	**+ 2 SEs**
Percent of students in each Performance Level	39.45%	35.52%	19.92%	5.11%	
Participants Recommended Cut Point* + 1 SE		582.00	612.00	644.00	
Percent of students Below each Performance Level		29.36%	65.85%	92.36%	**+1 SE**
Percent of students in each Performance Level	29.36%	36.49%	26.51%	7.64%	
Participants Recommended Cut Point*		573.00	604.00	634.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		20.55%	56.75%	86.79%	
Percent of students in each Performance Level	20.55%	36.20%	30.04%	13.21%	
Participants Recommended Cut Point* - 1 SE		564.00	596.00	624.00	
Percent of students Below each Performance Level		14.94%	44.97%	77.98%	**- 1 SE**
Percent of students in each Performance Level	14.94%	30.03%	33.01%	22.02%	
Participants Recommended Cut Point* - 2 SEs		555.00	588.00	614.00	
Percent of students Below each Performance Level		10.04%	36.87%	68.90%	**- 2 SEs**
Percent of students in each Performance Level	10.04%	26.83%	32.03%	31.10%	
Participants Recommended Cut Point* - 3 SEs		546.00	580.00	604.00	
Percent of students Below each Performance Level		7.10%	27.04%	56.75%	**- 3 SEs**
Percent of students in each Performance Level	7.10%	19.94%	29.71%	43.25%	

New York State Testing Program - Grade 7 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		10.00	9.00	12.00	
Participants Recommended Cut Point* + 3 SEs		651.00	680.00	719.00	
Percent of students Below each Performance Level		54.25%	84.64%	97.67%	**+ 3 SEs**
Percent of students in each Performance Level	54.25%	30.39%	13.03%	2.33%	
Participants Recommended Cut Point* + 2 SEs		641.00	671.00	707.00	
Percent of students Below each Performance Level		40.94%	78.05%	97.67%	**+ 2 SEs**
Percent of students in each Performance Level	40.94%	37.11%	19.62%	2.33%	
Participants Recommended Cut Point* + 1 SE		631.00	662.00	695.00	
Percent of students Below each Performance Level		31.69%	67.77%	93.54%	**+1 SE**
Percent of students in each Performance Level	31.69%	36.08%	25.77%	6.46%	
Participants Recommended Cut Point*		621.00	653.00	683.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		20.37%	57.62%	87.81%	
Percent of students in each Performance Level	20.37%	37.25%	30.19%	12.19%	
Participants Recommended Cut Point* - 1 SE		611.00	644.00	671.00	
Percent of students Below each Performance Level		15.42%	44.21%	78.05%	**- 1 SE**
Percent of students in each Performance Level	15.42%	28.79%	33.84%	21.95%	
Participants Recommended Cut Point* - 2 SEs		601.00	635.00	659.00	
Percent of students Below each Performance Level		9.13%	34.69%	64.42%	**- 2 SEs**
Percent of students in each Performance Level	9.13%	25.56%	29.73%	35.58%	
Participants Recommended Cut Point* - 3 SEs		591.00	626.00	647.00	
Percent of students Below each Performance Level		7.42%	25.81%	47.58%	**- 3 SEs**
Percent of students in each Performance Level	7.42%	18.39%	21.77%	52.42%	

New York State Testing Program - Grade 8 Mathematics

Recommended Cut Points* Plus/Minus Selected Standard Errors (SEs) of Measurement

Standard Error (SE) measurement	Not Meeting the Standards	Partially Meeting the Standards	Meeting the Standards	Meeting the Standards with Distinction	Standard Error Calculations
		7.00	5.00	9.00	
Participants Recommended Cut Point* + 3 SEs		699.00	722.00	766.00	
Percent of students Below each Performance Level		49.29%	76.29%	97.72%	**+ 3 SEs**
Percent of students in each Performance Level	49.29%	27.00%	21.43%	2.28%	
Participants Recommended Cut Point* + 2 SEs		692.00	717.00	757.00	
Percent of students Below each Performance Level		39.39%	71.09%	95.94%	**+ 2 SEs**
Percent of students in each Performance Level	39.39%	31.70%	24.85%	4.06%	
Participants Recommended Cut Point* + 1 SE		685.00	712.00	748.00	
Percent of students Below each Performance Level		31.22%	65.98%	91.83%	**+1 SE**
Percent of students in each Performance Level	31.22%	34.76%	25.85%	8.17%	
Participants Recommended Cut Point*		678.00	707.00	739.00	**Participants Recommended Cut Points***
Percent of students Below each Performance Level		24.59%	59.30%	87.67%	
Percent of students in each Performance Level	24.59%	34.71%	28.37%	12.33%	
Participants Recommended Cut Point* - 1 SE		671.00	702.00	730.00	
Percent of students Below each Performance Level		18.10%	52.69%	81.72%	**- 1 SE**
Percent of students in each Performance Level	18.10%	34.59%	29.03%	18.28%	
Participants Recommended Cut Point* - 2 SEs		664.00	697.00	721.00	
Percent of students Below each Performance Level		13.32%	45.91%	74.53%	**- 2 SEs**
Percent of students in each Performance Level	13.32%	32.59%	28.62%	25.47%	
Participants Recommended Cut Point* - 3 SEs		657.00	692.00	712.00	
Percent of students Below each Performance Level		10.31%	39.39%	65.98%	**- 3 SEs**
Percent of students in each Performance Level	10.31%	29.08%	26.59%	34.02%	

Section K

Memoranda from Table Leaders on the Vertical Articulation Panel

Memoranda from Table Leaders on Vertical Articulation Panel

Grade 3: The grade 3/4 table leaders have agreed to move our *Meets* bookmark from question 45 to question 48. We feel that higher level *Partially Meets* students could handle the content from question 45 to 48.

Grade 4: The grade 3/4 table leaders have unanimously decided to move our *Meets with Distinction* bookmark from question 72 to question 77. Our rationale for the move is solely based on content. Through our discussion we felt that high achieving *Meeting* students could successfully answer questions 72-76.

We also noticed that all of those questions were field tested and not included on the operational test. Therefore, we made the move and we ALL feel comfortable with the change.

Grade 5: *Partially Meets* from 513 → 515. Our rationale for moving 513 to 515 under *Partially Meeting* was to increase the percentage of students not meeting standards more in line with 4th and 6th grade percentages.

Meets with Distinction from 577 → 580. We raised the standard to bring the percent more in line with the other grade levels for *Meets with Distinction*.

Grade 6: *Partially Meets* from 581 → 573. We lowered the percentage at *Does Not Meet* to be more in line with the other grade levels.

Grade 7: Location cut scores for the 7th grade were changed in the following manner.

- *Partially Meets* from 617 to 621. By raising it did not affect a jump that included another question.
- *Meets* from 653 was unchanged.
- *With Distinction* 681 to 683. Moved only one question and review the next three or four. We determined a student could make up point in one of these.

Grade 8:

- *Partially* 680 to 678. Affected only one question (#11) and did not impact location.
- *Meets* 702-707. Smooth between 6, 7, and 8. Increase number of student who would get AIS service and increase success rate on commencement testing requirement and h.s. graduation rate.
- *Distinction* 730-739. Incorporated leap of 3 question skills and concepts that a student of distinction should master i.e. proportional reasoning, addition questions beyond they could score make up points.