

Oregon

Statewide Assessment

Bookmark Standard Setting Technical Report 2006

for

**Reading/Literature and Mathematics
Grades 3, 5, 8, and CIM**

and

**Science
Grades 5, 8, and CIM**

Submitted to
Oregon Department of Education
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**CTB
McGraw-Hill**

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Table of Contents

<u>Section</u>	<u>Page</u>
A. Executive Summary	4-7
B. Oregon Standard Setting: Day-by-Day Overview	8-30
C. Master Agenda	31-39
D. Training Materials	40-60
E. Training Overheads	61-75
F. Detailed Bookmark Judgments	76-241
G. Participant Judgments Plus/Minus 1, 2, and 3 Standard Errors	242-277
H. Graphical Representations of Participants' Judgments	278-422
I. Participant Evaluation of the Oregon Standard Setting	423-446
J. The Bookmark Standard Setting Procedure: Methodology and Recent Implementations	447-467

SECTION A

Executive Summary

Executive Summary

Staff from CTB/McGraw-Hill conducted the Oregon Standard Setting in Portland, Oregon, on December 11–13, 2006. The Bookmark Standard Setting Procedure (BSSP) was used to set standards for 16 grade and content areas: Grades 3–8 and CIM for Reading/Literature and Mathematics; Grades 5, 8, and CIM for Science; and Kindergarten and Grades 2, 5, 7, and 11 for the English Language Proficiency Assessments (ELPA). In Oregon, the high school level is referred to as the Certificate of Initial Mastery (CIM) level. This document reports the results of the standard setting for the Oregon Statewide Assessments in Mathematics, Reading/Literature, and Science. The results of the standard setting for ELPA will be reported in the *Oregon English Language Proficiency Assessments Bookmark Standard Setting Technical Report 2006*.

The Oregon Standard Setting consisted of training, orientation, three rounds of judgments, cross-grade discussions, and descriptor writing. This document describes the implementation of the BSSP to establish cut scores at selected grades, the interpolation of cut scores for the off-grades, the cross-grade articulation discussion, and the development of achievement-level descriptors.

The Oregon Standard Setting gathered participants from across Oregon to set achievement standards for the Mathematics, Reading/Literature, and Science assessments. Each grade and content area had approximately 18 participants. Within each grade and content area, the Oregon Department of Education (ODE) divided participants into three tables that were balanced in terms of relevant demographic characteristics (e.g., gender, geographic location).

Participants in each grade/content area participated in three rounds of activities in which they recommended three cut scores that defined four performance levels: *Does Not Yet Meet*, *Nearly Meets*, *Meets*, and *Exceeds*. Following this, participants recommended changes to the existing achievement-level descriptors. Table leaders participated in the cross-grade articulation.

Table 1 summarizes the cut scores and associated impact data recommended by participants in each grade and content area in the final round (Round 3) of discussion and voting. The impact data in Table 1 were shown to the participants at the workshop and were based on the Fall 2006 test administration.

Interpolation

Once all grade panels for each content area in Mathematics and Reading/Literature completed Round 3, CTB interpolated the cut scores for the off-grades (Grades 4, 6, and 7) using the quadratic curve of best fit as the interpolation method. This policy model was specified *a priori* by the ODE. Table 2 shows the interpolated cut scores and impact data for Grades 4, 6, and 7. Also shown in the table are the participant-recommended cut scores and associated impact data from Round 3.

Table 1. Participant-recommended Cut Scores and Associated Impact Data Based on Round 3

Content Area	Cut Scores				Impact Data				
	Grade	Nearly Meets	Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	204	215	11.4%	8.2%	45.2%	35.2%	80.4%
	5	214	218	230	13.1%	14.4%	48.9%	23.6%	72.5%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.6%	54.3%
Reading/ Literature	3	199	203	216	8.5%	7.1%	42.4%	42.0%	84.4%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	8	224	230	241	15.9%	15.2%	47.4%	21.5%	68.9%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.5%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

Table 2. Interpolated Cut Scores and Impact Data for Grades 4, 6, and 7 Based on the Participant-recommended Cut Scores and Associated Impact Data from Round 3

Content Area	Cut Scores				Impact Data				
	Grade	Nearly Meets	Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	204	215	11.4%	8.2%	45.2%	35.2%	80.4%
	4*	208	212	224	10.7%	13.2%	44.8%	31.3%	76.1%
	5	214	218	230	13.1%	14.4%	48.9%	23.6%	72.5%
	6*	215	220	233	13.2%	12.6%	49.1%	25.1%	74.3%
	7*	221	226	239	17.0%	12.2%	45.5%	25.3%	70.8%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.6%	54.3%
Reading/ Literature	3	199	203	216	8.5%	7.1%	42.4%	42.0%	84.4%
	4*	205	211	223	7.7%	12.7%	45.6%	34.0%	79.6%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	6*	214	222	234	10.4%	19.2%	45.1%	25.3%	70.4%
	7*	219	227	241	11.4%	19.3%	49.7%	19.6%	69.3%
	8	224	230	241	15.9%	15.2%	47.4%	21.5%	68.9%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.5%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

* Interpolated data

Cross-grade Articulation (Smoothing)

The cut scores and associated impact data determined for the off-grades by interpolation were examined by table leaders during the cross-grade articulation discussion on Day 3. The purpose of this smoothing discussion was to establish a system of cut scores that was well-articulated and, at the same time, considerate of the participants' original recommendations. A representative from the ODE was present during these discussions to answer policy-related questions. Table leaders recommended minor changes to the cut scores (in most cases only a one-point change) so that the cross-grade impact data formed a cohesive whole when viewed from a policy perspective. Table 3 shows the cut scores developed during the smoothing discussions, as well as the associated impact data.

Table 3. Cut Scores and Associated Impact Data after Cross-grade Smoothing

Content Area	Grade	Cut Scores			Impact Data				
		Meets	Nearly Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	205	217	11.4%	11.8%	49.7%	27.1%	76.7%
	4*	208	212	225	10.7%	13.2%	48.1%	28.0%	76.1%
	5	214	218	229	13.1%	14.4%	46.1%	26.4%	72.6%
	6*	216	221	232	15.2%	14.5%	42.2%	28.1%	70.3%
	7*	221	226	238	17.0%	12.2%	42.5%	28.3%	70.8%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.7%	54.4%
Reading/ Literature	3	199	204	218	8.5%	9.8%	47.5%	34.2%	81.7%
	4*	205	211	223	7.7%	12.7%	45.6%	34.0%	79.6%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	6*	214	222	234	10.4%	19.2%	45.1%	25.3%	70.4%
	7*	219	227	239	11.4%	19.3%	44.1%	25.2%	69.3%
	8	224	231	241	15.9%	18.6%	43.9%	21.6%	65.5%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.6%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

* Interpolated data

This report summarizes the results of the Oregon Standard Setting. A round-by-round synopsis is included in Section B. The Master Agenda is included in Section C. All training materials given to participants are provided in Section D. The overheads presented to participants during training and orientation are included in Section E. Section F presents details of the participants' Bookmark judgments for each grade and content area. In Section G, estimates are given of the percentages of students in each achievement level at plus/minus one, two, and three standard errors of the participants' recommended final round cut scores for each grade and content area. Section H contains graphical representations of participants' final round judgments and standard errors. Section I contains the results of the participant evaluation of the Oregon Standard Setting. As a reference for the reader, Section J presents *The Bookmark Standard Setting Procedure: Methodology & Recent Implementations* (Lewis, Green, Mitzel, Baum, & Patz, 1998).

SECTION B

Oregon Standard Setting: Day-by-Day Overview

Oregon Standard Setting: Day-by-Day Overview

Oregon's Statewide Assessments are administered in multiple formats: the paper-and-pencil format and the Technology Enhanced Student Assessment (TESA) web-based format. TESA is an adaptive, web-based approach, which is the required method of testing for all schools in the state of Oregon unless a waiver is granted. On TESA, students have multiple opportunities to participate in the fully-adaptive testing. Oregon has two options for the TESA administration: a short form or a long form. For the short form, students receive only a scale score, whereas for the long form, students also receive subscores. In Oregon, the high school level is referred to as the Certificate of Initial Mastery (CIM) level.

The Oregon Department of Education (ODE) contracted with CTB/McGraw-Hill (CTB) to conduct standard setting to establish cut scores for the Oregon Statewide Assessments in Mathematics, Reading/Literature, and Science, and for the English Language Proficiency Assessments (ELPA). This document reports the results of the standard setting for the Oregon Statewide Assessments in Mathematics, Reading/Literature, and Science. The results of the standard setting for ELPA will be reported in the *Oregon English Language Proficiency Assessments Bookmark Standard Setting Technical Report 2006*.

CTB/McGraw-Hill staff conducted the Oregon Standard Setting December 11–13, 2006, in Portland, Oregon. The Bookmark Standard Setting Procedure (BSSP; Lewis, Mitzel & Green, 1996; Mitzel, Lewis, Patz, & Green, 2001) was implemented to set standards for eleven grade and content areas: Grades 3–8 and CIM for Mathematics and Reading/Literature and Grades 5, 8, and CIM for Science. Participants in each grade and content area recommended three cut scores which define four achievement levels: *Does Not Yet Meet*, *Nearly Meets*, *Meets*, and *Exceeds*. CTB interpolated cut scores for Grades 4, 6, and 7 in Mathematics and Reading/Literature based on participants' recommended cut scores for Grades 3, 5, 8, and CIM.

The Oregon Standard Setting gathered participants from across Oregon to set achievement standards for the Mathematics, Reading/Literature, and Science assessments. Each grade and content area had approximately 18 participants. Within each grade and content area, the Oregon Department of Education (ODE) divided participants into three tables that were balanced in terms of the relevant demographic characteristics (e.g., gender, geographic location).

The Oregon Standard Setting consisted of training, orientation, three rounds of judgments, cross-grade discussions, and descriptor writing. The workshop lasted three days. The ODE and CTB conducted the opening session and training on the first morning, and the remaining time was used for standard setting and achievement-level descriptor writing.

This document describes the implementation of the BSSP to establish cut scores at selected grades, the interpolation of cut scores for the off-grades, the cross-grade articulation discussion, and the development of achievement-level descriptors.

Bookmark Roles

CTB Staff

The CTB Standard Setting Team worked with staff from the ODE to design, organize, and conduct the Oregon Standard Setting. The CTB Standard Setting Team was composed of Ricardo Mercado, Research Project Manager; Christina Schneider, Research Scientist; Michaela Gelin, Research Scientist; Adele Brandstrom, Standard Setting Specialist; and Dorothy Tele'a, Standard Setting Specialist. Prior to the Oregon 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.

At the standard setting workshop, the CTB Standard Setting Team was assisted by Denise Truskosky, CTB Research Manager, who helped facilitate the workshop. Ms. Brandstrom and Ms. Tele'a were assisted by CTB Research Associates Hillory White, Tracy Podrabsky, and Kristina Kelley.

Caroline McNeely was the CTB Program Manager attending the Oregon Standard Setting. Nancy Holt was the CTB Program Office Coordinator who arranged the logistics for the workshop and helped recruit participants. Ms. Holt was unable to attend the standard setting. Michelle Paregian, CTB Program Office Coordinator, and Theresa Lancione-Beccaria, from CTB Program Management, attended the standard setting and helped with on-site logistics. In addition, Agneta Lenberg, CTB National Accounts Manager, and Cindi Jensen, Senior Evaluation Consultant, attended the standard setting.

Margie Tully, CTB Development Director, also attended the standard setting.

Group Leaders

In each grade and content area, 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 cross-table 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 the ODE staff. Group leaders were *nonvoting* members of the standard setting staff. The group leaders were content specialists from CTB Development and are listed in Table 1.

Table 1. Group Leaders for Each Grade and Content Area

Content Area	Grade	Group Leader
Mathematics	3	Holly Beckstead
	5	Shelley Vlasak
	8	Andrew Jones
	CIM	Stacey Libby
Reading	3	Cara Davis-Jacobson
	5	Becky Fisher
	8	Pat Stevens
	CIM	Cathy Upham
Science	5	Kristina Summers
	8	Gabe Martinez
	CIM	Michael Frontz

Participants

Participants were recruited from across Oregon. For the Mathematics and Reading assessments, participants recommended standards for Grades 3, 5, 8 and 10. For the Science assessment, participants recommended standards for Grades 5, 8, and 10. A total of eleven standard setting panels were recruited to participate in the recommendation of achievement standards. Each grade and content area panel worked in a separate breakout room during the standard setting.

All participants were selected by the ODE. Each grade and content area panel comprised approximately 18 participants, of which three participants also served as table leaders. As shown in Table 2, the complete standard setting committee comprised 210 participants, including a total of 33 table leaders. The ODE also included stakeholders as members of the standard setting panel.

Table 2. Number of Participants in Each Grade and Content Area

Content Area	Grade	Number of Participants
Mathematics	3	19
	5	18
	8	20
	CIM	19
Reading	3	19
	5	22
	8	20
	CIM	17
Science	5	20
	8	20
	CIM	16
	Total	210

Configuration of Standard Setting Panels

Each grade and content area panel was subdivided into three tables of approximately six persons each. The ODE selected a table leader for each table. A description of the table leader's role follows. The ODE assigned participants so that each table was as representative and balanced as possible in regard to the relevant demographics (e.g., gender, geographic location). For each grade and content area, one group leader helped implement the BSSP.

Table leaders. Table leaders were experienced educators within their grade and content area and were chosen from among the participants. Some table leaders had a previous role with the assessment, such as serving as item-writers. The primary role of the table leader was to monitor the group discourse, keep the group focused on the task at hand, and keep time for the group. As needed, table leaders found a diplomatic middle ground between participants or requested assistance from CTB and the ODE. Table leaders were voting members of the standard setting panels.

Following the standard setting, 209 participants completed evaluations from which self-reported demographic information about the participants was summarized. Table 3 shows the educational background of the participants in each grade and content area. Table 4 shows the primary role of participants at the standard setting. Overall, 94% of the participants were educators. Some committees had a greater proportion of community or business members. Approximately 13% of the CIM Reading/Literature panel was composed of community members, and approximately 13% of the CIM Science panel was composed of parents. Tables 5 and 6 show the occupation and work experience in years of the participants. Most participants were educators or administrators who had significant experience in their content area. Table 7 shows participant experience teaching English language learners and students with disabilities. Overall 18% had experience with Special Education, 17% with ESL/ELD, 4% with Vocational Education, 15% with Alternative Education, and 27% with Adult Education. Section I contains the complete results of the participant evaluation.

Table 3. Educational Background of Participants in Each Grade and Content Area

Content Area	Grade	N	HSD or GED	Bachelor's	Master's	Doctorate
Overall		209	1.0%	23.4%	69.4%	6.2%
Mathematics	3	19	0.0%	47.4%	47.4%	5.3%
	5	18	0.0%	33.3%	66.7%	0.0%
	8	20	0.0%	25.0%	75.0%	0.0%
	CIM	19	0.0%	21.1%	73.7%	5.3%
Reading/Literature	3	19	0.0%	26.3%	68.4%	5.3%
	5	22	0.0%	13.6%	72.7%	13.6%
	8	20	5.0%	20.0%	75.0%	0.0%
	CIM	16	6.3%	25.0%	62.5%	6.3%
Science	5	20	0.0%	20.0%	70.0%	10.0%
	8	20	0.0%	0.0%	85.0%	15.0%
	CIM	16	0.0%	31.3%	62.5%	6.3%

Table 4. Primary Role at Standard Setting of Participants in Each Grade and Content Area

Content Area	Grade	N	Educator	Parent	Community Member	Business Member
Overall		209	93.8%	3.3%	2.4%	0.5%
Mathematics	3	19	94.7%	0.0%	5.3%	0.0%
	5	18	94.4%	5.6%	0.0%	0.0%
	8	20	100.0%	0.0%	0.0%	0.0%
	CIM	19	94.7%	0.0%	5.3%	0.0%
Reading/Literature	3	19	94.7%	0.0%	5.3%	0.0%
	5	22	95.5%	0.0%	0.0%	4.5%
	8	20	95.0%	5.0%	0.0%	0.0%
	CIM	16	87.5%	0.0%	12.5%	0.0%
Science	5	20	95.0%	5.0%	0.0%	0.0%
	8	20	90.0%	10.0%	0.0%	0.0%
	CIM	16	87.5%	12.5%	0.0%	0.0%

Table 5. Occupation of Participants in Each Grade and Content Area

Content Area	Grade	N	Teacher	Administrator	Other
Overall		207	74.4%	14.0%	11.6%
Mathematics	3	18	94.4%	5.6%	0.0%
	5	18	83.3%	0.0%	16.7%
	8	20	90.0%	5.0%	5.0%
	CIM	19	78.9%	10.5%	10.5%
Reading/Literature	3	19	68.4%	21.1%	10.5%
	5	22	45.5%	36.4%	18.2%
	8	20	75.0%	20.0%	5.0%
	CIM	16	56.3%	18.8%	25.0%
Science	5	20	80.0%	10.0%	10.0%
	8	19	73.7%	10.5%	15.8%
	CIM	16	75.0%	12.5%	12.5%

Table 6. Work Experience in Years of Participants in Each Grade and Content Area

Content Area	Grade	N	1-5	6-10	11-15	16-20	21+
Overall		209	8.1%	19.1%	15.8%	21.5%	35.4%
Mathematics	3	19	5.3%	26.3%	5.3%	21.1%	42.1%
	5	18	5.6%	16.7%	16.7%	22.2%	38.9%
	8	20	10.0%	25.0%	10.0%	35.0%	20.0%
	CIM	19	5.3%	21.1%	5.3%	15.8%	52.6%
Reading/Literature	3	19	0.0%	15.8%	21.1%	21.1%	42.1%
	5	22	4.5%	22.7%	13.6%	22.7%	36.4%
	8	20	20.0%	20.0%	30.0%	5.0%	25.0%
	CIM	16	18.8%	0.0%	12.5%	31.3%	37.5%
Science	5	20	5.0%	20.0%	20.0%	25.0%	30.0%
	8	20	15.0%	30.0%	5.0%	10.0%	40.0%
	CIM	16	0.0%	6.3%	37.5%	31.3%	25.0%

Table 7. Experience of Participants in Each Grade and Content Area Teaching English Language Learners and Students with Disabilities

Content Area	Grade	N	Special Ed.	N	ESL/ ELD	N	Vocational Ed.	Alternative Ed.	Adult Ed.
Overall		208	17.8%	208	16.8%	209	3.8%	15.3%	27.3%
Mathematics	3	19	21.1%	19	26.3%	19	0.0%	5.3%	10.5%
	5	17	5.9%	18	11.1%	18	5.6%	11.1%	38.9%
	8	20	10.0%	20	20.0%	20	0.0%	20.0%	20.0%
	10	19	10.5%	19	5.3%	19	15.8%	26.3%	42.1%
Reading/ Literature	3	19	21.1%	19	10.5%	19	0.0%	5.3%	21.1%
	5	22	22.7%	22	27.3%	22	4.5%	18.2%	31.8%
	8	20	20.0%	20	25.0%	20	10.0%	25.0%	30.0%
	10	16	12.5%	16	12.5%	16	0.0%	25.0%	18.8%
Science	5	20	20.0%	19	15.8%	20	0.0%	0.0%	30.0%
	8	20	30.0%	20	10.0%	20	5.0%	10.0%	35.0%
	10	16	18.8%	16	18.8%	16	0.0%	25.0%	18.8%

Bookmark Materials

Ordered Item Booklets

The ordered item booklet (OIB) for each grade and content area was made up of 70 multiple-choice items that the ODE selected from TESA. The items for each grade and content area were ordered according to their scale location (scaled with the Rasch model) using a response probability of 0.67 (see Beretvas, 2004). Each form used for standard setting was an augmented version of TESA. The TESA augmented forms closely match the content area test blueprints, as shown in Tables 8, 9, and 10. Each table shows the difference between the observed percentages of coverage on the augmented form and the required percentages from the test blueprints. No augmented form differed from a test blueprint cell by more than 9%.

For more information about the construction of the ordered item booklets, see Lewis, Green, Mitzel, Baum, & Patz (1998), which is included in Section J.

Table 8. Differences between Augmented Form and Test Blueprints for Mathematics

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	CIM
Calculations & Estimations	2%	-3%	1%	2%	1%	2%	1%
Measurement	0%	1%	-1%	1%	1%	1%	1%
Statistics & Probability	-1%	6%	0%	0%	0%	0%	-1%
Algebraic Relationships	-4%	-4%	4%	-2%	0%	0%	-2%
Geometry	3%	0%	-4%	-1%	-1%	-3%	1%

Table 9. Differences between Augmented Form and Test Blueprints for Reading/Literature

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	CIM
Vocabulary	1%	4%	3%	1%	-4%	3%	-1%
Read to Perform a Task	-6%	-2%	-2%	2%	-2%	-2%	-1%
Demonstrate General Understanding	1%	-5%	-4%	-3%	1%	1%	5%
Develop an Interpretation	5%	6%	-1%	-3%	6%	9%	0%
Informational Text	-	-3%	2%	-1%	0%	-5%	0%
Literary Text	-	-	1%	3%	-1%	-5%	-3%

Table 10. Differences between Augmented Form and Test Blueprints for Science

	Grade 5	Grade 8	CIM
Physical Science	0%	0%	1%
Life Science	1%	0%	1%
Earth & Space Science	0%	1%	-2%

Item Maps

The item map for each grade and content area summarized information about each item in the OIB: each item's order of difficulty, scoring key (correct response), and the objective that the item measured. For Reading/Literature and Science, the item map also included a column indicating the passage or stimulus, respectively. 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?" The second of these columns asks "Why is this item more difficult than the preceding items?"

The item maps did not include the locations of the items; however, after Round 1, table leaders were given item maps that included the locations of the items. Table leaders shared these item maps with participants. At the suggestion of the ODE's technical advisory committee, this procedure was used to prevent standard setting participants from developing pre-conceived notions of where the bookmarks should be placed based solely on knowledge of the existing cut scores. Participants were given an opportunity in Round 1 to set bookmarks based solely on their study and discussion of the test items, and then were given information about each item's scale location following their Round 1 bookmark placements.

Bookmark Standard Setting Procedure: Day 1

The implementation of the BSSP consisted of training, orientation, and three rounds of judgments. This was followed by descriptor writing and cross-grade articulation.

Opening Session

Douglas Kosty, Assistant Superintendent for Assessment & Information Systems, introduced Ed Dennis, Deputy Superintendent, ODE. Mr. Dennis gave the welcoming address and described the purpose of the standard setting. Doug Kosty then introduced Tony Alpert, Director of Assessment, who provided a short overview of the assessment program. The ODE described the expectations for the type of cut scores that the state anticipated from the process in terms of rigor.

Susan Castillo, Superintendent of Public Instruction, also addressed participants at lunch on Day 1 of the workshop. During this address, Superintendent Castillo thanked participants for being part of this process and reinforced the importance of their work.

Training

Following the presentation by the ODE, Ricardo Mercado, a member of the CTB Standard Setting Team provided an overview of the purpose of standard setting and described the implementation of the BSSP. Participants were introduced to key concepts and key materials of the BSSP, including the OIB and the item map. During this training, it was explained that table leaders would facilitate discussion at their tables and help participants complete tasks in a timely manner. Participants were given a synopsis of each day's activities. The Master Agenda is included in Section C, and the training overheads are included in Section E.

Participants engaged in a brief, mock standard setting using released Grade 4 Mathematics items from the National Assessment of Educational Progress. During this mock standard setting, participants reviewed and used the tools of the BSSP, including a sample OIB and item map. The sample OIB and item map are included in Section D.

Following the mock standard setting, participants were directed to their preassigned, breakout rooms and tables. Each grade and content area was in a separate breakout area.

Target Student Descriptors

Prior to the standard setting, the ODE developed achievement-level descriptors for the average student within each of the following achievement levels: *Does Not Yet Meet*, *Nearly Meets*, *Meets*, and *Exceeds*. Once participants were in their preassigned, breakout rooms, the group leader within each grade and content area facilitated the target student discussion to help participants articulate the achievement levels, with one exception: the Grade 5 Mathematics group leader had participants review the OIB prior to facilitating the discussion of target student descriptors.

A target student is defined as a student whose performance minimally meets the criteria for entry into a particular achievement level, for example, the “just” *Meets* student. For each grade and content area there were three target student descriptors, one for each cut score (*Nearly Meets*, *Meets*, and *Exceeds*). Participants created descriptors of the target students using the appropriate Oregon standards, the previously developed achievement-level descriptors, and the expectations the participants have of students in the achievement levels. These definitions served as a basis for establishing a common understanding of the type of student that should be considered when setting each cut score on the test. Participants were encouraged to take notes during the target student discussion and were referred to the target student descriptors throughout the standard setting.

Examine the Test

Participants examined an operational paper-pencil test for their grade and content area to experience the test from the student's perspective.

Study Items in the Ordered Item Booklet

Participants at each table studied each of the 70 items in the OIB in terms of what each item measures and why it is more difficult than the items preceding it. At each table, one participant, denoted as the scribe, recorded the group's comments about what each item measured. The locations for each item were not included on the item maps during Round 1.

Bookmark Standard Setting Procedure: Day 2

Complete Study of Items in the Ordered Item Booklet

Participants completed their examination of each of the items in the OIB and took notes on their item maps.

Bookmark Training

Prior to setting their Round 1 bookmarks, participants received supplemental training on bookmark placement for the minimally competent student in each achievement level. This training was presented by Christina Schneider, a member of the CTB Standard Setting Team. Participants were instructed to use four tools when placing their bookmarks: the Oregon content standards, the target student descriptors, the achievement-level descriptors, and the content as represented by the items on the test.

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” *Meets* 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” *Meets*. The final explanation discussed the relationship between the bookmarks and the scale scores. The bookmark training materials are included in Section D.

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 Tables 11 and 12, respectively. The responses to the check set indicated that participants understood how to place their bookmarks with one exception. Item 3 was difficult for the science panelists. Participants were provided with the correct answers for the check set, as well as explanations of those answers to address gaps in understanding. The check set (and the graphic that appears with it) is included in Section D.

Table 11. 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 <i>Meets</i> achievement level?
2	If a student mastered only items 1 through 5, in which achievement level would this student be?
3	Suppose a student mastered items 1 through 13. Which achievement level is this student in?
4	For students who are classified as <i>Meets</i> , with at least what likelihood will they be able to answer item 10?
5	Will the items BEFORE the <i>Meets</i> bookmark be more or less difficult to answer than the items AFTER the bookmark or about the same?

Table 12. Results of the Check Set

Question	Mathematics (N = 66)		Reading (N = 69)		Science (N = 69)	
	Count Correct	Percent Correct	Count Correct	Percent Correct	Count Correct	Percent Correct
1	61	92.4%	59	85.5%	57	82.6%
2	60	90.9%	59	85.5%	61	88.4%
3	47	71.2%	47	68.1%	35	50.7%
4	66	100%	65	94.2%	68	98.6%
5	65	98.5%	62	89.9%	62	89.9%

Round 1 Bookmark Placement

Once participants demonstrated that they understood how to place their bookmarks through the check set, they placed bookmarks in the following order: *Meets*, *Exceeds*, and *Nearly Meets*. Participants were instructed that bookmark placement is always an individual activity.

Prior to placement of the Round 1 bookmarks, the group leaders displayed an overhead transparency of the bookmarks that represented the existing cut scores for the Oregon Statewide Assessments. Participants were asked whether the existing cut scores reasonably represented the break in skills among the achievement levels that participants determined in their review of the items. If the existing cut scores reasonably represented the break of skills, participants were instructed that they could keep the existing bookmarks. If the current bookmarks did not reasonably represent the change in skills, participants were instructed to place their bookmarks on new pages in their OIBs.

Participants placed their Round 1 bookmarks for *Nearly Meets*, *Meets*, and *Exceeds*, while keeping in mind the Oregon content standards, the target student descriptors, the achievement-level descriptors, and the content as represented by the items on the test.

Round 2 Bookmark Placement

In each grade and content area, the table leader at each table facilitated a discussion of all the bookmark placements for the table. Participants were encouraged to focus on the differences among their bookmarks by discussing the items between the lowest and highest bookmarks at their table.

Participants were then directed back to their OIBs and item maps to continue content-based discussions. At this point, table leaders were each given a copy of the item map that included the location of each item in the OIB. After discussion, participants were reminded to place their bookmarks independently.

Round 3 Bookmark Placement

Participants received feedback based on their Round 2 bookmark placements from a member of the CTB Standard Setting Team in collaboration with an ODE representative. On an overhead transparency, participants were shown the median bookmark placement for each achievement level for each table as well as the medians for their grade and content area. In addition, participants were shown impact data based on the median Round 2 bookmarks. Impact data was defined for participants as the percentages of students who would be classified in each achievement level based on the median bookmarks. CTB staff answered process-related questions, and the ODE staff 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.”

During this portion of the standard setting, a fire alarm went off in the hotel in which the workshop was located. After a brief evacuation, the workshop resumed.

After the presentation of Round 2 results, participants discussed the rationale of their bookmark placement across tables within their grade and content area. The group leader facilitated the discussion among all participants. After the discussion, participants were instructed to place their bookmarks independently for the final time.

Round 3 Results

Participants received feedback based on their final bookmark placements from a member of the CTB Standard Setting Team in collaboration with an ODE representative. On an overhead transparency, participants were shown the median bookmarks for each table as well as the medians for their grade and content area and the impact data based on the median Round 3 (final) bookmarks. In addition, participants were shown the impact data for all grades within their content areas as an introduction to the cross-grade discussion.

Table 13 shows the participant-recommended cut scores and associated impact data based on the final round. The impact data in Table 13 were shown to the participants at the workshop and are based on the Fall 2006 test administration.

Some Round 3 results were presented to grade and content areas on Day 2, the rest on Day 3.

Table 13. Participant-recommended Cut Scores and Associated Impact Data Based on Round 3

Content Area	Grade	Cut Scores			Impact Data				
		Nearly Meets	Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	204	215	11.4%	8.2%	45.2%	35.2%	80.4%
	5	214	218	230	13.1%	14.4%	48.9%	23.6%	72.5%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.6%	54.3%
Reading/ Literature	3	199	203	216	8.5%	7.1%	42.4%	42.0%	84.4%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	8	224	230	241	15.9%	15.2%	47.4%	21.5%	68.9%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.5%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

Section F presents details of the participants' Bookmark judgments for each grade and content area. In Section G, estimates are given of the percentages of students in each achievement level at plus/minus one, two, and three standard errors of the participants' recommended final round cut scores for each grade and content area. Section H contains graphical representations of participants' final round judgments and standard errors.

Bookmark Standard Setting Procedure: Day 3

Evaluations

Following the presentation of final results, participants were asked to complete an evaluation of the Oregon Standard Setting. The results of the evaluation are included in Section I.

Interpolation

Once all grade panels for each content area in Mathematics and Reading/Literature completed Round 3, CTB interpolated the cut scores for the off-grades (Grades 4, 6, and 7) using the quadratic curve of best fit as the interpolation method. This policy model was specified *a priori* by the ODE. Historically, the percentage of students classified as *Meets* or above on the Oregon Statewide Assessments has followed a declining quadratic trend when tracked across grades. Table 14 shows the interpolated cut scores and impact data for Grades 4, 6, and 7. Also shown in the table are the participant-recommended cut scores and associated impact data from Round 3.

Table 14. Interpolated Cut Scores and Impact Data for Grades 4, 6, and 7 Based on the Participant-recommended Cut Scores and Associated Impact Data from Round 3

		Cut Scores			Impact Data				
Content Area	Grade	Nearly Meets	Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	204	215	11.4%	8.2%	45.2%	35.2%	80.4%
	4*	208	212	224	10.7%	13.2%	44.8%	31.3%	76.1%
	5	214	218	230	13.1%	14.4%	48.9%	23.6%	72.5%
	6*	215	220	233	13.2%	12.6%	49.1%	25.1%	74.3%
	7*	221	226	239	17.0%	12.2%	45.5%	25.3%	70.8%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.6%	54.3%
Reading/ Literature	3	199	203	216	8.5%	7.1%	42.4%	42.0%	84.4%
	4*	205	211	223	7.7%	12.7%	45.6%	34.0%	79.6%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	6*	214	222	234	10.4%	19.2%	45.1%	25.3%	70.4%
	7*	219	227	241	11.4%	19.3%	49.7%	19.6%	69.3%
	8	224	230	241	15.9%	15.2%	47.4%	21.5%	68.9%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.5%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

* Interpolated data

Orientation to Descriptor Writing

The CTB group leaders introduced the participants in each grade and content area to the process for descriptor writing. Participants recommended changes to the existing achievement-level descriptors (ALDs) that detail the knowledge, skills, and abilities needed to be classified in each achievement level. The existing ALDs were developed previously by panels organized by the ODE. Group leaders instructed participants to think of the ALDs as detailing the knowledge, skills, and abilities held by the average student in each achievement level.

Changes to the existing ALDs were suggested for Grades 3–8 and CIM for Mathematics and Reading/Literature. ALDs were edited for Grades 5, 8, and CIM for Science. Participants in CIM panels only developed descriptors for their CIM content area.

For Grades 4, 6, and 7, participants in Grades 3, 5, and 8, respectively, reviewed the items for their off-grade content area. Participants studied the items below as well as above the achievement level cut scores in the OIB and reviewed previously developed notes about the items on item maps. Participants then recommended changes to the existing ALDs for those grades.

Cross-grade Articulation (Smoothing)

While participants continued the descriptor writing activities, table leaders examined the cut scores and associated impact data determined for the off-grades by interpolation. The purpose of this smoothing discussion was to establish a system of cut scores that was well-articulated and, at the same time, considerate of the participants' original recommendations. A representative from the ODE was present during these discussions to answer policy-related questions.

Table leaders made various adjustments to the cut scores to promote cross-grade articulation. These changes were all small (two scale score points or less). In Grade 3 Reading, table leaders recommended increasing the *Exceeds* cut score by two scale score points to bring the percentage of students classified as *Exceeds* in that grade more consistent with the percentages in Grades 4 and 5. Table leaders in Grades 5 and 8 Reading recommended decreasing the *Exceeds* cut score by two scale score points in Grade 7, using similar reasoning. Table leaders in Grade 3 recommended a one-point increase in the *Meets* cut score, after informal consultation with their participants, to bring the percentage of students classified as *Meets* in that grade more in line with the percentages of the other grades, and to increase the number of students classified as *Nearly Meets* in that grade. Grade 8 table leaders recommended a one-point increase in the *Meets* cut score at that grade for similar reasons. Table leaders in Reading did not recommend any changes to the *Nearly Meets* cut scores.

In Mathematics, table leaders in Grade 3 recommended a two-point increase in the *Exceeds* cut score in that grade, as well as a one-point increase in the *Exceeds* cut score for Grade 4, in order to make the percentage of students classified as *Exceeds* more consistent with the percentages in other grades. Table leaders in Grade 5 concurred and recommended a one-point reduction in the *Exceeds* cut score of that grade, and they recommended, in collaboration with Grade 8, a one-point decrease in the *Exceeds* cut scores of Grades 6 and 7. Grade 3 table leaders also recommended a one-point increase in the *Meets* cut score for that grade to promote better articulation with Grades 4 and 5. Table leaders in Grade 5 recommended a one-point increase in the *Meets* cut score for Grade 6 to promote better articulation with surrounding grades. Grade 5 table leaders also recommended a one-point increase in the *Nearly Meets* cut score for Grade 6 for the same reason.

At the time of the cross-grade articulation discussion, Science table leaders reported that they and their participants were satisfied with their recommended cut scores, and that the impact data associated with their cut scores were reasonable. Science table leaders recommended no changes to their cut scores.

At the conclusion of the cross-grade articulation discussion, all table leaders were asked to review their recommended cut scores in their ordered item booklets and item maps. Specifically, table leaders were asked to verify that the changes that they recommended during the cross-grade articulation discussion were reasonable when compared to the content of the assessments. All table leaders reported that their recommended cut scores were reasonable when compared to the content of the assessments.

Thus, table leaders recommended minor changes to the cut scores so that the cross-grade impact data formed a cohesive whole when viewed from a policy perspective. Table 15 shows the cut scores developed during the smoothing discussions, as well as the associated impact data.

Table 15. Cut Scores and Associated Impact Data after Cross-grade Articulation

Content Area	Grade	Cut Scores			Impact Data				
		Meets	Nearly Meets	Exceeds	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	Meets & Above
Mathematics	3	201	205	217	11.4%	11.8%	49.7%	27.1%	76.7%
	4*	208	212	225	10.7%	13.2%	48.1%	28.0%	76.1%
	5	214	218	229	13.1%	14.4%	46.1%	26.4%	72.6%
	6*	216	221	232	15.2%	14.5%	42.2%	28.1%	70.3%
	7*	221	226	238	17.0%	12.2%	42.5%	28.3%	70.8%
	8	225	230	241	19.2%	13.1%	40.3%	27.4%	67.7%
	CIM	231	236	246	29.8%	15.9%	37.7%	16.7%	54.4%
Reading/ Literature	3	199	204	218	8.5%	9.8%	47.5%	34.2%	81.7%
	4*	205	211	223	7.7%	12.7%	45.6%	34.0%	79.6%
	5	209	218	230	7.7%	20.9%	45.8%	25.6%	71.4%
	6*	214	222	234	10.4%	19.2%	45.1%	25.3%	70.4%
	7*	219	227	239	11.4%	19.3%	44.1%	25.2%	69.3%
	8	224	231	241	15.9%	18.6%	43.9%	21.6%	65.5%
	CIM	231	236	248	21.3%	14.2%	47.6%	16.9%	64.6%
Science	5	216	225	238	8.0%	19.1%	50.5%	22.4%	72.9%
	8	229	234	246	21.3%	14.3%	44.2%	20.2%	64.4%
	CIM	235	240	249	26.6%	17.4%	35.3%	20.7%	56.0%

* Interpolated data

Evaluation of Training

An indication of the effectiveness of training may be found in the participants' answers to statements and questions on the evaluations. Table 16 shows that most participants agreed or strongly agreed that they understood how to place their bookmarks. Table 17 summarizes that most participants agreed or strongly agreed that the task of bookmark placement was clear. Table 18 shows that most participants agreed or strongly agreed that the training materials were helpful. Table 19 indicates that most participants agreed or strongly agreed that the Bookmark Procedure was well described. As Table 20 demonstrates, most participants agreed or strongly agreed that the goals of the process were clear.

Table 16. Participants' Agreement/Disagreement with the Statement, “I understood how to place my bookmarks.”

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.9%	1.4%	52.2%	44.5%	96.7%
Mathematics	3	19	0.0%	5.3%	0.0%	57.9%	36.8%	94.7%
	5	18	0.0%	0.0%	0.0%	72.2%	27.8%	100.0%
	8	20	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%
	CIM	19	0.0%	0.0%	0.0%	57.9%	42.1%	100.0%
Reading/Literature	3	19	0.0%	0.0%	0.0%	42.1%	57.9%	100.0%
	5	22	0.0%	4.5%	4.5%	45.5%	45.5%	91.0%
	8	20	0.0%	5.0%	0.0%	40.0%	55.0%	95.0%
	CIM	16	0.0%	0.0%	6.3%	56.3%	37.5%	93.8%
Science	5	20	0.0%	0.0%	0.0%	35.0%	65.0%	100.0%
	8	20	0.0%	0.0%	5.0%	65.0%	30.0%	95.0%
	CIM	16	0.0%	6.3%	0.0%	56.3%	37.5%	93.8%

Table 17. Participants' Agreement/Disagreement with the Statement, “The training on Bookmark placement made the task clear to me.”

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	3.3%	9.6%	61.7%	25.4%	87.1%
Mathematics	3	19	0.0%	0.0%	10.5%	63.2%	26.3%	89.5%
	5	18	0.0%	11.1%	16.7%	55.6%	16.7%	72.3%
	8	20	0.0%	0.0%	5.0%	75.0%	20.0%	95.0%
	CIM	19	0.0%	0.0%	10.5%	57.9%	31.6%	89.5%
Reading/Literature	3	19	0.0%	0.0%	5.3%	52.6%	42.1%	94.7%
	5	22	0.0%	4.5%	9.1%	50.0%	36.4%	86.4%
	8	20	0.0%	10.0%	15.0%	50.0%	25.0%	75.0%
	CIM	16	0.0%	0.0%	6.3%	68.8%	25.0%	93.8%
Science	5	20	0.0%	10.0%	5.0%	50.0%	35.0%	85.0%
	8	20	0.0%	0.0%	15.0%	80.0%	5.0%	85.0%
	CIM	16	0.0%	0.0%	6.3%	81.3%	12.5%	93.8%

Table 18. Participants' Agreement/Disagreement with the Statement, “The training materials were helpful.”

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.0%	11.5%	66.5%	21.1%	87.6%
Mathematics	3	19	0.0%	0.0%	5.3%	68.4%	26.3%	94.7%
	5	18	0.0%	0.0%	16.7%	72.2%	11.1%	83.3%
	8	20	0.0%	0.0%	10.0%	70.0%	20.0%	90.0%
	CIM	19	0.0%	5.3%	5.3%	57.9%	31.6%	89.5%
Reading/Literature	3	19	0.0%	0.0%	5.3%	78.9%	15.8%	94.7%
	5	22	0.0%	0.0%	9.1%	63.6%	27.3%	90.9%
	8	20	0.0%	5.0%	25.0%	60.0%	10.0%	70.0%
	CIM	16	0.0%	0.0%	18.8%	56.3%	25.0%	81.3%
Science	5	20	0.0%	0.0%	5.0%	60.0%	35.0%	95.0%
	8	20	0.0%	0.0%	20.0%	75.0%	5.0%	80.0%
	CIM	16	0.0%	0.0%	6.3%	68.8%	25.0%	93.8%

Table 19. Participants' Agreement/Disagreement with the Statement, “The Bookmark Procedure was well described.”

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.9%	7.2%	61.7%	29.2%	90.9%
Mathematics	3	19	0.0%	0.0%	10.5%	57.9%	31.6%	89.5%
	5	18	0.0%	11.1%	16.7%	44.4%	27.8%	72.2%
	8	20	0.0%	5.0%	0.0%	65.0%	30.0%	95.0%
	CIM	19	0.0%	0.0%	0.0%	68.4%	31.6%	100.0%
Reading/Literature	3	19	0.0%	0.0%	0.0%	57.9%	42.1%	100.0%
	5	22	0.0%	0.0%	4.5%	68.2%	27.3%	95.5%
	8	20	0.0%	5.0%	15.0%	55.0%	25.0%	80.0%
	CIM	16	0.0%	0.0%	18.8%	50.0%	31.3%	81.3%
Science	5	20	0.0%	0.0%	10.0%	50.0%	40.0%	90.0%
	8	20	0.0%	0.0%	5.0%	80.0%	15.0%	95.0%
	CIM	16	0.0%	0.0%	0.0%	81.3%	18.8%	100.0%

Table 20. Participants' Agreement/Disagreement with the Statement, “The goals for the Bookmark Procedure were clear.”

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	0.0%	7.2%	9.1%	57.7%	26.0%	83.7%
Mathematics	3	19	0.0%	5.3%	10.5%	63.2%	21.1%	84.3%
	5	18	0.0%	11.1%	16.7%	55.6%	16.7%	72.3%
	8	20	0.0%	0.0%	10.0%	60.0%	30.0%	90.0%
	CIM	19	0.0%	0.0%	15.8%	63.2%	21.1%	84.3%
Reading/Literature	3	19	0.0%	5.3%	0.0%	52.6%	42.1%	94.7%
	5	21	0.0%	4.8%	0.0%	61.9%	33.3%	95.2%
	8	20	0.0%	20.0%	5.0%	65.0%	10.0%	75.0%
	CIM	16	0.0%	12.5%	6.3%	43.8%	37.5%	81.3%
Science	5	20	0.0%	5.0%	0.0%	55.0%	40.0%	95.0%
	8	20	0.0%	15.0%	25.0%	40.0%	20.0%	60.0%
	CIM	16	0.0%	0.0%	12.5%	75.0%	12.5%	87.5%

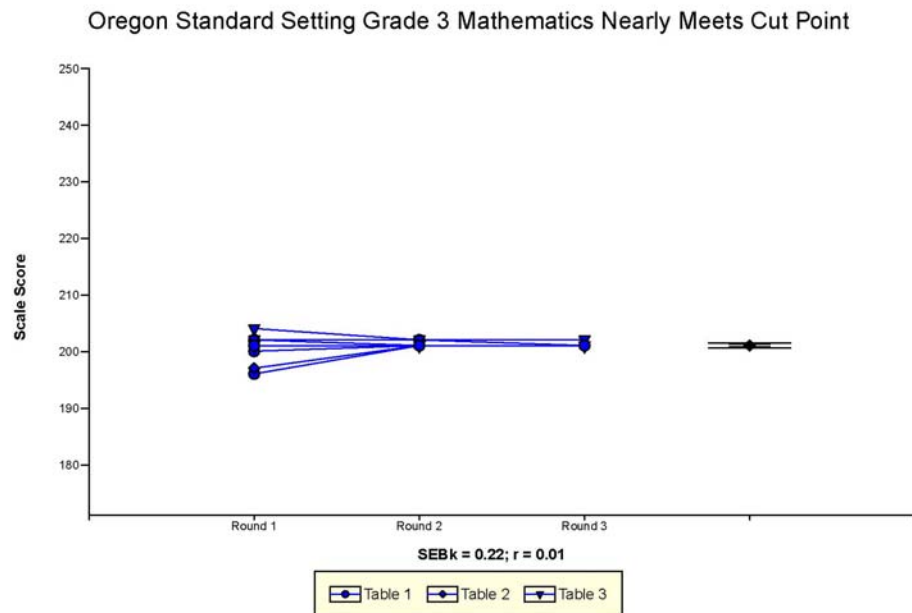
Quality Control Procedures

The CTB Standard Setting Team adhered 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-checked 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 were scanned. The CTB Standard Setting Team checked the reasonableness of the data presented to participants.

Graphical Representation of Participants' Judgments

This document includes several presentations of participants' judgments throughout the Bookmark Procedure. Section H includes graphical representations of participants' judgments. Among other uses, the graphical representations of participants' judgments can be used to show the convergence of the recommended cut scores across the three rounds of the Bookmark Procedure. An example of this representation is shown in Figure 1.

Figure 1. Graphical representation of participants' judgments in Grade 3 Mathematics for the *Nearly Meets* cut point.



In Figure 1, each participant's cut score recommendation is shown for the *Nearly Meets* cut point for Grade 3 Mathematics, by round. Lines connect the cut score recommendations for a single participant across rounds. Different symbols are used for participants at each table: the judgments made at each table are shown in similar graphs in Section H.

Above the legend for the graph in Figure 1, two values are given. The first value, SE_{bk} , is the standard error of the bookmark, as calculated from participants' judgments at Round 2. A discussion of this standard error is shown on Page 243. The second value, r , is used in the calculation of SE_{bk} and is an intra-class correlation of participants' judgments.

Figure 1 also illustrates SE_{bk} with a symbol to the right of the graph. The symbol is centered at the median judgment, and illustrates a band of $\pm 2 SE_{bk}$ around this value.

Standard Errors Associated with the Recommended Cut Scores

Two types of standard errors are associated with the recommended cut scores: the standard error of the bookmark (SE_{bk}), and the standard error of measurement (SEM). SE_{bk} quantifies how much one might expect the cut scores to vary if they were recommended by a different set of participants, drawn from the same pool of such qualified participants. The SEM quantifies the error associated with the test itself at the given cut score: it quantifies how much one might expect a student's score to vary if he or she were tested repeatedly without a change in underlying ability. These two sources of error can be combined ($SE_{combined}$) using the following formula:

$$SE_{combined} = \sqrt{(SE_{bk})^2 + (SEM)^2}$$

In Section G, SE_{bk} , SEM, and $SE_{combined}$ values are associated with each cut score. For each cut score, the participants' median recommendation is shown, ± 0 , 1, 2, and 3 standard errors (bookmark, measurement, and combined). The percentages of students that would be classified in each performance level for each adjusted cut score are also shown in Section G. Note that the impact data associated with the adjusted cut scores sometimes are markedly different than the impact data associated with the participant-recommended cut scores. Many of these differences are associated with the underlying distribution of student scores: when a cut score lies in an interval of the test scale where many students have scored, even small adjustments in the cut score can lead to large differences in the associated impact data.

The practice of adjusting cut scores by standard errors is a long-standing one (Cizek & Bunch, 2007). Adjustments to cut scores may be made with SE_{bk} to account for variance in the cut score recommendations associated with the standard setting process, with SEM to account for variance in test score estimates, or with $SE_{combined}$ to account for both.

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Beretvas, S.N. (2004). Comparison of Bookmark difficulty locations under different item response models. *Applied Psychological Measurement*, 28, 25-47.

Cizek, G.J. & Bunch, M.B. (2007). *Standard setting: A guide to establishing performance standards on tests*. Thousand Oaks, CA: Sage Publications.

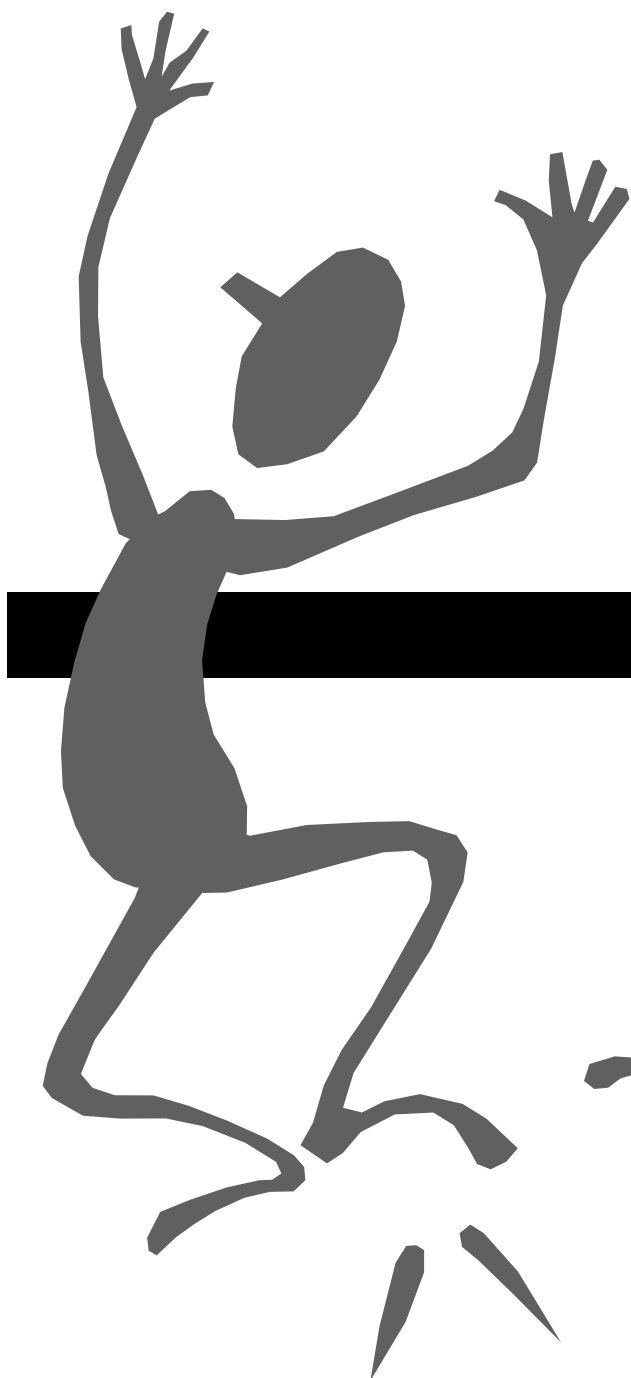
Lewis, D.M., Mitzel, H.C., & Green, D.R. (1996). Standard Setting: A bookmark approach. In D.R. Green (Chair), *IRT-based standard-setting procedures utilizing behavioral anchoring*. Symposium conducted at the Council of Chief State School Officers National Conference on Large-Scale Assessment, Phoenix, AZ.

Lewis, D. M., Green, D. R., Mitzel, H. C., Baum, K., & Patz, R. J., (1998, April). The Bookmark Standard Setting Procedure: Methodology and Recent Implementations. Paper presented at the 1998 annual meeting of the National Council of Measurement in Education annual meeting, San Diego, CA.

Mitzel, H.C., Lewis, D.M., Patz, R.J., & Green, D.R. (2001). The Bookmark procedure: Psychological perspectives. In G. J. Cizek (Ed.), *Setting performance standards: Concepts, methods, and perspectives* (pp. 249–281). Mahwah, NJ: Lawrence Erlbaum Associates.

SECTION C

Master Agenda



Master Agenda

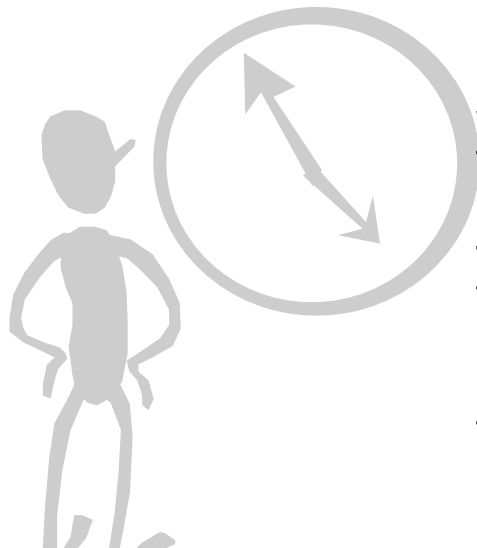
Oregon Department of Education

Grades 3, 5, 8, and CIM
Reading/Literature and Mathematics

Grades 5, 8, and CIM
Science

Kindergarten and Grades 2, 5, 7, and 11
ELPA

Bookmark Standard Setting Workshop
December 11 – 13, 2006
Portland, Oregon



Welcome to the Bookmark Standard Setting Workshop for the Oregon Statewide Assessment!

The Oregon Department of Education and CTB/McGraw-Hill
thank you for your time and expertise during this important process.

Please use this agenda to orient yourself during the workshop.
If you have any questions or concerns, please do not hesitate
to contact a member of the CTB Standard Setting Team.

Monday, December 11

Welcome!

7:30 AM Participant Registration and Continental Breakfast

Please check in at the reception area to sign the nondisclosure agreement, get your nametag, and collect any other necessary information.

8:30 AM Opening Session and Bookmark Overview

The Oregon Department of Education welcomes participants to the standard setting and overviews the testing program and standard setting. CTB introduces the Bookmark Standard Setting Procedure and discusses your role and responsibilities during the workshop.

10:00 AM Break (15 minutes) and Direct Participants to Preassigned Breakout Rooms

The Group Leader welcomes participants. After brief introductions, the Group Leader distributes secure materials. Secure materials are printed on colored paper.

- Table Leaders ensure that all participants at their tables write their names on each of their secure materials.

10:30 AM Target Student Discussion

Participants engage in structured discussions about the knowledge, skills, and abilities they expect to be demonstrated by students just entering each achievement/proficiency level.

12:00-1:00 PM Lunch for the 5 ELPA Groups

12:15-1:15 PM Lunch for Mathematics Grades 3, 5, 8, and CIM and Science Grades 5 and 8

12:30-1:30 PM Lunch for Reading Grades 3, 5, 8, and CIM and Science CIM

After lunch Examine the Test Items

Participants examine the test items to see what students experience.

- Although some discussion about individual test items is normal, Table Leaders focus their participants away from prolonged debate and toward taking the test.
- Table Leaders encourage participants to use provided index cards to record comments about the test items.

2:00 PM Discuss Each Item in the Ordered Item Booklet (OIB)

The Group Leader introduces this task by instructing participants to find the item map and OIB in their secure materials. The Group Leader leads the group in a review of each column on the item map and in an examination of several items in the OIB.

- Table Leaders facilitate a discussion among everyone at their tables about 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. All participants record these details on their item maps.
- Table Leaders assign a scribe to take a master set of notes for their table.
- Table Leaders remind participants to use the index cards, as necessary.
- Table Leaders ensure that each participant at their tables has a chance to speak.

3:00 PM Break 15 minutes

4:45 PM Secure Materials Collection

The Group Leader facilitates collection of the secure materials from all participants. A listing of secure materials to be collected is displayed in the room.

- Table Leaders supervise the collection of secure materials at their tables. See the last page of this agenda, "Secure Materials Collection," for more information.

4:55 PM Secure Materials Audit

The Group Leader directs the Table Leaders to audit the secure materials at one other table.

- Verify that each packet contains all the secure materials.
- Order materials numerically by packet number within each table.
- Verify that all signed-out packets are present.
- Stack materials at each table neatly into one pile with the table tent on top, under the top packet's rubber band.
- Place the separate stacks on one table. Do not combine tables' stacks.

5:00 PM Table Leader Debriefing

Table leaders discuss the events of the day and plans for the next day.

5:15 PM CTB/ODE Debriefing

7:30 AM Continental Breakfast

8:30 AM Complete Discussion of Each Item in the OIB

Participants complete their study of each item in the OIB.

- Table Leaders continue facilitating a discussion among everyone at their tables about each of the items in the OIB. Participants focus on what each item measures and what makes it harder than the previous items. All participants record these details on their item maps.
- Table Leaders remind participants to use the index cards, as necessary.
- Table Leaders ensure that each participant at their tables has a chance to speak.

10:00 AM Break 15 minutes

10:15 AM Review Bookmark Placement and Round 1 Ratings

A member of the CTB Standard Setting Team reviews bookmark placement, explaining how bookmarks are placed and what bookmarks mean. After this brief presentation, a short check set is given and discussed.

The Group Leader directs all participants to place their Round 1 bookmarks. The Group Leader reminds participants that bookmark placement is an individual activity.

- See the handouts on “Bookmark Placement,” “Frequently Asked Questions,” and “Mastery” for more information.
- Table Leaders collect their participants’ rating forms as they complete them, ensuring that each participant has made a single, unambiguous rating for each bookmark.
- Table Leaders fill out their orange sheets and begin discussion of the Round 1 ratings at their tables.
- Table Leaders give their participants’ rating forms to the Group Leader.

11:30 AM Begin Discussion of Round 1 as a Table

Table Leaders lead a discussion of the ratings made at their tables. Participants discuss the items between the lowest and highest ratings, explaining the rationale behind their ratings.

12:00-1:00 PM Lunch for the 5 ELPA Groups

12:15-1:15 PM Lunch for Mathematics Grades 3, 5, 8, and CIM and Science Grades 5 and 8

12:30-1:30 PM Lunch for Reading Grades 3, 5, 8, and CIM and Science CIM

After lunch Continue Discussion of Round 1 as a Table and Round 2 Ratings

Table Leaders continue the discussion of the ratings made at their tables.

Participants discuss the items between the lowest and highest ratings, explaining the rationale behind their ratings.

The Group Leader directs all participants to place their Round 2 bookmarks. The Group Leader reminds participants that bookmark placement is an individual activity.

- Table Leaders collect their participants’ rating forms as they complete them.
- Table Leaders do *not* need to fill out an orange sheet.
- Table Leaders give their participants’ rating forms to the Group Leader.

- 2:00 PM Discussion of Round 2 as a Large Group**
A member of the CTB Standard Setting Team presents a summary of the voting from each table to the entire group. Impact data are presented. Impact data are the percentages of students in each achievement/proficiency level based on the current median bookmarks. Then, the Group Leader leads a discussion with the entire group about each bookmark, similar to the table-level discussion after Round 1.
- 3:00 PM Break 15 minutes**
- 3:30 PM Round 3 Ratings**
The Group Leader directs all participants to place their Round 3 bookmarks. The Group Leader reminds participants that bookmark placement is an individual activity.
- Table Leaders collect their participants' rating forms as they complete them.
 - Table Leaders do *not* need to fill out an orange sheet.
 - Table Leaders give their participants' rating forms to the Group Leader.
- 4:45 PM Secure Materials Collection**
The Group Leader facilitates collection of the secure materials from all participants. A listing of secure materials to be collected is displayed in the room.
- Table Leaders supervise the collection of secure materials at their tables. See the last page of this agenda, "Secure Materials Collection," for more information.
- 4:55 PM Secure Materials Audit**
The Group Leader directs the Table Leaders to audit the secure materials at one other table.
- Verify that each packet contains all the secure materials.
 - Order materials numerically by packet number within each table.
 - Verify that all signed-out packets are present.
 - Stack materials at each table neatly into one pile with the table tent on top, under the top packet's rubber band.
 - Place the separate stacks on one table. Do not combine tables' stacks.
- 5:00 PM Table Leader Debriefing**
Table leaders discuss the events of the day and plans for the next day.
- 5:15 PM CTB/ODE Debriefing**

7:30 AM Continental Breakfast

8:30 AM Presentation of Round 3 Recommendations

A member of the CTB Standard Setting Team presents the group with a summary of the Round 3 recommendations.

9:00 AM Evaluations

Each participant completes an evaluation of the BSSP.

9:15 AM Descriptor Writing Activities

CTB Group Leaders will introduce the descriptor writing activity.

ELPA groups will write descriptors for their grade level. Participants in CIM groups will only write descriptors for their CIM content area. Participants in Science will only write descriptors for their grade level.

For Reading/Literature and Mathematics, descriptors will be written for Grades 3, 5, and 8 and for the off-grades, Grades 4, 6, and 7. Participants will be divided into two groups. For example, participants in Grade 3 Math will be divided into two groups, one for Grade 3 Math and the other for Grade 4 Math. In a similar manner, Grade 5 participants will be divided into Grades 5 and 6, and Grade 8 participants will be divided into Grades 7 and 8.

Description Writing Activities for Grades 4, 6, and 7

Participants for Grades 4, 6, and 7 will examine each item in the OIB. They will then write the descriptors.

10:00 AM Break 15 minutes

12:00-1:00 PM Lunch for the 5 ELPA Groups

12:15-1:15 PM Lunch for Mathematics Grades 3, 5, 8, and CIM and Science Grades 5 and 8

12:30-1:30 PM Lunch for Reading Grades 3, 5, 8, and CIM and Science CIM

After lunch Continue Descriptor Writing Activities

After lunch Table Leader Smoothing for Academic Groups

After lunch Table Leader Smoothing for ELPA Groups

Presentation of Smoothed Recommendations

After the Table Leader Smoothing discussions, cut scores and associated impact data are shared with the group, including recommendations from Table Leaders during the cross-grade articulation discussion. All participants are invited to engage in this presentation.

2:55 PM Secure Materials Collection

The Group Leader facilitates collection of the secure materials from all participants. A listing of secure materials to be collected is displayed in the room.

- Table Leaders supervise the collection of secure materials at their tables. See the last page of this agenda, "Secure Materials Collection," for more information.

3:00 PM Secure Materials Audit

The Group Leader directs the Table Leaders to audit the secure materials at one other table.

- Verify that each packet contains all the secure materials.
- Order materials numerically by packet number within each table.
- Verify that all signed-out packets are present.
- Stack materials at each table neatly into one pile with the table tent on top, under the top packet's rubber band.
- Place the separate stacks on one table. Do not combine tables' stacks.

3:00 PM Participant Dismissal

4:00 PM Table Leader Dismissal

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 gather effectively all of the 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?

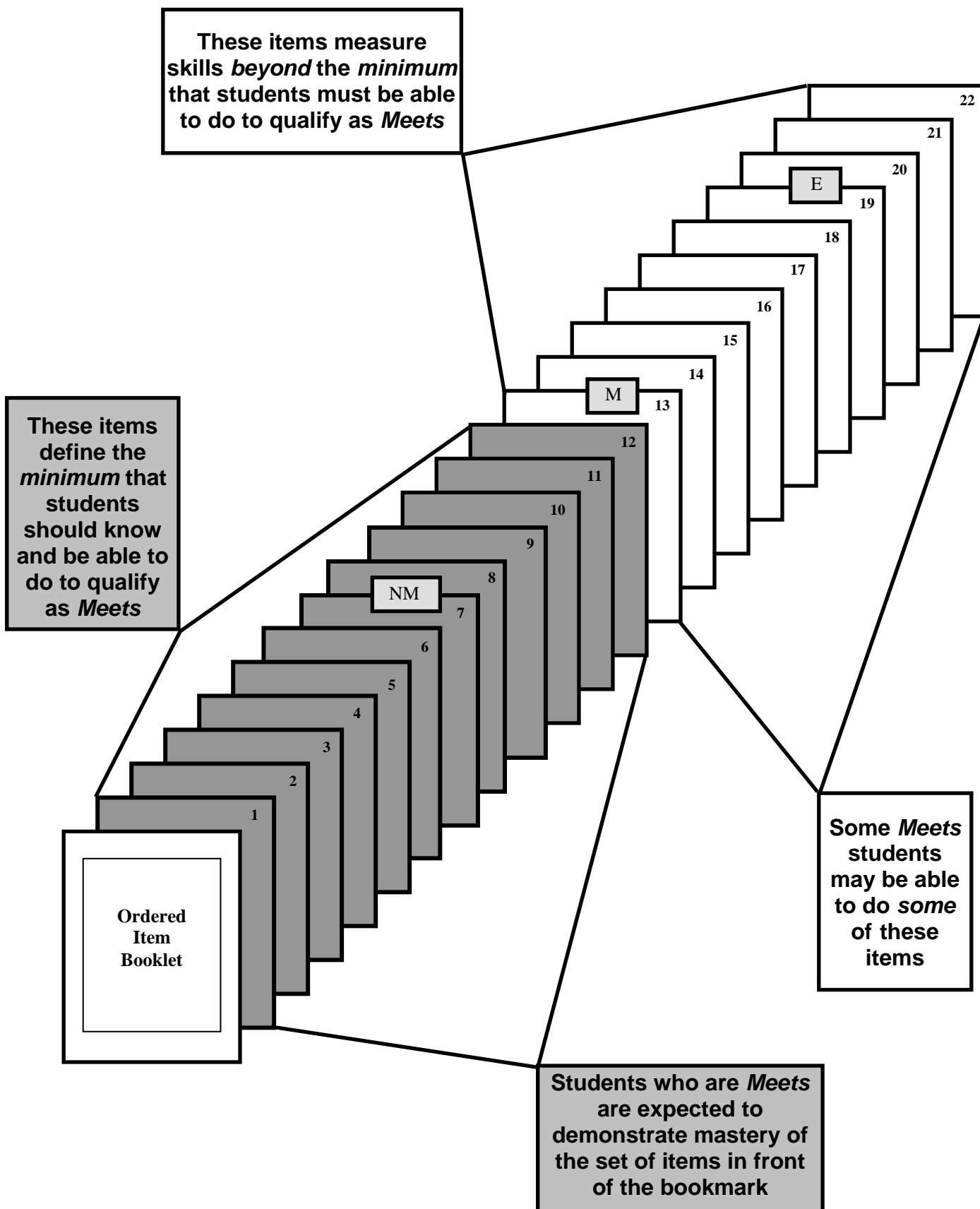
1. Get the attention of all the participants at your table. Discourage any side conversations or inattention.
2. Using the list provided, call out each item, one at a time, and watch participants place that item on their stack. Discourage participants from moving ahead. Ensure that each participant has 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, 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 Materials



Bookmark Placement

These directions are written for placing the *Meets* bookmark and apply analogously to the *Nearly Meets* and *Exceeds* bookmarks.

For whom am I placing this bookmark? The Target Student

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

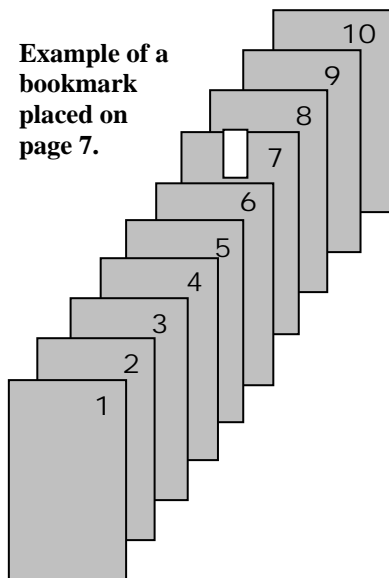
How do I place my bookmark? The Mechanics

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 *Meets* 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 *Meets*.

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 *Meets* relative to the content standards. This is the content you are saying a *Meets* Target Student needs to master to just make it into the *Meets* 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 *Meets* Bookmark mean? Some Answers

- You expect *Meets* students to master the knowledge, skills, and abilities contained in the items *before* your bookmark.
- *Meets* students should know and be able to do the items *before* the bookmark. For multiple-choice items, *Meets* students should know the correct response.

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 *Meets* bookmark was placed on page 7. The participant was *not* saying that a student must get six items correct to be classified as *Meets*. This participant is saying that a barely *Meets* 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. The order of difficulty numbers do *not* correspond to raw scores.

Frequently Asked Questions about Bookmark Placement

These questions are written in reference to the *Meets* bookmark and apply analogously to the *Nearly Meets* and *Exceeds* 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 *Meets* bookmark and gets some correct after the bookmark, is that student still *Meets*?

A student does *not* have to get every item before the bookmark correct to be *Meets*. *Meets* 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?

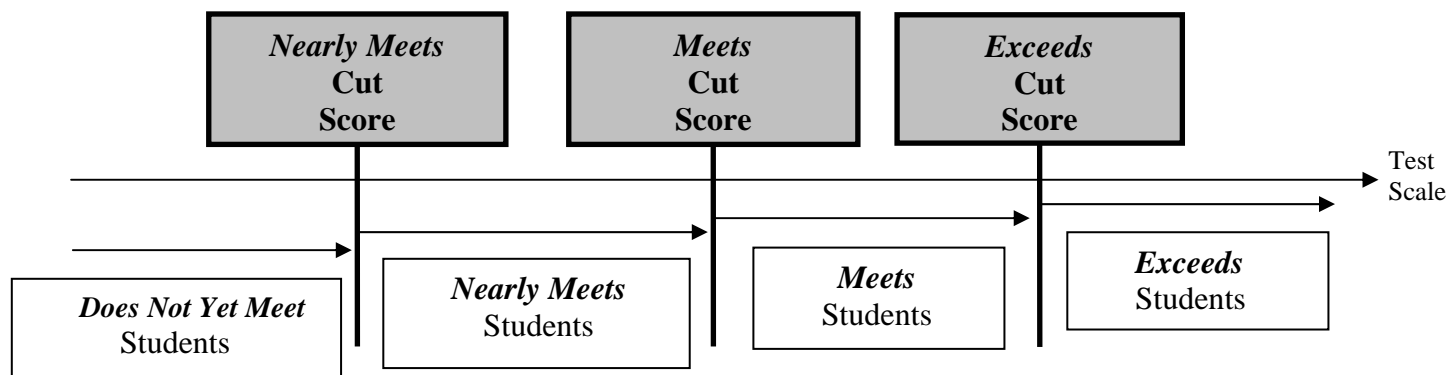
No. Remember, you are placing your bookmark based on the content you expect students to know and be able to do. You are *not* making your decision based on the number of items students must answer correctly. The bookmark is placed on a *page* in the Ordered Item Booklet. This page number corresponds 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 achievement levels. In Oregon, you will set 3 bookmarks to separate students into 4 achievement levels.

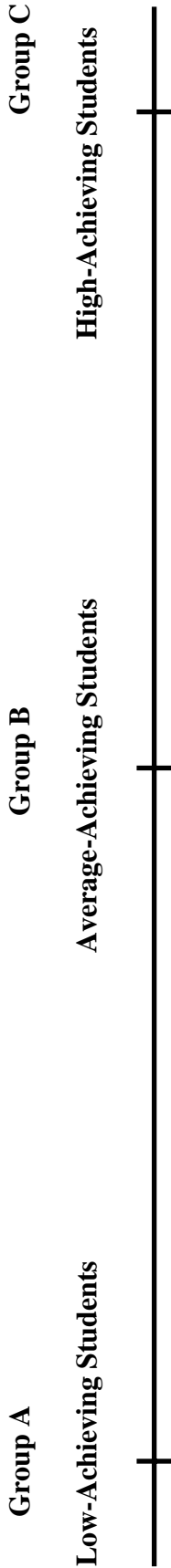


How Participants' Bookmark Judgments Relate to Expected Student Performance within Each Achievement Level

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 achievement level. To understand how your judgments relate to expected student achievement within each achievement 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.

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.

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.

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

[illegible]

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
<u>96</u> 100	<u>96</u> 100	<u>95</u> 100	<u>93</u> 100	<u>89</u> 100	<u>85</u> 100	<u>84</u> 100	<u>83</u> 100	<u>83</u> 100	<u>81</u> 100	<u>79</u> 100	<u>79</u> 100	<u>78</u> 100	<u>73</u> 100	<u>72</u> 100	<u>72</u> 100	<u>71</u> 100	<u>70</u> 100	<u>69</u> 100	<u>67</u> 100

[illegible]

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.

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.

[illegible][illegible]

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.

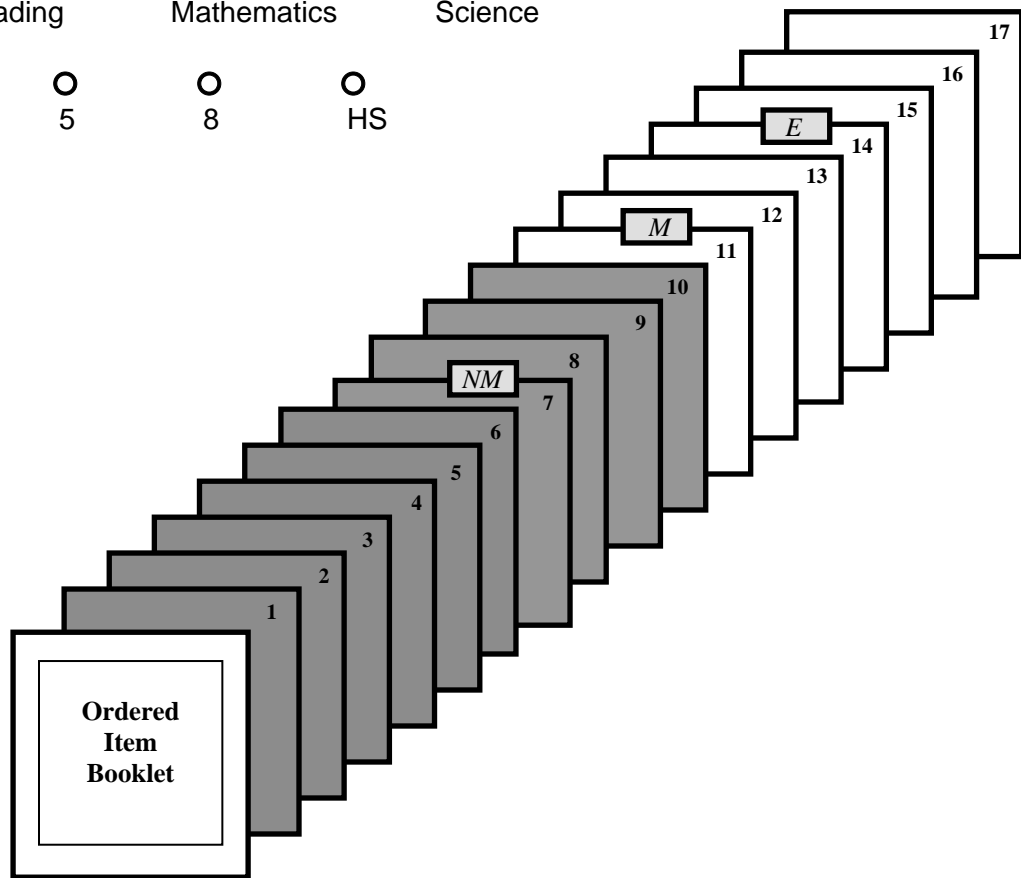
Also, if *you* identify a set of items in the ordered item booklet, the specific point on the test scale at which students have demonstrated mastery of the content you have specified can be determined. This is how the various cut scores are ascertained.

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 ***Meets***. This means that you will identify the items that reflect the knowledge, skills, and abilities you expect all ***Meets*** 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.

Content Area: ☐ Reading ☐ Mathematics ☐ Science

Grade: ☐ 3 ☐ 5 ☐ 8 ☐ HS

Oregon Academic



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

	<i>Nearly Meets</i> Bookmark on Page #	<i>Meets</i> Bookmark on Page #	<i>Exceeds</i> Bookmark on Page #
Round 1	7	11	14

- Which items does a student need to master to just make it into the *Meets* achievement level?

☐ 1 to 6 ☐ 1 to 7 ☐ 1 to 10 ☐ 1 to 11
- If a student mastered only items 1 through 5, in which achievement level would this student be?

☐ Does Not Yet Meet ☐ Nearly Meets ☐ Meets ☐ Exceeds
- Suppose a student mastered items 1 through 13. Which achievement level is this student in?

☐ Does Not Yet Meet ☐ Nearly Meets ☐ Meets ☐ Exceeds
- For students who are classified as *Meets*, with at least what likelihood will they be able to answer item 10?

☐ 1/3 ☐ 1/2 ☐ 2/3 ☐ 3/4
- Will the items BEFORE the *Meets* 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

SAMPLE Mathematics Item Map

Print Name: _____ Table Number: _____

Order of difficulty (easy to hard)	Item Type	Score Key	Standard*	What does this item measure? That is, what do you know about a student who can respond successfully to this item?	Why is this item more difficult than the preceding items?
1	MC	B	1		N/A
2	MC	C	4		
3	MC	B	5		
4	MC	D	1		
5	MC	B	4		
6	MC	A	1		
7	MC	B	2		
8	MC	B	2		
9	MC	C	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

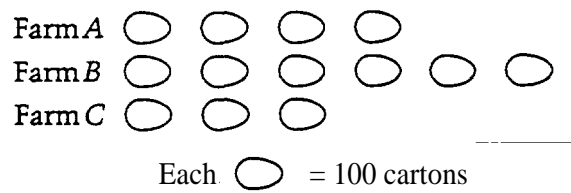
**Publicly released items from the National Assessment of Educational
Progress 1996 State Assessment Program in Mathematics.**

**The Bookmark Standard Setting Procedure ©
Copyright 1999 by CTB/McGraw-Hill.**

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



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 3,000

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?

☐ A $N+12$

☐ B $N-12$

☐ C $12- N$

☐ D $12 \times N$

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

☐ A 652

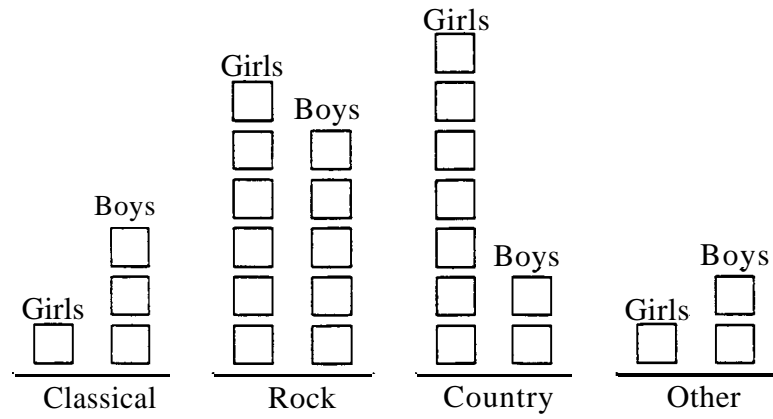
☐ B 562

☐ C 526

☐ D 265

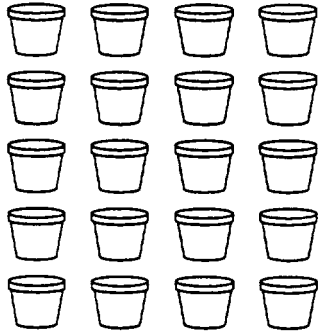
4. Each boy and girl in the class voted for his or her favorite kind of music.
Here are the results.

☐ = 1 student



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

- ☐ A Classical
- ☐ B Rock
- ☐ C Country
- ☐ D Other



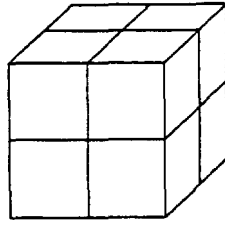
5. The picture shows the flowerpots in which Kevin will plant flower seeds. He needs 3 seeds for each pot. Which of the following number sentences shows how many seeds Kevin will need for all of the pots?

☒ A $5 \times 4 \times 3 = \square$

☐ B $(5 \times 4) + 3 = \square$

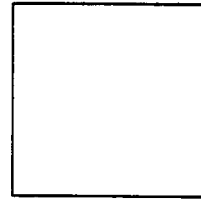
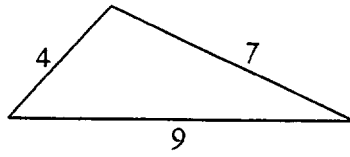
☐ C $(5 + 4) \times 3 = \square$

☐ D $5 + 4 + 3 = \square$



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

- ☐ A 7
- ☐ B 8
- ☐ C 12
- ☐ D 24



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

☐ A 4

☐ B 5

☐ C 6

☐ D 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?

☐ A 1 out of 5

☐ B 1 out of 3

☐ C 3 out of 5

☐ D 2 out of 3

SECTION E

Training Overheads



Setting the Standard

Oregon

Standard Setting Training

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CTB Standard Setting Team

- Rick Mercado
- Michaela Gelin
- Christy Schneider
- Denise Truskosky
- Adele Brandstrom
- Dorothy Tele'a
- Kristy Kelley
- Tracy Podrabsky
- Lorena Houston
- Margie Tully
- Cathy Upham

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What is standard setting?

- A process that lets experts make judgements about the content that the *Meets* student should know.
 - Also, *Does Not Yet Meet*, *Nearly Meets*, and *Exceeds* students.
 - Also *Beginning*, *Early Intermediate*, *Intermediate*, *Proficient*, and *Advanced* for ELPA.
- How well or how much does a student need to know?

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Scale scores

- Do not tell us if a student's performance was "good enough"
- Do not describe a student's strengths and weaknesses

Standard setting

- In relation to the standards, how much does a student need to know to be classified in a given achievement level for the Oregon Statewide Assessments?
- How much does a student need to know to be classified in a given proficiency level for the English Language Proficiency Assessment?

Why standard setting?

- Content standards define what students are tested on.
 - These are things students *should* be able to do.
 - Oregon has content standards in Reading/Literature, Mathematics, and Science.
 - Oregon has ELP standards designed to supplement the ELA standards.

Why standard setting?

- Achievement standards define what students *should be able to do* in each achievement level.
- You will actively discuss your expectations of the target student in each achievement level for the Oregon Statewide Assessments or in each proficiency level for ELPA.

Achievement levels

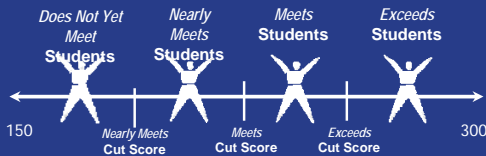
- Specify the knowledge, skills, and abilities a student needs to know in order to be classified as *Does Not Yet Meet*, *Nearly Meets*, *Meets*, and *Exceeds* in relation to the content standards.
- For ELPA, *Beginning*, *Early Intermediate*, *Intermediate*, *Proficient*, and *Advanced*.

How do we set our standards?

- ~~Percentages~~
 - Arbitrary
 - Test-specific
 - Do not consider content
- Content
 - Uses pre-established content standards
 - Considers educational objectives
- Bookmark Standard Setting Procedure

Purpose of the Standard Setting

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



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Purpose of the Standard Setting

- You will set three cut scores on the test scale (four cut scores for ELPA).
- Decisions will be based on Oregon content standards.
- One cut score for
 - *Nearly Meets*
 - *Meets*
 - *Exceeds*
- One cut score for
 - *Early Intermediate*
 - *Intermediate*
 - *Proficient*
 - *Advanced*

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Use of the Bookmark Procedure



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Bookmark Standard Setting

- Item-centered method
- Content-based decisions

Committee Roles

- Group Leaders
- Table Leaders
- Participants
- ODE
- CTB



Committee Roles

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



Committee Roles

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

Standard Setting
Committee



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Workshop Overview

- 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
- Description Writing
- Cross-Grade Discussions with Table Leaders

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Ordered Item Booklets

- One item per page
- Easiest item first, hardest item last
- Items ascend by difficulty

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Item Map

SAMPLE Mathematics Item Map

Print Name: _____ Table Number: _____

Order of difficulty (easy to hard)	Item Type	Score Key	Standard	What does this item measure? That is, what do you know about a student who can respond successfully to this item?	Why is this item more difficult than the preceding items?
1	MC	B	1		N/A
2	MC	C	4		
3	MC	B	5		
4	MC	D	1		
5	MC	B	4		
6	MC	A	1		
7	MC	B	2		
8	MC	B	2		
9	MC	C	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

*Eliminate extra info,
perform subtraction*

Print Name: _____ Table Number: _____

Order of difficulty (easy to hard)	Item Type	Score Key	Standard	What does this item measure? That is, what do you know about a student who can respond successfully to this item?	Why is this item more difficult than the preceding items?
1	MC	B	1		N/A
2	MC	C	4		
3	MC	B	5		
4	MC	D	1		
5	MC	B	4		
6	MC	A	1		
7	MC	B	2		
8	MC	B	2		
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

Mock Standard Setting

- 2 achievement levels
 - *Meets*
 - *Nearly Meets*
- 9-item test
 - Grade 4 Mathematics

Target Student

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

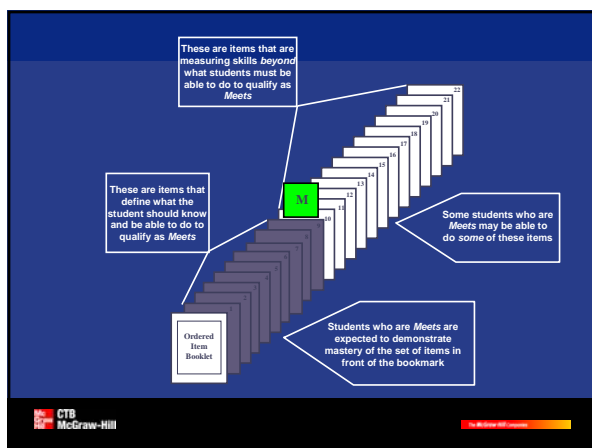


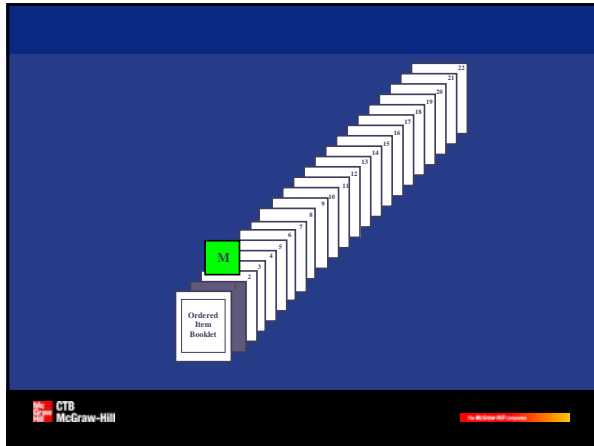
Bookmark Placement

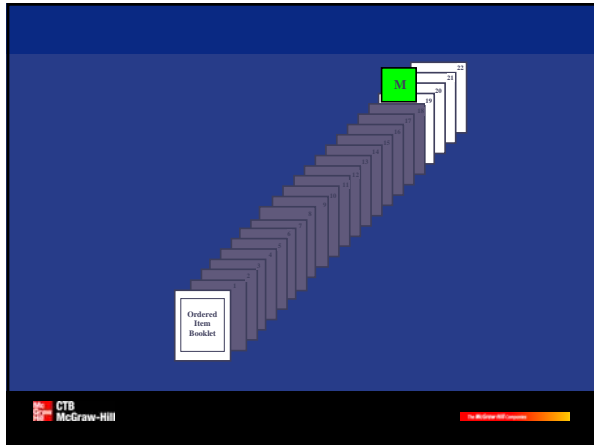
- Items preceding the Bookmark reflect content that all *Meets* students should have mastery of
 - for MC items this means that the *Meets* students should most likely know the correct responses

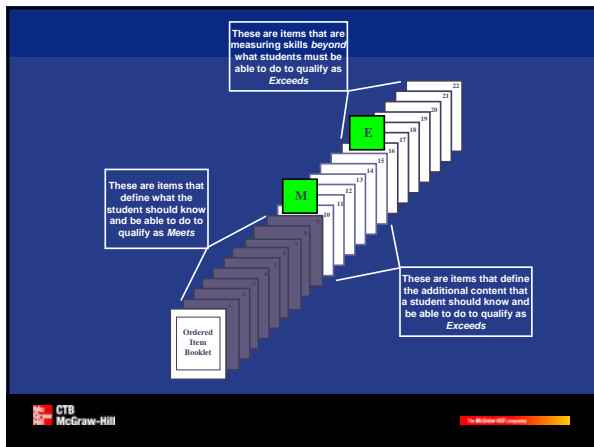
Bookmark Placement

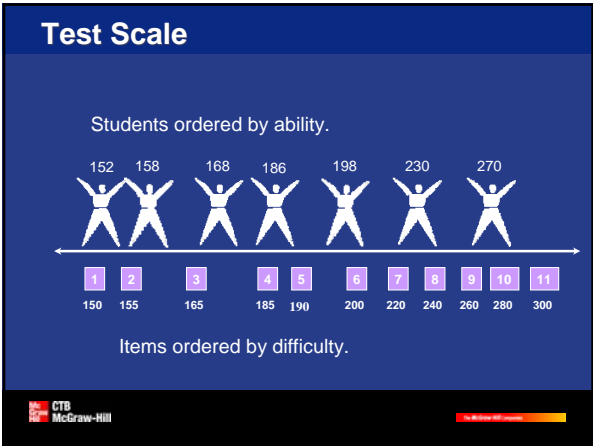
- Place the bookmark at the first point...
- ...where you feel that a student who has mastery of the content in the items before the bookmark...
- ...has demonstrated sufficient skills...
- ...to infer that the student should be classified as *Meets*.

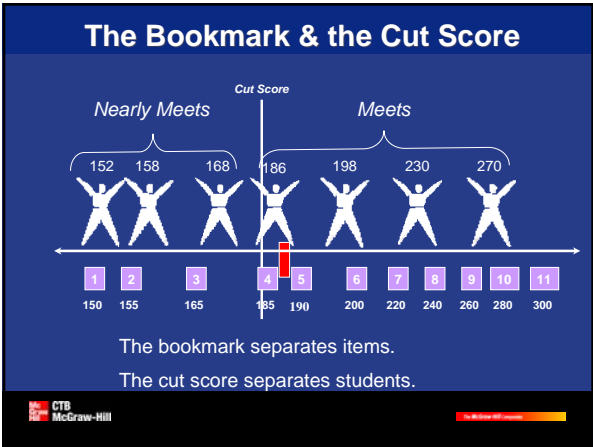












Rating Form

Print Name _____ 2006 Oregon Standard Setting

Grade	Content Area	Round 1		Nearly Meets		Meets		Exceeds	
		1	2	1	2	1	2	1	2
<input type="radio"/> 3	Reading/Lit Mathematics Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> 5		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> 8		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> 10		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Rating Form for ELPA

Print Name _____ 2006 Oregon Standard Setting

Grade	Early Intermediate	Intermediate	Proficient	Advanced
<input type="radio"/> K				
<input type="radio"/> 2				
<input type="radio"/> 5				
<input type="radio"/> 7				
<input type="radio"/> 11				
Content Area				
<input type="radio"/> ELPA				

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Sample Results

	Nearly Meets Bookmark	Meets Bookmark	Exceeds Bookmark
Table 1	15	34	86
Table 2	11	37	82
Table 3	14	34	81
Median	13	34	82

Impact Data: estimated percent of students in each achievement level based on the current large group median

Does Not Yet Meet	Nearly Meets	Meets	Exceeds
0%	0%	0%	0%

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Target Student Discussion

- The student who has *just* made it into an achievement level or proficiency level
 - Just *Nearly Meets*, Just *Meets*, and Just *Exceeds* students
- Refer to Oregon content standards



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Agenda: Day 1

- Opening Session
- Examine the test items
 - Individual Activity
- Discuss the Target Student
 - Group Activity
- Study the Ordered Item Booklet
 - Table Activity

Agenda: Day 2

- Finish Round 1 bookmark placements
 - Individual Activity
- Round 2
 - Review Round 1 results in tables
 - Discuss in tables
 - Make new judgments individually
- Round 3
 - Review Round 2 results as a large group
 - Discuss as a large group
 - Make new judgments individually

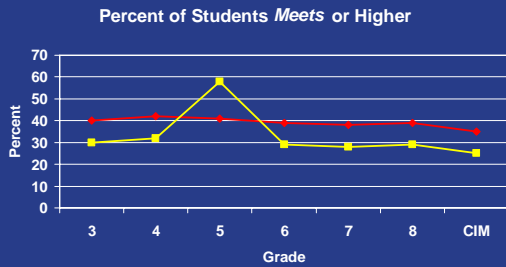
Agenda: Day 3

- Review final recommendations
- Evaluate the BSSP
- Description writing
- Cross-grade discussions (Table Leaders)

Articulation

- Achievement standards are called *well-articulated* when the impact data associated with the cut scores form a cogent, reasonable pattern.
- After Round 3, Table Leaders will come together to discuss the achievement (proficiency) standards across grades.

Articulation and Disarticulation



Questions?

- Thank you for your participation!

SECTION F

Detailed Bookmark Judgments

Oregon Standard Setting Grade 3 Mathematics
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	9	14	35
1	3	12	29	64
1	4	9	14	47
1	5	9	14	55
1	6	5	16	40
1	9	8	14	47
2	7	9	18	44
2	8	12	27	43
2	10	10	15	46
2	18	10	20	46
2	19	12	18	44
2	20	6	12	44
3	11	9	19	55
3	12	12	21	52
3	13	14	21	51
3	14	9	15	49
3	15	12	19	54
3	16	11	15	48
3	17	9	19	55

Overall	Median	9	18	47
	Minimum	5	12	35
	Maximum	14	29	64
	SD	2.22	4.46	6.58

Oregon Standard Setting Grade 3 Mathematics
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	200	203	211
1	3	202	209	224
1	4	200	203	215
1	5	200	203	218
1	6	193	205	213
1	9	198	203	215
2	7	200	205	214
2	8	202	207	213
2	10	201	204	215
2	18	201	205	215
2	19	202	205	214
2	20	196	202	214
3	11	200	205	218
3	12	202	206	218
3	13	203	206	217
3	14	200	204	215
3	15	202	205	218
3	16	201	204	215
3	17	200	205	218

Overall	Median	200	205	215
	Minimum	193	202	211
	Maximum	203	209	224
	SD	2.36	1.63	2.84

Oregon Standard Setting Grade 3 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	9	14	47
Median	2	10	18	44
Median	3	11	19	52
Median	Overall	9	18	47
Minimum	1	5	14	35
Minimum	2	6	12	43
Minimum	3	9	15	48
Minimum	Overall	5	12	35
Maximum	1	12	29	64
Maximum	2	12	27	46
Maximum	3	14	21	55
Maximum	Overall	14	29	64
SD	1	2.25	6.01	10.39
SD	2	2.23	5.09	1.22
SD	3	1.95	2.51	2.83
SD	Overall	2.22	4.46	6.58

Overall	Median	9	18	47
	Minimum	5	12	35
	Maximum	14	29	64
	SD	2.22	4.46	6.58

Oregon Standard Setting Grade 3 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	200	203	215
Median	2	201	205	214
Median	3	201	205	218
Median	Overall	200	205	215
Minimum	1	193	203	211
Minimum	2	196	202	213
Minimum	3	200	204	215
Minimum	Overall	193	202	211
Maximum	1	202	209	224
Maximum	2	202	207	215
Maximum	3	203	206	218
Maximum	Overall	203	209	224
SD	1	3.13	2.42	4.56
SD	2	2.25	1.63	0.75
SD	3	1.21	0.82	1.41
SD	Overall	2.36	1.63	2.84

Overall	Median	200	205	215
	Minimum	193	202	211
	Maximum	203	209	224
	SD	2.36	1.63	2.84

Oregon Standard Setting Grade 3 Mathematics Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	9	14	47
2	10	18	44
3	11	19	52
Overall	9	18	47

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	10.2	13.1	41.5	35.2

Oregon Standard Setting Grade 3 Mathematics
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	10	14	44
1	3	12	29	59
1	4	10	15	47
1	5	9	12	48
1	6	10	16	40
1	9	9	14	47
2	7	9	15	44
2	8	9	19	43
2	10	10	15	46
2	18	10	20	46
2	19	10	18	46
2	20	10	15	44
3	11	9	20	52
3	12	12	20	55
3	13	12	21	51
3	14	9	20	53
3	15	11	20	51
3	16	9	15	48
3	17	9	19	51

Overall	Median	10	18	47
	Minimum	9	12	40
	Maximum	12	29	59
	SD	1.08	3.86	4.65

Oregon Standard Setting Grade 3 Mathematics
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	201	203	214
1	3	202	209	219
1	4	201	204	215
1	5	200	202	215
1	6	201	205	213
1	9	200	203	215
2	7	200	204	214
2	8	200	205	213
2	10	201	204	215
2	18	201	205	215
2	19	201	205	215
2	20	201	204	214
3	11	200	205	218
3	12	202	205	218
3	13	202	206	217
3	14	200	205	218
3	15	201	205	217
3	16	200	204	215
3	17	200	205	217

Overall	Median	201	205	215
	Minimum	200	202	213
	Maximum	202	209	219
	SD	0.73	1.42	1.80

Oregon Standard Setting Grade 3 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	10	14.5	47
Median	2	10	16.5	45
Median	3	9	20	51
Median	Overall	10	18	47
Minimum	1	9	12	40
Minimum	2	9	15	43
Minimum	3	9	15	48
Minimum	Overall	9	12	40
Maximum	1	12	29	59
Maximum	2	10	20	46
Maximum	3	12	21	55
Maximum	Overall	12	29	59
SD	1	1.10	6.19	6.35
SD	2	0.52	2.28	1.33
SD	3	1.46	1.98	2.15
SD	Overall	1.08	3.86	4.65

Overall	Median	10	18	47
	Minimum	9	12	40
	Maximum	12	29	59
	SD	1.08	3.86	4.65

Oregon Standard Setting Grade 3 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	201	204	215
Median	2	201	205	215
Median	3	200	205	217
Median	Overall	201	205	215
Minimum	1	200	202	213
Minimum	2	200	204	213
Minimum	3	200	204	215
Minimum	Overall	200	202	213
Maximum	1	202	209	219
Maximum	2	201	205	215
Maximum	3	202	206	218
Maximum	Overall	202	209	219
SD	1	0.75	2.50	2.04
SD	2	0.52	0.55	0.82
SD	3	0.95	0.58	1.07
SD	Overall	0.73	1.42	1.80

Overall	Median	201	205	215
	Minimum	200	202	213
	Maximum	202	209	219
	SD	0.73	1.42	1.80

Oregon Standard Setting Grade 3 Mathematics Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	10	14.5	47
2	10	16.5	45
3	9	20	51
Overall	10	18	47

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	11.4	11.8	41.5	35.3

Oregon Standard Setting Grade 3 Mathematics
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	10	14	46
1	3	10	14	48
1	4	10	14	51
1	5	9	12	46
1	6	10	14	47
1	9	9	14	47
2	7	9	15	45
2	8	9	19	47
2	10	10	15	49
2	18	9	15	44
2	19	10	18	46
2	20	10	15	44
3	11	10	19	52
3	12	12	20	55
3	13	10	20	50
3	14	10	20	53
3	15	10	20	54
3	16	10	15	48
3	17	10	20	50

Overall	Median	10	15	48
	Minimum	9	12	44
	Maximum	12	20	55
	SD	0.69	2.78	3.29

Oregon Standard Setting Grade 3 Mathematics
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	201	203	215
1	3	201	203	215
1	4	201	203	217
1	5	200	202	215
1	6	201	203	215
1	9	200	203	215
2	7	200	204	214
2	8	200	205	215
2	10	201	204	215
2	18	200	204	214
2	19	201	205	215
2	20	201	204	214
3	11	201	205	218
3	12	202	205	218
3	13	201	205	216
3	14	201	205	218
3	15	201	205	218
3	16	201	204	215
3	17	201	205	216

Overall	Median	201	204	215
	Minimum	200	202	214
	Maximum	202	205	218
	SD	0.54	0.97	1.42

Oregon Standard Setting Grade 3 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	10	14	47
Median	2	9.5	15	45.5
Median	3	10	20	52
Median	Overall	10	15	48
Minimum	1	9	12	46
Minimum	2	9	15	44
Minimum	3	10	15	48
Minimum	Overall	9	12	44
Maximum	1	10	14	51
Maximum	2	10	19	49
Maximum	3	12	20	55
Maximum	Overall	12	20	55
SD	1	0.52	0.82	1.87
SD	2	0.55	1.83	1.94
SD	3	0.76	1.86	2.50
SD	Overall	0.69	2.78	3.29

Overall	Median	10	15	48
	Minimum	9	12	44
	Maximum	12	20	55
	SD	0.69	2.78	3.29

Oregon Standard Setting Grade 3 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	201	203	215
Median	2	201	204	215
Median	3	201	205	218
Median	Overall	201	204	215
Minimum	1	200	202	215
Minimum	2	200	204	214
Minimum	3	201	204	215
Minimum	Overall	200	202	214
Maximum	1	201	203	217
Maximum	2	201	205	215
Maximum	3	202	205	218
Maximum	Overall	202	205	218
SD	1	0.52	0.41	0.82
SD	2	0.55	0.52	0.55
SD	3	0.38	0.38	1.29
SD	Overall	0.54	0.97	1.42

Overall	Median	201	204	215
	Minimum	200	202	214
	Maximum	202	205	218
	SD	0.54	0.97	1.42

Oregon Standard Setting Grade 3 Mathematics Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	10	14	47
2	9.5	15	45.5
3	10	20	52
Overall	10	15	48

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	11.4	8.2	45.2	35.2

Oregon Standard Setting Grade 5 Mathematics
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	13	26	56
1	3	5	15	56
1	4	10	17	48
1	5	11	17	36
1	8	9	14	48
1	19	6	21	48
2	9	9	17	47
2	10	8	22	67
2	11	7	20	47
2	12	11	21	63
2	13	12	20	43
2	14	9	16	53
3	1	6	12	42
3	15	10	15	54
3	16	10	15	53
3	17	8	27	57
3	18	10	15	53
3	20	10	15	50

Overall	Median	9.5	17	51.5
	Minimum	5	12	36
	Maximum	13	27	67
	SD	2.14	4.14	7.42

Oregon Standard Setting Grade 5 Mathematics
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	215	219	230
1	3	209	216	230
1	4	214	217	227
1	5	214	217	223
1	8	214	216	227
1	19	210	218	227
2	9	214	217	227
2	10	212	218	239
2	11	211	218	227
2	12	214	218	235
2	13	215	218	225
2	14	214	217	229
3	1	210	215	225
3	15	214	216	229
3	16	214	216	229
3	17	212	219	231
3	18	214	216	229
3	20	214	216	227

Overall	Median	214	217	228
	Minimum	209	215	223
	Maximum	215	219	239
	SD	1.85	1.16	3.69

Oregon Standard Setting Grade 5 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	9.5	17	48
Median	2	9	20	50
Median	3	10	15	53
Median	Overall	9.5	17	51.5
Minimum	1	5	14	36
Minimum	2	7	16	43
Minimum	3	6	12	42
Minimum	Overall	5	12	36
Maximum	1	13	26	56
Maximum	2	12	22	67
Maximum	3	10	27	57
Maximum	Overall	13	27	67
SD	1	3.03	4.46	7.34
SD	2	1.86	2.34	9.67
SD	3	1.67	5.28	5.17
SD	Overall	2.14	4.14	7.42

Overall	Median	9.5	17	51.5
	Minimum	5	12	36
	Maximum	13	27	67
	SD	2.14	4.14	7.42

Oregon Standard Setting Grade 5 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	214	217	227
Median	2	214	218	228
Median	3	214	216	229
Median	Overall	214	217	228
Minimum	1	209	216	223
Minimum	2	211	217	225
Minimum	3	210	215	225
Minimum	Overall	209	215	223
Maximum	1	215	219	230
Maximum	2	215	218	239
Maximum	3	214	219	231
Maximum	Overall	215	219	239
SD	1	2.50	1.17	2.58
SD	2	1.51	0.52	5.47
SD	3	1.67	1.37	2.07
SD	Overall	1.85	1.16	3.69

Overall	Median	214	217	228
	Minimum	209	215	223
	Maximum	215	219	239
	SD	1.85	1.16	3.69

Oregon Standard Setting Grade 5 Mathematics Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	9.5	17	48
2	9	20	50
3	10	15	53
Overall	9.5	17	51.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	13.1	9.8	47.4	29.7

Oregon Standard Setting Grade 5 Mathematics
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	11	21	48
1	3	6	17	56
1	4	11	17	56
1	5	11	20	48
1	8	14	21	56
1	19	11	20	51
2	9	9	20	54
2	10	9	21	64
2	11	9	20	53
2	12	11	20	63
2	13	9	20	54
2	14	9	20	57
3	1	7	12	42
3	15	10	15	54
3	16	9	15	53
3	17	8	19	53
3	18	10	15	53
3	20	10	15	52

Overall	Median	9.5	20	53.5
	Minimum	6	12	42
	Maximum	14	21	64
	SD	1.78	2.76	5.05

Oregon Standard Setting Grade 5 Mathematics
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	214	218	227
1	3	210	217	230
1	4	214	217	230
1	5	214	218	227
1	8	216	218	230
1	19	214	218	228
2	9	214	218	229
2	10	214	218	235
2	11	214	218	229
2	12	214	218	235
2	13	214	218	229
2	14	214	218	231
3	1	211	215	225
3	15	214	216	229
3	16	214	216	229
3	17	212	218	229
3	18	214	216	229
3	20	214	216	228

Overall	Median	214	218	229
	Minimum	210	215	225
	Maximum	216	218	235
	SD	1.33	1.02	2.45

Oregon Standard Setting Grade 5 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	11	20	53.5
Median	2	9	20	55.5
Median	3	9.5	15	53
Median	Overall	9.5	20	53.5
Minimum	1	6	17	48
Minimum	2	9	20	53
Minimum	3	7	12	42
Minimum	Overall	6	12	42
Maximum	1	14	21	56
Maximum	2	11	21	64
Maximum	3	10	19	54
Maximum	Overall	14	21	64
SD	1	2.58	1.86	3.99
SD	2	0.82	0.41	4.85
SD	3	1.26	2.23	4.54
SD	Overall	1.78	2.76	5.05

Overall	Median	9.5	20	53.5
	Minimum	6	12	42
	Maximum	14	21	64
	SD	1.78	2.76	5.05

Oregon Standard Setting Grade 5 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	214	218	229
Median	2	214	218	230
Median	3	214	216	229
Median	Overall	214	218	229
Minimum	1	210	217	227
Minimum	2	214	218	229
Minimum	3	211	215	225
Minimum	Overall	210	215	225
Maximum	1	216	218	230
Maximum	2	214	218	235
Maximum	3	214	218	229
Maximum	Overall	216	218	235
SD	1	1.97	0.52	1.51
SD	2	0.00	0.00	2.94
SD	3	1.33	0.98	1.60
SD	Overall	1.33	1.02	2.45

Overall	Median	214	218	229
	Minimum	210	215	225
	Maximum	216	218	235
	SD	1.33	1.02	2.45

Oregon Standard Setting Grade 5 Mathematics

Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	11	20	53.5
2	9	20	55.5
3	9.5	15	53
Overall	9.5	20	53.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	13.1	14.4	46.1	26.4

Oregon Standard Setting Grade 5 Mathematics
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	10	17	54
1	3	9	17	56
1	4	11	20	56
1	5	11	17	56
1	8	11	20	56
1	19	11	20	63
2	9	9	20	64
2	10	9	19	64
2	11	9	20	54
2	12	9	20	63
2	13	9	20	56
2	14	9	20	57
3	1	8	15	53
3	15	9	15	53
3	16	9	17	53
3	17	9	19	53
3	18	10	17	53
3	20	10	15	51

Overall	Median	9	19	56
	Minimum	8	15	51
	Maximum	11	20	64
	SD	0.92	1.96	4.22

Oregon Standard Setting Grade 5 Mathematics
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	214	217	229
1	3	214	217	230
1	4	214	218	230
1	5	214	217	230
1	8	214	218	230
1	19	214	218	235
2	9	214	218	235
2	10	214	218	235
2	11	214	218	229
2	12	214	218	235
2	13	214	218	230
2	14	214	218	231
3	1	212	216	229
3	15	214	216	229
3	16	214	217	229
3	17	214	218	229
3	18	214	217	229
3	20	214	216	228

Overall	Median	214	218	230
	Minimum	212	216	228
	Maximum	214	218	235
	SD	0.47	0.78	2.47

Oregon Standard Setting Grade 5 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	11	18.5	56
Median	2	9	20	60
Median	3	9	16	53
Median	Overall	9	19	56
Minimum	1	9	17	54
Minimum	2	9	19	54
Minimum	3	8	15	51
Minimum	Overall	8	15	51
Maximum	1	11	20	63
Maximum	2	9	20	64
Maximum	3	10	19	53
Maximum	Overall	11	20	64
SD	1	0.84	1.64	3.13
SD	2	0.00	0.41	4.50
SD	3	0.75	1.63	0.82
SD	Overall	0.92	1.96	4.22

Overall	Median	9	19	56
	Minimum	8	15	51
	Maximum	11	20	64
	SD	0.92	1.96	4.22

Oregon Standard Setting Grade 5 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	214	218	230
Median	2	214	218	233
Median	3	214	217	229
Median	Overall	214	218	230
Minimum	1	214	217	229
Minimum	2	214	218	229
Minimum	3	212	216	228
Minimum	Overall	212	216	228
Maximum	1	214	218	235
Maximum	2	214	218	235
Maximum	3	214	218	229
Maximum	Overall	214	218	235
SD	1	0.00	0.55	2.16
SD	2	0.00	0.00	2.81
SD	3	0.82	0.82	0.41
SD	Overall	0.47	0.78	2.47

Overall	Median	214	218	230
	Minimum	212	216	228
	Maximum	214	218	235
	SD	0.47	0.78	2.47

Oregon Standard Setting Grade 5 Mathematics Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	11	18.5	56
2	9	20	60
3	9	16	53
Overall	9	19	56

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	13.1	14.4	48.9	23.6

Oregon Standard Setting Grade 8 Mathematics
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	12	20	40
1	3	16	23	41
1	4	15	22	46
1	5	11	19	44
1	6	12	19	44
1	7	9	20	38
1	8	18	22	48
2	9	7	24	49
2	10	11	19	47
2	11	10	20	40
2	12	12	24	48
2	13	10	19	49
2	14	11	25	44
3	15	12	22	49
3	16	13	25	48
3	17	14	25	47
3	18	13	24	46
3	19	19	27	49
3	20	14	24	56
3	22	12	24	47

Overall	Median	12	22.5	47
	Minimum	7	19	38
	Maximum	19	27	56
	SD	2.89	2.50	4.13

Oregon Standard Setting Grade 8 Mathematics
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	225	228	237
1	3	226	232	238
1	4	226	230	241
1	5	224	228	239
1	6	225	228	239
1	7	224	228	237
1	8	228	230	241
2	9	223	233	241
2	10	224	228	241
2	11	224	228	237
2	12	225	233	241
2	13	224	228	241
2	14	224	234	239
3	15	225	230	241
3	16	225	234	241
3	17	226	234	241
3	18	225	233	241
3	19	228	234	241
3	20	226	233	246
3	22	225	233	241

Overall	Median	225	230	241
	Minimum	223	228	237
	Maximum	228	234	246
	SD	1.29	2.54	2.07

Oregon Standard Setting Grade 8 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	12	20	44
Median	2	10.5	22	47.5
Median	3	13	24	48
Median	Overall	12	22.5	47
Minimum	1	9	19	38
Minimum	2	7	19	40
Minimum	3	12	22	46
Minimum	Overall	7	19	38
Maximum	1	18	23	48
Maximum	2	12	25	49
Maximum	3	19	27	56
Maximum	Overall	19	27	56
SD	1	3.15	1.60	3.51
SD	2	1.72	2.79	3.54
SD	3	2.41	1.51	3.34
SD	Overall	2.89	2.50	4.13

Overall	Median	12	22.5	47
	Minimum	7	19	38
	Maximum	19	27	56
	SD	2.89	2.50	4.13

Oregon Standard Setting Grade 8 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	225	228	239
Median	2	224	231	241
Median	3	225	233	241
Median	Overall	225	230	241
Minimum	1	224	228	237
Minimum	2	223	228	237
Minimum	3	225	230	241
Minimum	Overall	223	228	237
Maximum	1	228	232	241
Maximum	2	225	234	241
Maximum	3	228	234	246
Maximum	Overall	228	234	246
SD	1	1.40	1.57	1.68
SD	2	0.63	2.94	1.67
SD	3	1.11	1.41	1.89
SD	Overall	1.29	2.54	2.07

Overall	Median	225	230	241
	Minimum	223	228	237
	Maximum	228	234	246
	SD	1.29	2.54	2.07

Oregon Standard Setting Grade 8 Mathematics

Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	12	20	44
2	10.5	22	47.5
3	13	24	48
Overall	12	22.5	47

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	19.2	13.1	40.3	27.4

Oregon Standard Setting Grade 8 Mathematics
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	13	22	41
1	3	16	23	48
1	4	14	22	45
1	5	10	19	41
1	6	16	20	44
1	7	11	20	41
1	8	17	21	48
2	9	9	24	49
2	10	9	19	48
2	11	8	20	49
2	12	9	19	49
2	13	7	19	49
2	14	10	20	48
3	15	13	24	49
3	16	13	25	50
3	17	13	24	47
3	18	13	24	49
3	19	5	26	49
3	20	14	25	50
3	22	14	26	52

Overall	Median	13	22	48.5
	Minimum	5	19	41
	Maximum	17	26	52
	SD	3.23	2.51	3.20

Oregon Standard Setting Grade 8 Mathematics
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	225	230	238
1	3	226	232	241
1	4	226	230	240
1	5	224	228	238
1	6	226	228	239
1	7	224	228	238
1	8	227	229	241
2	9	224	233	241
2	10	224	228	241
2	11	223	228	241
2	12	224	228	241
2	13	223	228	241
2	14	224	228	241
3	15	225	233	241
3	16	225	234	242
3	17	225	233	241
3	18	225	233	241
3	19	221	234	241
3	20	226	234	242
3	22	226	234	242

Overall	Median	225	230	241
	Minimum	221	228	238
	Maximum	227	234	242
	SD	1.39	2.60	1.28

Oregon Standard Setting Grade 8 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	14	21	44
Median	2	9	19.5	49
Median	3	13	25	49
Median	Overall	13	22	48.5
Minimum	1	10	19	41
Minimum	2	7	19	48
Minimum	3	5	24	47
Minimum	Overall	5	19	41
Maximum	1	17	23	48
Maximum	2	10	24	49
Maximum	3	14	26	52
Maximum	Overall	17	26	52
SD	1	2.67	1.41	3.16
SD	2	1.03	1.94	0.52
SD	3	3.18	0.90	1.51
SD	Overall	3.23	2.51	3.20

Overall	Median	13	22	48.5
	Minimum	5	19	41
	Maximum	17	26	52
	SD	3.23	2.51	3.20

Oregon Standard Setting Grade 8 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	226	229	239
Median	2	224	228	241
Median	3	225	234	241
Median	Overall	225	230	241
Minimum	1	224	228	238
Minimum	2	223	228	241
Minimum	3	221	233	241
Minimum	Overall	221	228	238
Maximum	1	227	232	241
Maximum	2	224	233	241
Maximum	3	226	234	242
Maximum	Overall	227	234	242
SD	1	1.13	1.50	1.38
SD	2	0.52	2.04	0.00
SD	3	1.70	0.53	0.53
SD	Overall	1.39	2.60	1.28

Overall	Median	225	230	241
	Minimum	221	228	238
	Maximum	227	234	242
	SD	1.39	2.60	1.28

Oregon Standard Setting Grade 8 Mathematics Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	14	21	44
2	9	19.5	49
3	13	25	49
Overall	13	22	48.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	19.2	13.1	40.3	27.4

Oregon Standard Setting Grade 8 Mathematics
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	13	21	48
1	3	13	22	49
1	4	13	22	47
1	5	10	19	44
1	6	16	19	47
1	7	10	22	45
1	8	18	22	48
2	9	10	24	49
2	10	9	20	48
2	11	10	20	49
2	12	10	20	49
2	13	10	19	50
2	14	10	20	48
3	15	13	24	49
3	16	12	22	48
3	17	13	24	47
3	18	13	24	48
3	19	14	24	49
3	20	14	24	49
3	22	12	25	48

Overall	Median	12.5	22	48
	Minimum	9	19	44
	Maximum	18	25	50
	SD	2.32	2.01	1.43

Oregon Standard Setting Grade 8 Mathematics
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	225	229	241
1	3	225	230	241
1	4	225	230	241
1	5	224	228	239
1	6	226	228	241
1	7	224	230	240
1	8	228	230	241
2	9	224	233	241
2	10	224	228	241
2	11	224	228	241
2	12	224	228	241
2	13	224	228	242
2	14	224	228	241
3	15	225	233	241
3	16	225	230	241
3	17	225	233	241
3	18	225	233	241
3	19	226	233	241
3	20	226	233	241
3	22	225	234	241

Overall	Median	225	230	241
	Minimum	224	228	239
	Maximum	228	234	242
	SD	1.02	2.25	0.55

Oregon Standard Setting Grade 8 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	13	22	47
Median	2	10	20	49
Median	3	13	24	48
Median	Overall	12.5	22	48
Minimum	1	10	19	44
Minimum	2	9	19	48
Minimum	3	12	22	47
Minimum	Overall	9	19	44
Maximum	1	18	22	49
Maximum	2	10	24	50
Maximum	3	14	25	49
Maximum	Overall	18	25	50
SD	1	2.93	1.41	1.77
SD	2	0.41	1.76	0.75
SD	3	0.82	0.90	0.76
SD	Overall	2.32	2.01	1.43

Overall	Median	12.5	22	48
	Minimum	9	19	44
	Maximum	18	25	50
	SD	2.32	2.01	1.43

Oregon Standard Setting Grade 8 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	225	230	241
Median	2	224	228	241
Median	3	225	233	241
Median	Overall	225	230	241
Minimum	1	224	228	239
Minimum	2	224	228	241
Minimum	3	225	230	241
Minimum	Overall	224	228	239
Maximum	1	228	230	241
Maximum	2	224	233	242
Maximum	3	226	234	241
Maximum	Overall	228	234	242
SD	1	1.38	0.95	0.79
SD	2	0.00	2.04	0.41
SD	3	0.49	1.25	0.00
SD	Overall	1.02	2.25	0.55

Overall	Median	225	230	241
	Minimum	224	228	239
	Maximum	228	234	242
	SD	1.02	2.25	0.55

Oregon Standard Setting Grade 8 Mathematics Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	13	22	47
2	10	20	49
3	13	24	48
Overall	12.5	22	48

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	19.2	13.1	40.3	27.4

Oregon Standard Setting Grade 10 Mathematics
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	8	19	46
1	3	20	25	49
1	4	17	27	50
1	5	15	27	51
1	6	21	37	54
1	7	9	29	53
1	8	16	23	50
2	15	5	28	50
2	16	12	25	50
2	17	7	23	41
2	18	15	27	52
2	19	12	22	42
2	20	22	38	50
3	9	10	28	43
3	10	4	41	59
3	11	8	32	55
3	12	5	22	50
3	13	5	19	38
3	14	5	33	54

Overall	Median	10	27	50
	Minimum	4	19	38
	Maximum	22	41	59
	SD	5.90	6.21	5.26

Oregon Standard Setting Grade 10 Mathematics
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	231	236	245
1	3	236	238	247
1	4	236	239	247
1	5	234	239	248
1	6	237	242	250
1	7	231	239	249
1	8	235	237	247
2	15	230	239	247
2	16	232	238	247
2	17	230	237	244
2	18	234	239	249
2	19	232	237	244
2	20	237	242	247
3	9	232	239	244
3	10	229	244	252
3	11	231	240	250
3	12	230	237	247
3	13	230	236	242
3	14	230	240	250

Overall	Median	232	239	247
	Minimum	229	236	242
	Maximum	237	244	252
	SD	2.65	2.12	2.54

Oregon Standard Setting Grade 10 Mathematics
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	16	27	50
Median	2	12	26	50
Median	3	5	30	52
Median	Overall	10	27	50
Minimum	1	8	19	46
Minimum	2	5	22	41
Minimum	3	4	19	38
Minimum	Overall	4	19	38
Maximum	1	21	37	54
Maximum	2	22	38	52
Maximum	3	10	41	59
Maximum	Overall	22	41	59
SD	1	5.01	5.59	2.64
SD	2	6.05	5.78	4.72
SD	3	2.32	7.99	7.94
SD	Overall	5.90	6.21	5.26

Overall	Median	10	27	50
	Minimum	4	19	38
	Maximum	22	41	59
	SD	5.90	6.21	5.26

Oregon Standard Setting Grade 10 Mathematics
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	235	239	247
Median	2	232	239	247
Median	3	230	240	249
Median	Overall	232	239	247
Minimum	1	231	236	245
Minimum	2	230	237	244
Minimum	3	229	236	242
Minimum	Overall	229	236	242
Maximum	1	237	242	250
Maximum	2	237	242	249
Maximum	3	232	244	252
Maximum	Overall	237	244	252
SD	1	2.43	1.90	1.62
SD	2	2.66	1.86	1.97
SD	3	1.03	2.80	3.89
SD	Overall	2.65	2.12	2.54

Overall	Median	232	239	247
	Minimum	229	236	242
	Maximum	237	244	252
	SD	2.65	2.12	2.54

Oregon Standard Setting Grade 10 Mathematics Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	16	27	50
2	12	26	50
3	5	30	52
Overall	10	27	50

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	32.5	23.3	29.6	14.6

Oregon Standard Setting Grade 10 Mathematics
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	11	23	45
1	3	15	22	45
1	4	17	23	50
1	5	7	23	50
1	6	4	21	45
1	7	15	29	51
1	8	12	23	50
2	15	5	20	43
2	16	7	20	50
2	17	7	22	45
2	18	8	22	41
2	19	10	22	43
2	20	8	22	50
3	9	5	31	45
3	10	7	28	50
3	11	8	28	50
3	12	10	28	50
3	13	8	28	45
3	14	8	33	50

Overall	Median	8	23	50
	Minimum	4	20	41
	Maximum	17	33	51
	SD	3.57	3.92	3.23

Oregon Standard Setting Grade 10 Mathematics
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	232	237	244
1	3	234	237	244
1	4	236	237	247
1	5	230	237	247
1	6	229	237	244
1	7	234	239	248
1	8	232	237	247
2	15	230	236	244
2	16	230	236	247
2	17	230	237	244
2	18	231	237	244
2	19	232	237	244
2	20	231	237	247
3	9	230	240	244
3	10	230	239	247
3	11	231	239	247
3	12	232	239	247
3	13	231	239	244
3	14	231	240	247

Overall	Median	231	237	247
	Minimum	229	236	244
	Maximum	236	240	248
	SD	1.74	1.28	1.61

Oregon Standard Setting Grade 10 Mathematics
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	12	23	50
Median	2	7.5	22	44
Median	3	8	28	50
Median	Overall	8	23	50
Minimum	1	4	21	45
Minimum	2	5	20	41
Minimum	3	5	28	45
Minimum	Overall	4	20	41
Maximum	1	17	29	51
Maximum	2	10	22	50
Maximum	3	10	33	50
Maximum	Overall	17	33	51
SD	1	4.69	2.57	2.83
SD	2	1.64	1.03	3.83
SD	3	1.63	2.16	2.58
SD	Overall	3.57	3.92	3.23

Overall	Median	8	23	50
	Minimum	4	20	41
	Maximum	17	33	51
	SD	3.57	3.92	3.23

Oregon Standard Setting Grade 10 Mathematics
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	232	237	247
Median	2	231	237	244
Median	3	231	239	247
Median	Overall	231	237	247
Minimum	1	229	237	244
Minimum	2	230	236	244
Minimum	3	230	239	244
Minimum	Overall	229	236	244
Maximum	1	236	239	248
Maximum	2	232	237	247
Maximum	3	232	240	247
Maximum	Overall	236	240	248
SD	1	2.44	0.76	1.77
SD	2	0.82	0.52	1.55
SD	3	0.75	0.52	1.55
SD	Overall	1.74	1.28	1.61

Overall	Median	231	237	247
	Minimum	229	236	244
	Maximum	236	240	248
	SD	1.74	1.28	1.61

Oregon Standard Setting Grade 10 Mathematics Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	12	23	50
2	7.5	22	44
3	8	28	50
Overall	8	23	50

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	29.8	19.4	36.2	14.6

Oregon Standard Setting Grade 10 Mathematics
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	8	19	45
1	3	10	19	45
1	4	16	19	50
1	5	7	22	46
1	6	8	19	43
1	7	8	22	47
1	8	7	19	50
2	15	5	16	40
2	16	8	19	50
2	17	5	19	44
2	18	8	19	45
2	19	8	19	41
2	20	8	19	46
3	9	8	28	50
3	10	7	28	50
3	11	8	27	50
3	12	10	28	50
3	13	8	22	50
3	14	8	26	50

Overall	Median	8	19	47
	Minimum	5	16	40
	Maximum	16	28	50
	SD	2.27	3.88	3.37

Oregon Standard Setting Grade 10 Mathematics
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	231	236	244
1	3	232	236	244
1	4	235	236	247
1	5	230	237	245
1	6	231	236	244
1	7	231	237	246
1	8	230	236	247
2	15	230	235	243
2	16	231	236	247
2	17	230	236	244
2	18	231	236	244
2	19	231	236	244
2	20	231	236	245
3	9	231	239	247
3	10	230	239	247
3	11	231	239	247
3	12	232	239	247
3	13	231	237	247
3	14	231	238	247

Overall	Median	231	236	246
	Minimum	230	235	243
	Maximum	235	239	247
	SD	1.13	1.30	1.50

Oregon Standard Setting Grade 10 Mathematics
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	8	19	46
Median	2	8	19	44.5
Median	3	8	27.5	50
Median	Overall	8	19	47
Minimum	1	7	19	43
Minimum	2	5	16	40
Minimum	3	7	22	50
Minimum	Overall	5	16	40
Maximum	1	16	22	50
Maximum	2	8	19	50
Maximum	3	10	28	50
Maximum	Overall	16	28	50
SD	1	3.18	1.46	2.64
SD	2	1.55	1.22	3.61
SD	3	0.98	2.35	0.00
SD	Overall	2.27	3.88	3.37

Overall	Median	8	19	47
	Minimum	5	16	40
	Maximum	16	28	50
	SD	2.27	3.88	3.37

Oregon Standard Setting Grade 10 Mathematics
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	231	236	245
Median	2	231	236	244
Median	3	231	239	247
Median	Overall	231	236	246
Minimum	1	230	236	244
Minimum	2	230	235	243
Minimum	3	230	237	247
Minimum	Overall	230	235	243
Maximum	1	235	237	247
Maximum	2	231	236	247
Maximum	3	232	239	247
Maximum	Overall	235	239	247
SD	1	1.72	0.49	1.38
SD	2	0.52	0.41	1.38
SD	3	0.63	0.84	0.00
SD	Overall	1.13	1.30	1.50

Overall	Median	231	236	246
	Minimum	230	235	243
	Maximum	235	239	247
	SD	1.13	1.30	1.50

Oregon Standard Setting Grade 10 Mathematics Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	8	19	46
2	8	19	44.5
3	8	27.5	50
Overall	8	19	47

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	29.8	15.9	37.7	16.6

Oregon Standard Setting Grade 3 Reading/Literature
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	9	16	45
1	3	6	16	46
1	10	5	16	46
1	11	5	13	46
1	12	6	16	47
1	19	11	42	66
1	20	7	15	45
2	4	4	11	38
2	5	3	11	47
2	6	8	11	47
2	7	6	16	42
2	8	4	12	47
2	9	7	17	56
3	13	5	17	36
3	14	6	17	40
3	15	6	15	40
3	16	2	6	44
3	17	10	25	44
3	18	5	15	37

Overall	Median	6	16	45
	Minimum	2	6	36
	Maximum	11	42	66
	SD	2.27	7.31	6.81

Oregon Standard Setting Grade 3 Reading/Literature
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	200	203	215
1	3	199	203	215
1	10	198	203	215
1	11	198	202	215
1	12	199	203	216
1	19	201	214	224
1	20	199	203	215
2	4	198	201	212
2	5	194	201	216
2	6	200	201	216
2	7	199	203	214
2	8	198	201	216
2	9	199	204	219
3	13	198	204	212
3	14	199	204	213
3	15	199	203	213
3	16	193	199	215
3	17	200	208	215
3	18	198	203	212

Overall	Median	199	203	215
	Minimum	193	199	212
	Maximum	201	214	224
	SD	1.92	3.16	2.75

Oregon Standard Setting Grade 3 Reading/Literature
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	6	16	46
Median	2	5	11.5	47
Median	3	5.5	16	40
Median	Overall	6	16	45
Minimum	1	5	13	45
Minimum	2	3	11	38
Minimum	3	2	6	36
Minimum	Overall	2	6	36
Maximum	1	11	42	66
Maximum	2	8	17	56
Maximum	3	10	25	44
Maximum	Overall	11	42	66
SD	1	2.24	10.14	7.65
SD	2	1.97	2.76	6.05
SD	3	2.58	6.08	3.37
SD	Overall	2.27	7.31	6.81

Overall	Median	6	16	45
	Minimum	2	6	36
	Maximum	11	42	66
	SD	2.27	7.31	6.81

Oregon Standard Setting Grade 3 Reading/Literature
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	199	203	215
Median	2	199	201	216
Median	3	199	204	213
Median	Overall	199	203	215
Minimum	1	198	202	215
Minimum	2	194	201	212
Minimum	3	193	199	212
Minimum	Overall	193	199	212
Maximum	1	201	214	224
Maximum	2	200	204	219
Maximum	3	200	208	215
Maximum	Overall	201	214	224
SD	1	1.07	4.24	3.36
SD	2	2.10	1.33	2.35
SD	3	2.48	2.88	1.37
SD	Overall	1.92	3.16	2.75

Overall	Median	199	203	215
	Minimum	193	199	212
	Maximum	201	214	224
	SD	1.92	3.16	2.75

Oregon Standard Setting Grade 3 Reading/Literature Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	6	16	46
2	5	11.5	47
3	5.5	16	40
Overall	6	16	45

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.5	7.1	39.0	45.4

Oregon Standard Setting Grade 3 Reading/Literature
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	6	16	46
1	3	6	16	46
1	10	6	16	46
1	11	6	16	46
1	12	6	17	49
1	19	6	16	45
1	20	7	17	46
2	4	4	12	46
2	5	5	11	47
2	6	5	12	47
2	7	5	14	42
2	8	4	12	47
2	9	5	12	46
3	13	6	16	37
3	14	6	15	39
3	15	6	15	39
3	16	6	16	42
3	17	9	17	42
3	18	6	16	44

Overall	Median	6	16	46
	Minimum	4	11	37
	Maximum	9	17	49
	SD	1.08	2.01	3.25

Oregon Standard Setting Grade 3 Reading/Literature
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	199	203	215
1	3	199	203	215
1	10	199	203	215
1	11	199	203	215
1	12	199	204	216
1	19	199	203	215
1	20	199	204	215
2	4	198	201	215
2	5	198	201	216
2	6	198	201	216
2	7	198	202	214
2	8	198	201	216
2	9	198	201	215
3	13	199	203	212
3	14	199	203	212
3	15	199	203	212
3	16	199	203	214
3	17	200	204	214
3	18	199	203	215

Overall	Median	199	203	215
	Minimum	198	201	212
	Maximum	200	204	216
	SD	0.56	1.07	1.30

Oregon Standard Setting Grade 3 Reading/Literature
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	6	16	46
Median	2	5	12	46.5
Median	3	6	16	40.5
Median	Overall	6	16	46
Minimum	1	6	16	45
Minimum	2	4	11	42
Minimum	3	6	15	37
Minimum	Overall	4	11	37
Maximum	1	7	17	49
Maximum	2	5	14	47
Maximum	3	9	17	44
Maximum	Overall	9	17	49
SD	1	0.38	0.49	1.25
SD	2	0.52	0.98	1.94
SD	3	1.22	0.75	2.59
SD	Overall	1.08	2.01	3.25

Overall	Median	6	16	46
	Minimum	4	11	37
	Maximum	9	17	49
	SD	1.08	2.01	3.25

Oregon Standard Setting Grade 3 Reading/Literature
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	199	203	215
Median	2	198	201	216
Median	3	199	203	213
Median	Overall	199	203	215
Minimum	1	199	203	215
Minimum	2	198	201	214
Minimum	3	199	203	212
Minimum	Overall	198	201	212
Maximum	1	199	204	216
Maximum	2	198	202	216
Maximum	3	200	204	215
Maximum	Overall	200	204	216
SD	1	0.00	0.49	0.38
SD	2	0.00	0.41	0.82
SD	3	0.41	0.41	1.33
SD	Overall	0.56	1.07	1.30

Overall	Median	199	203	215
	Minimum	198	201	212
	Maximum	200	204	216
	SD	0.56	1.07	1.30

Oregon Standard Setting Grade 3 Reading/Literature Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	6	16	46
2	5	12	46.5
3	6	16	40.5
Overall	6	16	46

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.5	7.1	39.0	45.4

Oregon Standard Setting Grade 3 Reading/Literature
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	6	16	46
1	3	6	16	51
1	10	6	16	46
1	11	6	16	47
1	12	6	22	52
1	19	6	16	45
1	20	7	18	46
2	4	6	16	48
2	5	6	16	47
2	6	6	16	47
2	7	6	16	46
2	8	6	16	47
2	9	6	17	46
3	13	6	16	46
3	14	6	16	46
3	15	6	6	48
3	16	27	37	57
3	17	6	25	55
3	18	6	16	50

Overall	Median	6	16	47
	Minimum	6	6	45
	Maximum	27	37	57
	SD	4.81	5.86	3.33

Oregon Standard Setting Grade 3 Reading/Literature
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	199	203	215
1	3	199	203	217
1	10	199	203	215
1	11	199	203	216
1	12	199	207	217
1	19	199	203	215
1	20	199	204	215
2	4	199	203	216
2	5	199	203	216
2	6	199	203	216
2	7	199	203	215
2	8	199	203	216
2	9	199	204	215
3	13	199	203	215
3	14	199	203	215
3	15	199	199	216
3	16	208	212	220
3	17	199	208	219
3	18	199	203	216

Overall	Median	199	203	216
	Minimum	199	199	215
	Maximum	208	212	220
	SD	2.06	2.65	1.39

Oregon Standard Setting Grade 3 Reading/Literature
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	6	16	46
Median	2	6	16	47
Median	3	6	16	49
Median	Overall	6	16	47
Minimum	1	6	16	45
Minimum	2	6	16	46
Minimum	3	6	6	46
Minimum	Overall	6	6	45
Maximum	1	7	22	52
Maximum	2	6	17	48
Maximum	3	27	37	57
Maximum	Overall	27	37	57
SD	1	0.38	2.27	2.76
SD	2	0.00	0.41	0.75
SD	3	8.57	10.54	4.68
SD	Overall	4.81	5.86	3.33

Overall	Median	6	16	47
	Minimum	6	6	45
	Maximum	27	37	57
	SD	4.81	5.86	3.33

Oregon Standard Setting Grade 3 Reading/Literature
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	199	203	215
Median	2	199	203	216
Median	3	199	203	216
Median	Overall	199	203	216
Minimum	1	199	203	215
Minimum	2	199	203	215
Minimum	3	199	199	215
Minimum	Overall	199	199	215
Maximum	1	199	207	217
Maximum	2	199	204	216
Maximum	3	208	212	220
Maximum	Overall	208	212	220
SD	1	0.00	1.50	0.95
SD	2	0.00	0.41	0.52
SD	3	3.67	4.59	2.14
SD	Overall	2.06	2.65	1.39

Overall	Median	199	203	216
	Minimum	199	199	215
	Maximum	208	212	220
	SD	2.06	2.65	1.39

Oregon Standard Setting Grade 3 Reading/Literature Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	6	16	46
2	6	16	47
3	6	16	49
Overall	6	16	47

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.5	7.1	42.4	42.0

Oregon Standard Setting Grade 5 Reading/Literature
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	7	20	53
1	3	13	23	58
1	4	23	33	63
1	5	16	32	53
1	6	14	32	56
1	7	14	29	56
2	8	9	20	53
2	9	12	20	48
2	10	9	19	48
2	11	10	20	53
2	12	12	21	51
2	13	12	22	53
2	14	9	13	53
2	15	9	17	47
3	16	12	29	56
3	17	8	21	54
3	18	7	18	49
3	19	13	25	65
3	20	11	29	58
3	22	9	23	57
3	23	14	20	37
3	24	9	26	63

Overall	Median	11.5	21.5	53
	Minimum	7	13	37
	Maximum	23	33	65
	SD	3.58	5.40	6.12

Oregon Standard Setting Grade 5 Reading/Literature
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	208	216	228
1	3	211	218	231
1	4	218	221	234
1	5	213	221	228
1	6	211	221	229
1	7	211	220	229
2	8	209	216	228
2	9	211	216	226
2	10	209	216	226
2	11	209	216	228
2	12	211	217	227
2	13	211	217	228
2	14	209	211	228
2	15	209	214	226
3	16	211	220	229
3	17	209	217	229
3	18	208	214	227
3	19	211	219	235
3	20	210	220	231
3	22	209	218	230
3	23	211	216	222
3	24	209	219	234

Overall	Median	210	217	228
	Minimum	208	211	222
	Maximum	218	221	235
	SD	2.13	2.59	2.96

Oregon Standard Setting Grade 5 Reading/Literature
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	14	30.5	56
Median	2	9.5	20	52
Median	3	10	24	56.5
Median	Overall	11.5	21.5	53
Minimum	1	7	20	53
Minimum	2	9	13	47
Minimum	3	7	18	37
Minimum	Overall	7	13	37
Maximum	1	23	33	63
Maximum	2	12	22	53
Maximum	3	14	29	65
Maximum	Overall	23	33	65
SD	1	5.17	5.42	3.73
SD	2	1.49	2.83	2.66
SD	3	2.50	4.09	8.77
SD	Overall	3.58	5.40	6.12

Overall	Median	11.5	21.5	53
	Minimum	7	13	37
	Maximum	23	33	65
	SD	3.58	5.40	6.12

Oregon Standard Setting Grade 5 Reading/Literature
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	211	221	229
Median	2	209	216	228
Median	3	210	219	230
Median	Overall	210	217	228
Minimum	1	208	216	228
Minimum	2	209	211	226
Minimum	3	208	214	222
Minimum	Overall	208	211	222
Maximum	1	218	221	234
Maximum	2	211	217	228
Maximum	3	211	220	235
Maximum	Overall	218	221	235
SD	1	3.35	2.07	2.32
SD	2	1.04	2.00	0.99
SD	3	1.16	2.10	4.07
SD	Overall	2.13	2.59	2.96

Overall	Median	210	217	228
	Minimum	208	211	222
	Maximum	218	221	235
	SD	2.13	2.59	2.96

Oregon Standard Setting Grade 5 Reading/Literature Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	14	30.5	56
2	9.5	20	52
3	10	24	56.5
Overall	11.5	21.5	53

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.8	15.5	43.8	31.9

Oregon Standard Setting Grade 5 Reading/Literature
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	11	20	58
1	3	13	23	58
1	4	18	33	60
1	5	10	27	53
1	6	14	23	58
1	7	14	29	57
2	8	9	21	56
2	9	10	20	52
2	10	10	20	53
2	11	10	20	51
2	12	11	21	51
2	13	11	20	54
2	14	9	17	53
2	15	9	20	53
3	16	11	27	57
3	17	10	22	56
3	18	9	19	49
3	19	10	25	58
3	20	11	29	58
3	22	10	23	57
3	23	11	26	55
3	24	10	26	63

Overall	Median	10	22.5	56
	Minimum	9	17	49
	Maximum	18	33	63
	SD	2.13	4.02	3.36

Oregon Standard Setting Grade 5 Reading/Literature
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	210	216	231
1	3	211	218	231
1	4	214	221	231
1	5	209	220	228
1	6	211	218	231
1	7	211	220	230
2	8	209	217	229
2	9	209	216	228
2	10	209	216	228
2	11	209	216	227
2	12	210	217	227
2	13	210	216	229
2	14	209	214	228
2	15	209	216	228
3	16	210	220	230
3	17	209	217	229
3	18	209	216	227
3	19	209	219	231
3	20	210	220	231
3	22	209	218	230
3	23	210	219	229
3	24	209	219	234

Overall	Median	209	217	229
	Minimum	209	214	227
	Maximum	214	221	234
	SD	1.19	1.86	1.76

Oregon Standard Setting Grade 5 Reading/Literature
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	13.5	25	58
Median	2	10	20	53
Median	3	10	25.5	57
Median	Overall	10	22.5	56
Minimum	1	10	20	53
Minimum	2	9	17	51
Minimum	3	9	19	49
Minimum	Overall	9	17	49
Maximum	1	18	33	60
Maximum	2	11	21	56
Maximum	3	11	29	63
Maximum	Overall	18	33	63
SD	1	2.80	4.75	2.34
SD	2	0.83	1.25	1.64
SD	3	0.71	3.16	3.89
SD	Overall	2.13	4.02	3.36

Overall	Median	10	22.5	56
	Minimum	9	17	49
	Maximum	18	33	63
	SD	2.13	4.02	3.36

Oregon Standard Setting Grade 5 Reading/Literature
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	211	219	231
Median	2	209	216	228
Median	3	209	219	230
Median	Overall	209	217	229
Minimum	1	209	216	228
Minimum	2	209	214	227
Minimum	3	209	216	227
Minimum	Overall	209	214	227
Maximum	1	214	221	231
Maximum	2	210	217	229
Maximum	3	210	220	234
Maximum	Overall	214	221	234
SD	1	1.67	1.83	1.21
SD	2	0.46	0.93	0.76
SD	3	0.52	1.41	2.03
SD	Overall	1.19	1.86	1.76

Overall	Median	209	217	229
	Minimum	209	214	227
	Maximum	214	221	234
	SD	1.19	1.86	1.76

Oregon Standard Setting Grade 5 Reading/Literature Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	13.5	25	58
2	10	20	53
3	10	25.5	57
Overall	10	22.5	56

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	7.7	16.6	47.1	28.6

Oregon Standard Setting Grade 5 Reading/Literature
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	11	20	58
1	3	12	23	58
1	4	18	31	61
1	5	10	25	53
1	6	14	25	58
1	7	11	29	58
2	8	10	23	56
2	9	10	21	56
2	10	10	20	56
2	11	10	22	56
2	12	11	21	53
2	13	10	21	55
2	14	9	17	53
2	15	9	20	56
3	16	11	27	58
3	17	10	22	57
3	18	10	22	53
3	19	10	23	58
3	20	13	26	58
3	22	10	23	57
3	23	14	23	61
3	24	10	26	63

Overall	Median	10	23	57
	Minimum	9	17	53
	Maximum	18	31	63
	SD	2.08	3.23	2.65

Oregon Standard Setting Grade 5 Reading/Literature
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	210	216	231
1	3	211	218	231
1	4	214	221	231
1	5	209	219	228
1	6	211	219	231
1	7	210	220	231
2	8	209	218	229
2	9	209	217	229
2	10	209	216	229
2	11	209	217	229
2	12	210	217	228
2	13	209	217	229
2	14	209	214	228
2	15	209	216	229
3	16	210	220	231
3	17	209	217	230
3	18	209	217	228
3	19	209	218	231
3	20	211	219	231
3	22	209	218	230
3	23	211	218	231
3	24	209	219	234

Overall	Median	209	218	230
	Minimum	209	214	228
	Maximum	214	221	234
	SD	1.23	1.60	1.50

Oregon Standard Setting Grade 5 Reading/Literature
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	11.5	25	58
Median	2	10	21	56
Median	3	10	23	58
Median	Overall	10	23	57
Minimum	1	10	20	53
Minimum	2	9	17	53
Minimum	3	10	22	53
Minimum	Overall	9	17	53
Maximum	1	18	31	61
Maximum	2	11	23	56
Maximum	3	14	27	63
Maximum	Overall	18	31	63
SD	1	2.94	3.99	2.58
SD	2	0.64	1.77	1.36
SD	3	1.60	2.00	2.95
SD	Overall	2.08	3.23	2.65

Overall	Median	10	23	57
	Minimum	9	17	53
	Maximum	18	31	63
	SD	2.08	3.23	2.65

Oregon Standard Setting Grade 5 Reading/Literature
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	211	219	231
Median	2	209	217	229
Median	3	209	218	231
Median	Overall	209	218	230
Minimum	1	209	216	228
Minimum	2	209	214	228
Minimum	3	209	217	228
Minimum	Overall	209	214	228
Maximum	1	214	221	231
Maximum	2	210	218	229
Maximum	3	211	220	234
Maximum	Overall	214	221	234
SD	1	1.72	1.72	1.22
SD	2	0.35	1.20	0.46
SD	3	0.92	1.04	1.67
SD	Overall	1.23	1.60	1.50

Overall	Median	209	218	230
	Minimum	209	214	228
	Maximum	214	221	234
	SD	1.23	1.60	1.50

Oregon Standard Setting Grade 5 Reading/Literature Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	11.5	25	58
2	10	21	56
3	10	23	58
Overall	10	23	57

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	7.7	20.9	45.8	25.6

Oregon Standard Setting Grade 8 Reading/Literature
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	15	36	52
1	4	17	28	47
1	5	11	29	41
1	6	14	28	46
1	7	12	28	48
2	2	10	25	43
2	8	17	33	48
2	9	17	29	52
2	10	15	33	48
2	11	19	36	56
2	12	20	36	56
2	13	20	35	50
2	14	17	34	48
3	15	15	27	46
3	16	17	31	42
3	17	16	31	47
3	18	19	28	49
3	19	11	26	43
3	20	17	28	45
3	22	18	28	43

Overall	Median	17	29	47.5
	Minimum	10	25	41
	Maximum	20	36	56
	SD	2.98	3.56	4.22

Oregon Standard Setting Grade 8 Reading/Literature
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	223	234	241
1	4	224	230	239
1	5	220	230	236
1	6	222	230	238
1	7	221	230	239
2	2	220	228	237
2	8	224	232	239
2	9	224	230	241
2	10	223	232	239
2	11	225	234	242
2	12	226	234	242
2	13	226	233	240
2	14	224	233	239
3	15	223	229	238
3	16	224	231	237
3	17	224	231	239
3	18	225	230	239
3	19	220	228	237
3	20	224	230	238
3	22	225	230	237

Overall	Median	224	230	239
	Minimum	220	228	236
	Maximum	226	234	242
	SD	1.87	1.88	1.69

Oregon Standard Setting Grade 8 Reading/Literature
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	14	28	47
Median	2	17	33.5	49
Median	3	17	28	45
Median	Overall	17	29	47.5
Minimum	1	11	28	41
Minimum	2	10	25	43
Minimum	3	11	26	42
Minimum	Overall	10	25	41
Maximum	1	17	36	52
Maximum	2	20	36	56
Maximum	3	19	31	49
Maximum	Overall	20	36	56
SD	1	2.39	3.49	3.96
SD	2	3.27	3.81	4.42
SD	3	2.61	1.90	2.52
SD	Overall	2.98	3.56	4.22

Overall	Median	17	29	47.5
	Minimum	10	25	41
	Maximum	20	36	56
	SD	2.98	3.56	4.22

Oregon Standard Setting Grade 8 Reading/Literature
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	222	230	239
Median	2	224	233	240
Median	3	224	230	238
Median	Overall	224	230	239
Minimum	1	220	230	236
Minimum	2	220	228	237
Minimum	3	220	228	237
Minimum	Overall	220	228	236
Maximum	1	224	234	241
Maximum	2	226	234	242
Maximum	3	225	231	239
Maximum	Overall	226	234	242
SD	1	1.58	1.79	1.82
SD	2	1.93	2.07	1.73
SD	3	1.72	1.07	0.90
SD	Overall	1.87	1.88	1.69

Overall	Median	224	230	239
	Minimum	220	228	236
	Maximum	226	234	242
	SD	1.87	1.88	1.69

Oregon Standard Setting Grade 8 Reading/Literature Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	14	28	47
2	17	33.5	49
3	17	28	45
Overall	17	29	47.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	15.9	15.2	40.0	28.9

Oregon Standard Setting Grade 8 Reading/Literature
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	15	34	52
1	4	15	30	53
1	5	12	29	57
1	6	12	28	48
1	7	12	28	52
2	2	16	30	50
2	8	17	36	52
2	9	17	30	52
2	10	17	35	53
2	11	17	35	53
2	12	17	33	56
2	13	17	30	52
2	14	17	34	52
3	15	17	27	44
3	16	18	31	46
3	17	17	28	47
3	18	19	30	48
3	19	15	26	45
3	20	17	27	46
3	22	18	28	48

Overall	Median	17	30	52
	Minimum	12	26	44
	Maximum	19	36	57
	SD	2.02	3.03	3.61

Oregon Standard Setting Grade 8 Reading/Literature
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	223	233	241
1	4	223	231	241
1	5	221	230	242
1	6	221	230	239
1	7	221	230	241
2	2	224	231	240
2	8	224	234	241
2	9	224	231	241
2	10	224	233	241
2	11	224	233	241
2	12	224	232	242
2	13	224	231	241
2	14	224	233	241
3	15	224	229	237
3	16	225	231	238
3	17	224	230	239
3	18	225	231	239
3	19	223	228	238
3	20	224	229	238
3	22	225	230	239

Overall	Median	224	231	241
	Minimum	221	228	237
	Maximum	225	234	242
	SD	1.23	1.59	1.49

Oregon Standard Setting Grade 8 Reading/Literature
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	12	29	52
Median	2	17	33.5	52
Median	3	17	28	46
Median	Overall	17	30	52
Minimum	1	12	28	48
Minimum	2	16	30	50
Minimum	3	15	26	44
Minimum	Overall	12	26	44
Maximum	1	15	34	57
Maximum	2	17	36	56
Maximum	3	19	31	48
Maximum	Overall	19	36	57
SD	1	1.64	2.49	3.21
SD	2	0.35	2.53	1.69
SD	3	1.25	1.77	1.50
SD	Overall	2.02	3.03	3.61

Overall	Median	17	30	52
	Minimum	12	26	44
	Maximum	19	36	57
	SD	2.02	3.03	3.61

Oregon Standard Setting Grade 8 Reading/Literature
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	221	230	241
Median	2	224	233	241
Median	3	224	230	238
Median	Overall	224	231	241
Minimum	1	221	230	239
Minimum	2	224	231	240
Minimum	3	223	228	237
Minimum	Overall	221	228	237
Maximum	1	223	233	242
Maximum	2	224	234	242
Maximum	3	225	231	239
Maximum	Overall	225	234	242
SD	1	1.10	1.30	1.10
SD	2	0.00	1.16	0.53
SD	3	0.76	1.11	0.76
SD	Overall	1.23	1.59	1.49

Overall	Median	224	231	241
	Minimum	221	228	237
	Maximum	225	234	242
	SD	1.23	1.59	1.49

Oregon Standard Setting Grade 8 Reading/Literature Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	12	29	52
2	17	33.5	52
3	17	28	46
Overall	17	30	52

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	15.9	18.6	43.9	21.6

Oregon Standard Setting Grade 8 Reading/Literature
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	15	36	52
1	4	15	28	47
1	5	13	28	52
1	6	15	29	49
1	7	15	28	52
2	2	17	29	52
2	8	17	33	52
2	9	17	30	52
2	10	15	34	52
2	11	17	35	53
2	12	17	33	52
2	13	17	30	52
2	14	17	32	52
3	15	17	27	48
3	16	17	31	48
3	17	17	30	47
3	18	17	29	50
3	19	15	26	46
3	20	17	28	46
3	22	18	28	49

Overall	Median	17	29.5	52
	Minimum	13	26	46
	Maximum	18	36	53
	SD	1.25	2.78	2.39

Oregon Standard Setting Grade 8 Reading/Literature
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	3	223	234	241
1	4	223	230	239
1	5	222	230	241
1	6	223	230	239
1	7	223	230	241
2	2	224	230	241
2	8	224	232	241
2	9	224	231	241
2	10	223	233	241
2	11	224	233	241
2	12	224	232	241
2	13	224	231	241
2	14	224	232	241
3	15	224	229	239
3	16	224	231	239
3	17	224	231	239
3	18	224	230	240
3	19	223	228	238
3	20	224	230	238
3	22	225	230	239

Overall	Median	224	230	241
	Minimum	222	228	238
	Maximum	225	234	241
	SD	0.67	1.46	1.15

Oregon Standard Setting Grade 8 Reading/Literature
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	15	28	52
Median	2	17	32.5	52
Median	3	17	28	48
Median	Overall	17	29.5	52
Minimum	1	13	28	47
Minimum	2	15	29	52
Minimum	3	15	26	46
Minimum	Overall	13	26	46
Maximum	1	15	36	52
Maximum	2	17	35	53
Maximum	3	18	31	50
Maximum	Overall	18	36	53
SD	1	0.89	3.49	2.30
SD	2	0.71	2.14	0.35
SD	3	0.90	1.72	1.50
SD	Overall	1.25	2.78	2.39

Overall	Median	17	29.5	52
	Minimum	13	26	46
	Maximum	18	36	53
	SD	1.25	2.78	2.39

Oregon Standard Setting Grade 8 Reading/Literature
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	223	230	241
Median	2	224	232	241
Median	3	224	230	239
Median	Overall	224	230	241
Minimum	1	222	230	239
Minimum	2	223	230	241
Minimum	3	223	228	238
Minimum	Overall	222	228	238
Maximum	1	223	234	241
Maximum	2	224	233	241
Maximum	3	225	231	240
Maximum	Overall	225	234	241
SD	1	0.45	1.79	1.10
SD	2	0.35	1.04	0.00
SD	3	0.58	1.07	0.69
SD	Overall	0.67	1.46	1.15

Overall	Median	224	230	241
	Minimum	222	228	238
	Maximum	225	234	241
	SD	0.67	1.46	1.15

Oregon Standard Setting Grade 8 Reading/Literature Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	15	28	52
2	17	32.5	52
3	17	28	48
Overall	17	29.5	52

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	15.9	15.2	47.4	21.5

Oregon Standard Setting Grade 10 Reading/Literature
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	21	33	57
1	3	15	27	57
1	4	21	27	41
1	5	18	22	54
1	6	15	27	55
1	7	13	27	53
2	8	20	35	56
2	9	16	31	57
2	10	19	31	54
2	11	14	35	47
2	12	19	35	60
3	13	12	27	60
3	14	16	27	58
3	15	18	30	47
3	16	17	28	55
3	17	13	28	54
3	18	17	28	57

Overall	Median	17	28	55
	Minimum	12	22	41
	Maximum	21	35	60
	SD	2.80	3.60	4.98

Oregon Standard Setting Grade 10 Reading/Literature
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	234	240	249
1	3	229	237	249
1	4	234	237	243
1	5	232	235	248
1	6	229	237	248
1	7	227	237	248
2	8	233	240	249
2	9	230	239	249
2	10	232	239	248
2	11	229	240	245
2	12	232	240	250
3	13	227	237	250
3	14	230	237	249
3	15	232	239	245
3	16	231	237	248
3	17	227	237	248
3	18	231	237	249

Overall	Median	231	237	248
	Minimum	227	235	243
	Maximum	234	240	250
	SD	2.29	1.52	1.89

Oregon Standard Setting Grade 10 Reading/Literature
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	16.5	27	54.5
Median	2	19	35	56
Median	3	16.5	28	56
Median	Overall	17	28	55
Minimum	1	13	22	41
Minimum	2	14	31	47
Minimum	3	12	27	47
Minimum	Overall	12	22	41
Maximum	1	21	33	57
Maximum	2	20	35	60
Maximum	3	18	30	60
Maximum	Overall	21	35	60
SD	1	3.37	3.49	6.01
SD	2	2.51	2.19	4.87
SD	3	2.43	1.10	4.54
SD	Overall	2.80	3.60	4.98

Overall	Median	17	28	55
	Minimum	12	22	41
	Maximum	21	35	60
	SD	2.80	3.60	4.98

Oregon Standard Setting Grade 10 Reading/Literature
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	231	237	248
Median	2	232	240	249
Median	3	231	237	249
Median	Overall	231	237	248
Minimum	1	227	235	243
Minimum	2	229	239	245
Minimum	3	227	237	245
Minimum	Overall	227	235	243
Maximum	1	234	240	249
Maximum	2	233	240	250
Maximum	3	232	239	250
Maximum	Overall	234	240	250
SD	1	2.93	1.60	2.26
SD	2	1.64	0.55	1.92
SD	3	2.16	0.82	1.72
SD	Overall	2.29	1.52	1.89

Overall	Median	231	237	248
	Minimum	227	235	243
	Maximum	234	240	250
	SD	2.29	1.52	1.89

Oregon Standard Setting Grade 10 Reading/Literature Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	16.5	27	54.5
2	19	35	56
3	16.5	28	56
Overall	17	28	55

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	21.3	17.5	44.2	17.0

Oregon Standard Setting Grade 10 Reading/Literature
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	21	33	57
1	3	16	29	57
1	4	15	25	46
1	5	20	24	56
1	6	15	25	45
1	7	14	26	52
2	8	20	31	53
2	9	20	33	57
2	10	20	31	57
2	11	14	32	59
2	12	19	35	57
3	13	14	27	51
3	14	17	28	58
3	15	17	28	53
3	16	17	27	55
3	17	16	28	55
3	18	17	18	56

Overall	Median	17	28	56
	Minimum	14	18	45
	Maximum	21	35	59
	SD	2.40	4.13	3.98

Oregon Standard Setting Grade 10 Reading/Literature
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	234	240	249
1	3	230	239	249
1	4	229	236	245
1	5	233	236	249
1	6	229	236	245
1	7	229	236	247
2	8	233	239	248
2	9	233	240	249
2	10	233	239	249
2	11	229	240	250
2	12	232	240	249
3	13	229	237	247
3	14	231	237	249
3	15	231	237	248
3	16	231	237	248
3	17	230	237	248
3	18	231	232	249

Overall	Median	231	237	249
	Minimum	229	232	245
	Maximum	234	240	250
	SD	1.73	2.12	1.41

Oregon Standard Setting Grade 10 Reading/Literature
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	15.5	25.5	54
Median	2	20	32	57
Median	3	17	27.5	55
Median	Overall	17	28	56
Minimum	1	14	24	45
Minimum	2	14	31	53
Minimum	3	14	18	51
Minimum	Overall	14	18	45
Maximum	1	21	33	57
Maximum	2	20	35	59
Maximum	3	17	28	58
Maximum	Overall	21	35	59
SD	1	2.93	3.41	5.49
SD	2	2.61	1.67	2.19
SD	3	1.21	3.95	2.42
SD	Overall	2.40	4.13	3.98

Overall	Median	17	28	56
	Minimum	14	18	45
	Maximum	21	35	59
	SD	2.40	4.13	3.98

Oregon Standard Setting Grade 10 Reading/Literature
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	230	236	248
Median	2	233	240	249
Median	3	231	237	248
Median	Overall	231	237	249
Minimum	1	229	236	245
Minimum	2	229	239	248
Minimum	3	229	232	247
Minimum	Overall	229	232	245
Maximum	1	234	240	249
Maximum	2	233	240	250
Maximum	3	231	237	249
Maximum	Overall	234	240	250
SD	1	2.25	1.83	1.97
SD	2	1.73	0.55	0.71
SD	3	0.84	2.04	0.75
SD	Overall	1.73	2.12	1.41

Overall	Median	231	237	249
	Minimum	229	232	245
	Maximum	234	240	250
	SD	1.73	2.12	1.41

Oregon Standard Setting Grade 10 Reading/Literature Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	15.5	25.5	54
2	20	32	57
3	17	27.5	55
Overall	17	28	56

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	21.3	17.5	46.7	14.5

Oregon Standard Setting Grade 10 Reading/Literature
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	21	33	57
1	3	16	26	55
1	4	15	25	55
1	5	18	25	54
1	6	15	25	46
1	7	14	24	50
2	8	20	31	53
2	9	20	33	57
2	10	19	27	54
2	11	20	27	59
2	12	17	26	56
3	13	14	27	51
3	14	17	27	58
3	15	14	26	43
3	16	17	26	55
3	17	16	28	55
3	18	17	26	56

Overall	Median	17	26	55
	Minimum	14	24	43
	Maximum	21	33	59
	SD	2.30	2.67	4.19

Oregon Standard Setting Grade 10 Reading/Literature
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	234	240	249
1	3	230	236	248
1	4	229	236	248
1	5	232	236	248
1	6	229	236	245
1	7	229	236	246
2	8	233	239	248
2	9	233	240	249
2	10	232	237	248
2	11	233	237	250
2	12	231	236	249
3	13	229	237	247
3	14	231	237	249
3	15	229	236	244
3	16	231	236	248
3	17	230	237	248
3	18	231	236	249

Overall	Median	231	236	248
	Minimum	229	236	244
	Maximum	234	240	250
	SD	1.68	1.39	1.55

Oregon Standard Setting Grade 10 Reading/Literature
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	15.5	25	54.5
Median	2	20	27	56
Median	3	16.5	26.5	55
Median	Overall	17	26	55
Minimum	1	14	24	46
Minimum	2	17	26	53
Minimum	3	14	26	43
Minimum	Overall	14	24	43
Maximum	1	21	33	57
Maximum	2	20	33	59
Maximum	3	17	28	58
Maximum	Overall	21	33	59
SD	1	2.59	3.33	4.07
SD	2	1.30	3.03	2.39
SD	3	1.47	0.82	5.40
SD	Overall	2.30	2.67	4.19

Overall	Median	17	26	55
	Minimum	14	24	43
	Maximum	21	33	59
	SD	2.30	2.67	4.19

Oregon Standard Setting Grade 10 Reading/Literature
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	230	236	248
Median	2	233	237	249
Median	3	231	237	248
Median	Overall	231	236	248
Minimum	1	229	236	245
Minimum	2	231	236	248
Minimum	3	229	236	244
Minimum	Overall	229	236	244
Maximum	1	234	240	249
Maximum	2	233	240	250
Maximum	3	231	237	249
Maximum	Overall	234	240	250
SD	1	2.07	1.63	1.51
SD	2	0.89	1.64	0.84
SD	3	0.98	0.55	1.87
SD	Overall	1.68	1.39	1.55

Overall	Median	231	236	248
	Minimum	229	236	244
	Maximum	234	240	250
	SD	1.68	1.39	1.55

Oregon Standard Setting Grade 10 Reading/Literature Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	15.5	25	54.5
2	20	27	56
3	16.5	26.5	55
Overall	17	26	55

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	21.3	14.2	47.6	16.9

Oregon Standard Setting Grade 5 Science
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	7	25	57
1	9	5	27	64
1	10	7	23	52
1	11	10	19	53
1	12	8	29	50
1	13	7	20	44
1	14	6	27	50
2	2	4	19	61
2	3	3	18	32
2	4	7	27	63
2	5	6	16	48
2	6	7	20	60
2	8	7	29	58
3	1	9	18	50
3	15	4	20	57
3	16	7	21	56
3	17	23	36	57
3	18	9	20	57
3	19	2	19	57
3	20	5	20	57

Overall	Median	7	20	57
	Minimum	2	16	32
	Maximum	23	36	64
	SD	4.25	5.06	7.30

Oregon Standard Setting Grade 5 Science
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	216	227	238
1	9	213	228	243
1	10	216	226	237
1	11	219	225	237
1	12	217	228	236
1	13	216	225	233
1	14	215	228	236
2	2	212	225	241
2	3	211	224	229
2	4	216	228	242
2	5	215	224	235
2	6	216	225	240
2	8	216	228	239
3	1	218	224	236
3	15	212	225	238
3	16	216	225	238
3	17	226	230	238
3	18	218	225	238
3	19	208	225	238
3	20	213	225	238

Overall	Median	216	225	238
	Minimum	208	224	229
	Maximum	226	230	243
	SD	3.65	1.75	3.07

Oregon Standard Setting Grade 5 Science
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	7	25	52
Median	2	6.5	19.5	59
Median	3	7	20	57
Median	Overall	7	20	57
Minimum	1	5	19	44
Minimum	2	3	16	32
Minimum	3	2	18	50
Minimum	Overall	2	16	32
Maximum	1	10	29	64
Maximum	2	7	29	63
Maximum	3	23	36	57
Maximum	Overall	23	36	64
SD	1	1.57	3.77	6.28
SD	2	1.75	5.24	11.84
SD	3	6.92	6.24	2.61
SD	Overall	4.25	5.06	7.30

Overall	Median	7	20	57
	Minimum	2	16	32
	Maximum	23	36	64
	SD	4.25	5.06	7.30

Oregon Standard Setting Grade 5 Science
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	216	227	237
Median	2	216	225	240
Median	3	216	225	238
Median	Overall	216	225	238
Minimum	1	213	225	233
Minimum	2	211	224	229
Minimum	3	208	224	236
Minimum	Overall	208	224	229
Maximum	1	219	228	243
Maximum	2	216	228	242
Maximum	3	226	230	238
Maximum	Overall	226	230	243
SD	1	1.83	1.38	3.02
SD	2	2.25	1.86	4.89
SD	3	5.73	1.99	0.76
SD	Overall	3.65	1.75	3.07

Overall	Median	216	225	238
	Minimum	208	224	229
	Maximum	226	230	243
	SD	3.65	1.75	3.07

Oregon Standard Setting Grade 5 Science Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	7	25	52
2	6.5	19.5	59
3	7	20	57
Overall	7	20	57

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.0	19.1	50.5	22.4

Oregon Standard Setting Grade 5 Science
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	7	27	55
1	9	8	27	60
1	10	7	20	50
1	11	7	20	53
1	12	7	27	50
1	13	7	20	57
1	14	9	25	50
2	2	4	20	57
2	3	5	23	37
2	4	7	27	57
2	5	7	20	49
2	6	7	20	59
2	8	7	20	58
3	1	9	21	57
3	15	9	20	57
3	16	9	21	57
3	17	12	23	57
3	18	9	20	57
3	19	7	19	57
3	20	7	19	57

Overall	Median	7	20	57
	Minimum	4	19	37
	Maximum	12	27	60
	SD	1.67	2.96	5.26

Oregon Standard Setting Grade 5 Science
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	216	228	238
1	9	217	228	240
1	10	216	225	236
1	11	216	225	237
1	12	216	228	236
1	13	216	225	238
1	14	218	227	236
2	2	212	225	238
2	3	213	226	231
2	4	216	228	238
2	5	216	225	235
2	6	216	225	239
2	8	216	225	239
3	1	218	225	238
3	15	218	225	238
3	16	218	225	238
3	17	221	226	238
3	18	218	225	238
3	19	216	225	238
3	20	216	225	238

Overall	Median	216	225	238
	Minimum	212	225	231
	Maximum	221	228	240
	SD	1.88	1.24	1.90

Oregon Standard Setting Grade 5 Science
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	7	25	53
Median	2	7	20	57
Median	3	9	20	57
Median	Overall	7	20	57
Minimum	1	7	20	50
Minimum	2	4	20	37
Minimum	3	7	19	57
Minimum	Overall	4	19	37
Maximum	1	9	27	60
Maximum	2	7	27	59
Maximum	3	12	23	57
Maximum	Overall	12	27	60
SD	1	0.79	3.55	3.95
SD	2	1.33	2.88	8.54
SD	3	1.68	1.40	0.00
SD	Overall	1.67	2.96	5.26

Overall	Median	7	20	57
	Minimum	4	19	37
	Maximum	12	27	60
	SD	1.67	2.96	5.26

Oregon Standard Setting Grade 5 Science
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	216	227	237
Median	2	216	225	238
Median	3	218	225	238
Median	Overall	216	225	238
Minimum	1	216	225	236
Minimum	2	212	225	231
Minimum	3	216	225	238
Minimum	Overall	212	225	231
Maximum	1	218	228	240
Maximum	2	216	228	239
Maximum	3	221	226	238
Maximum	Overall	221	228	240
SD	1	0.79	1.51	1.50
SD	2	1.83	1.21	3.14
SD	3	1.68	0.38	0.00
SD	Overall	1.88	1.24	1.90

Overall	Median	216	225	238
	Minimum	212	225	231
	Maximum	221	228	240
	SD	1.88	1.24	1.90

Oregon Standard Setting Grade 5 Science Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	7	25	53
2	7	20	57
3	9	20	57
Overall	7	20	57

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.0	19.1	50.5	22.4

Oregon Standard Setting Grade 5 Science
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	7	23	57
1	9	9	25	59
1	10	7	20	50
1	11	7	20	53
1	12	7	27	57
1	13	7	20	57
1	14	8	20	53
2	2	7	20	57
2	3	7	23	56
2	4	7	20	50
2	5	7	20	50
2	6	7	20	57
2	8	7	20	58
3	1	9	21	50
3	15	9	20	57
3	16	9	21	57
3	17	9	23	57
3	18	9	20	57
3	19	9	20	57
3	20	7	20	56

Overall	Median	7	20	57
	Minimum	7	20	50
	Maximum	9	27	59
	SD	0.97	2.01	3.02

Oregon Standard Setting Grade 5 Science
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	7	216	226	238
1	9	218	227	239
1	10	216	225	236
1	11	216	225	237
1	12	216	228	238
1	13	216	225	238
1	14	217	225	237
2	2	216	225	238
2	3	216	226	238
2	4	216	225	236
2	5	216	225	236
2	6	216	225	238
2	8	216	225	239
3	1	218	225	236
3	15	218	225	238
3	16	218	225	238
3	17	218	226	238
3	18	218	225	238
3	19	218	225	238
3	20	216	225	238

Overall	Median	216	225	238
	Minimum	216	225	236
	Maximum	218	228	239
	SD	0.97	0.82	0.94

Oregon Standard Setting Grade 5 Science
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	7	20	57
Median	2	7	20	56.5
Median	3	9	20	57
Median	Overall	7	20	57
Minimum	1	7	20	50
Minimum	2	7	20	50
Minimum	3	7	20	50
Minimum	Overall	7	20	50
Maximum	1	9	27	59
Maximum	2	7	23	58
Maximum	3	9	23	57
Maximum	Overall	9	27	59
SD	1	0.79	2.91	3.18
SD	2	0.00	1.22	3.67
SD	3	0.76	1.11	2.61
SD	Overall	0.97	2.01	3.02

Overall	Median	7	20	57
	Minimum	7	20	50
	Maximum	9	27	59
	SD	0.97	2.01	3.02

Oregon Standard Setting Grade 5 Science
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	216	225	238
Median	2	216	225	238
Median	3	218	225	238
Median	Overall	216	225	238
Minimum	1	216	225	236
Minimum	2	216	225	236
Minimum	3	216	225	236
Minimum	Overall	216	225	236
Maximum	1	218	228	239
Maximum	2	216	226	239
Maximum	3	218	226	238
Maximum	Overall	218	228	239
SD	1	0.79	1.21	0.98
SD	2	0.00	0.41	1.22
SD	3	0.76	0.38	0.76
SD	Overall	0.97	0.82	0.94

Overall	Median	216	225	238
	Minimum	216	225	236
	Maximum	218	228	239
	SD	0.97	0.82	0.94

Oregon Standard Setting Grade 5 Science Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	7	20	57
2	7	20	56.5
3	9	20	57
Overall	7	20	57

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	8.0	19.1	50.5	22.4

Oregon Standard Setting Grade 8 Science
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	15	27	56
1	2	14	32	53
1	3	20	32	55
1	4	19	34	55
1	5	14	21	47
1	6	24	35	60
2	7	12	24	55
2	8	16	27	55
2	9	19	24	54
2	10	20	27	61
2	11	18	24	54
2	12	8	27	56
2	13	13	20	55
3	14	12	26	52
3	15	19	22	54
3	16	12	27	57
3	17	14	21	57
3	18	20	32	53
3	19	13	21	53
3	22	17	29	56

Overall	Median	15.5	27	55
	Minimum	8	20	47
	Maximum	24	35	61
	SD	3.89	4.58	2.90

Oregon Standard Setting Grade 8 Science
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	227	234	246
1	2	227	236	245
1	3	231	236	246
1	4	230	237	246
1	5	227	231	242
1	6	233	237	248
2	7	225	233	246
2	8	228	234	246
2	9	230	233	245
2	10	231	234	249
2	11	229	233	245
2	12	223	234	246
2	13	226	231	246
3	14	225	234	244
3	15	230	232	245
3	16	225	234	247
3	17	227	231	247
3	18	231	236	245
3	19	226	231	245
3	22	229	235	246

Overall	Median	227	234	246
	Minimum	223	231	242
	Maximum	233	237	249
	SD	2.62	1.96	1.45

Oregon Standard Setting Grade 8 Science
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	17	32	55
Median	2	16	24	55
Median	3	14	26	54
Median	Overall	15.5	27	55
Minimum	1	14	21	47
Minimum	2	8	20	54
Minimum	3	12	21	52
Minimum	Overall	8	20	47
Maximum	1	24	35	60
Maximum	2	20	27	61
Maximum	3	20	32	57
Maximum	Overall	24	35	61
SD	1	4.03	5.27	4.27
SD	2	4.34	2.56	2.43
SD	3	3.35	4.28	2.07
SD	Overall	3.89	4.58	2.90

Overall	Median	15.5	27	55
	Minimum	8	20	47
	Maximum	24	35	61
	SD	3.89	4.58	2.90

Oregon Standard Setting Grade 8 Science
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	229	236	246
Median	2	228	233	246
Median	3	227	234	245
Median	Overall	227	234	246
Minimum	1	227	231	242
Minimum	2	223	231	245
Minimum	3	225	231	244
Minimum	Overall	223	231	242
Maximum	1	233	237	248
Maximum	2	231	234	249
Maximum	3	231	236	247
Maximum	Overall	233	237	249
SD	1	2.56	2.32	1.97
SD	2	2.88	1.07	1.35
SD	3	2.44	1.98	1.13
SD	Overall	2.62	1.96	1.45

Overall	Median	227	234	246
	Minimum	223	231	242
	Maximum	233	237	249
	SD	2.62	1.96	1.45

Oregon Standard Setting Grade 8 Science Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	17	32	55
2	16	24	55
3	14	26	54
Overall	15.5	27	55

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	16.9	18.7	44.2	20.2

Oregon Standard Setting Grade 8 Science
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	20	32	56
1	2	14	32	53
1	3	20	32	55
1	4	19	31	53
1	5	8	28	53
1	6	20	31	60
2	7	20	27	58
2	8	19	27	60
2	9	20	26	56
2	10	20	27	61
2	11	18	24	54
2	12	15	27	56
2	13	19	27	59
3	14	13	27	52
3	15	16	22	54
3	16	12	25	57
3	17	18	21	54
3	18	16	32	53
3	19	14	21	54
3	22	14	26	56

Overall	Median	18	27	55.5
	Minimum	8	21	52
	Maximum	20	32	61
	SD	3.42	3.58	2.70

Oregon Standard Setting Grade 8 Science
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	231	236	246
1	2	227	236	245
1	3	231	236	246
1	4	230	236	245
1	5	223	235	245
1	6	231	236	248
2	7	231	234	247
2	8	230	234	248
2	9	231	234	246
2	10	231	234	249
2	11	229	233	245
2	12	227	234	246
2	13	230	234	248
3	14	226	234	244
3	15	228	232	245
3	16	225	233	247
3	17	229	231	245
3	18	228	236	245
3	19	227	231	245
3	22	227	234	246

Overall	Median	229	234	246
	Minimum	223	231	244
	Maximum	231	236	249
	SD	2.33	1.60	1.36

Oregon Standard Setting Grade 8 Science
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	19.5	31.5	54
Median	2	19	27	58
Median	3	14	25	54
Median	Overall	18	27	55.5
Minimum	1	8	28	53
Minimum	2	15	24	54
Minimum	3	12	21	52
Minimum	Overall	8	21	52
Maximum	1	20	32	60
Maximum	2	20	27	61
Maximum	3	18	32	57
Maximum	Overall	20	32	61
SD	1	4.92	1.55	2.76
SD	2	1.80	1.13	2.50
SD	3	2.06	3.98	1.70
SD	Overall	3.42	3.58	2.70

Overall	Median	18	27	55.5
	Minimum	8	21	52
	Maximum	20	32	61
	SD	3.42	3.58	2.70

Oregon Standard Setting Grade 8 Science
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	231	236	246
Median	2	230	234	247
Median	3	227	233	245
Median	Overall	229	234	246
Minimum	1	223	235	245
Minimum	2	227	233	245
Minimum	3	225	231	244
Minimum	Overall	223	231	244
Maximum	1	231	236	248
Maximum	2	231	234	249
Maximum	3	229	236	247
Maximum	Overall	231	236	249
SD	1	3.25	0.41	1.17
SD	2	1.46	0.38	1.41
SD	3	1.35	1.83	0.95
SD	Overall	2.33	1.60	1.36

Overall	Median	229	234	246
	Minimum	223	231	244
	Maximum	231	236	249
	SD	2.33	1.60	1.36

Oregon Standard Setting Grade 8 Science Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	19.5	31.5	54
2	19	27	58
3	14	25	54
Overall	18	27	55.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	21.3	14.3	44.2	20.2

Oregon Standard Setting Grade 8 Science
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	19	27	56
1	2	14	24	53
1	3	20	32	55
1	4	14	27	53
1	5	4	22	53
1	6	19	31	57
2	7	18	27	55
2	8	20	27	60
2	9	18	24	55
2	10	19	26	60
2	11	18	24	54
2	12	18	27	54
2	13	16	27	55
3	14	13	27	54
3	15	17	21	55
3	16	14	26	57
3	17	18	22	54
3	18	19	32	53
3	19	15	22	55
3	22	17	26	56

Overall	Median	18	26.5	55
	Minimum	4	21	53
	Maximum	20	32	60
	SD	3.63	3.15	2.04

Oregon Standard Setting Grade 8 Science
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	1	230	234	246
1	2	227	233	245
1	3	231	236	246
1	4	227	234	245
1	5	220	232	245
1	6	230	236	247
2	7	229	234	246
2	8	231	234	248
2	9	229	233	246
2	10	230	234	248
2	11	229	233	245
2	12	229	234	245
2	13	228	234	246
3	14	226	234	245
3	15	229	231	246
3	16	227	234	247
3	17	229	232	245
3	18	230	236	245
3	19	227	232	246
3	22	229	234	246

Overall	Median	229	234	246
	Minimum	220	231	245
	Maximum	231	236	248
	SD	2.41	1.34	0.97

Oregon Standard Setting Grade 8 Science
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	16.5	27	54
Median	2	18	27	55
Median	3	17	26	55
Median	Overall	18	26.5	55
Minimum	1	4	22	53
Minimum	2	16	24	54
Minimum	3	13	21	53
Minimum	Overall	4	21	53
Maximum	1	20	32	57
Maximum	2	20	27	60
Maximum	3	19	32	57
Maximum	Overall	20	32	60
SD	1	6.00	3.87	1.76
SD	2	1.21	1.41	2.67
SD	3	2.19	3.85	1.35
SD	Overall	3.63	3.15	2.04

Overall	Median	18	26.5	55
	Minimum	4	21	53
	Maximum	20	32	60
	SD	3.63	3.15	2.04

Oregon Standard Setting Grade 8 Science
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	229	234	246
Median	2	229	234	246
Median	3	229	234	246
Median	Overall	229	234	246
Minimum	1	220	232	245
Minimum	2	228	233	245
Minimum	3	226	231	245
Minimum	Overall	220	231	245
Maximum	1	231	236	247
Maximum	2	231	234	248
Maximum	3	230	236	247
Maximum	Overall	231	236	248
SD	1	4.04	1.60	0.82
SD	2	0.95	0.49	1.25
SD	3	1.46	1.70	0.76
SD	Overall	2.41	1.34	0.97

Overall	Median	229	234	246
	Minimum	220	231	245
	Maximum	231	236	248
	SD	2.41	1.34	0.97

Oregon Standard Setting Grade 8 Science Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	16.5	27	54
2	18	27	55
3	17	26	55
Overall	18	26.5	55

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	21.3	14.3	44.2	20.2

Oregon Standard Setting Grade 10 Science
Round 1 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	17	31	59
1	3	16	32	56
1	4	24	34	52
1	5	19	31	55
1	6	24	33	51
2	7	27	43	51
2	8	20	33	54
2	9	19	33	55
2	10	17	23	53
2	11	16	31	61
3	12	21	33	55
3	13	15	33	57
3	14	16	29	45
3	15	15	32	62
3	16	18	24	41
3	17	18	29	41

Overall	Median	18	32	54.5
	Minimum	15	23	41
	Maximum	27	43	62
	SD	3.54	4.41	6.22

Oregon Standard Setting Grade 10 Science
Round 1 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	233	240	251
1	3	233	240	249
1	4	237	241	247
1	5	234	240	249
1	6	237	241	247
2	7	238	244	247
2	8	235	241	248
2	9	234	241	249
2	10	233	236	248
2	11	233	240	252
3	12	235	241	249
3	13	232	241	250
3	14	233	238	245
3	15	232	240	252
3	16	234	237	243
3	17	234	238	243

Overall	Median	234	240	248
	Minimum	232	236	243
	Maximum	238	244	252
	SD	1.80	1.91	2.72

Oregon Standard Setting Grade 10 Science
Round 1 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	19	32	55
Median	2	19	33	54
Median	3	17	30.5	50
Median	Overall	18	32	54.5
Minimum	1	16	31	51
Minimum	2	16	23	51
Minimum	3	15	24	41
Minimum	Overall	15	23	41
Maximum	1	24	34	59
Maximum	2	27	43	61
Maximum	3	21	33	62
Maximum	Overall	27	43	62
SD	1	3.81	1.30	3.21
SD	2	4.32	7.13	3.77
SD	3	2.32	3.46	9.00
SD	Overall	3.54	4.41	6.22

Overall	Median	18	32	54.5
	Minimum	15	23	41
	Maximum	27	43	62
	SD	3.54	4.41	6.22

Oregon Standard Setting Grade 10 Science
Round 1 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	234	240	249
Median	2	234	241	248
Median	3	234	239	247
Median	Overall	234	240	248
Minimum	1	233	240	247
Minimum	2	233	236	247
Minimum	3	232	237	243
Minimum	Overall	232	236	243
Maximum	1	237	241	251
Maximum	2	238	244	252
Maximum	3	235	241	252
Maximum	Overall	238	244	252
SD	1	2.05	0.55	1.67
SD	2	2.07	2.88	1.92
SD	3	1.21	1.72	3.85
SD	Overall	1.80	1.91	2.72

Overall	Median	234	240	248
	Minimum	232	236	243
	Maximum	238	244	252
	SD	1.80	1.91	2.72

Oregon Standard Setting Grade 10 Science Round 1 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	19	32	55
2	19	33	54
3	17	30.5	50
Overall	18	32	54.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	23.7	20.3	31.6	24.4

Oregon Standard Setting Grade 10 Science
Round 2 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	21	34	63
1	3	21	32	63
1	4	21	31	59
1	5	19	31	55
1	6	23	33	63
2	7	21	33	59
2	8	20	33	54
2	9	20	33	55
2	10	23	36	56
2	11	32	41	60
3	12	19	33	55
3	13	15	32	57
3	14	9	29	45
3	15	15	32	55
3	16	18	24	41
3	17	20	32	54

Overall	Median	20	32.5	55.5
	Minimum	9	24	41
	Maximum	32	41	63
	SD	4.78	3.44	6.00

Oregon Standard Setting Grade 10 Science
Round 2 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	235	241	253
1	3	235	240	253
1	4	235	240	251
1	5	234	240	249
1	6	236	241	253
2	7	235	241	251
2	8	235	241	248
2	9	235	241	249
2	10	236	242	249
2	11	240	243	251
3	12	234	241	249
3	13	232	240	250
3	14	228	238	245
3	15	232	240	249
3	16	234	237	243
3	17	235	240	248

Overall	Median	235	240	249
	Minimum	228	237	243
	Maximum	240	243	253
	SD	2.48	1.41	2.73

Oregon Standard Setting Grade 10 Science
Round 2 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	21	32	63
Median	2	21	33	56
Median	3	16.5	32	54.5
Median	Overall	20	32.5	55.5
Minimum	1	19	31	55
Minimum	2	20	33	54
Minimum	3	9	24	41
Minimum	Overall	9	24	41
Maximum	1	23	34	63
Maximum	2	32	41	60
Maximum	3	20	33	57
Maximum	Overall	32	41	63
SD	1	1.41	1.30	3.58
SD	2	5.07	3.49	2.59
SD	3	4.00	3.39	6.52
SD	Overall	4.78	3.44	6.00

Overall	Median	20	32.5	55.5
	Minimum	9	24	41
	Maximum	32	41	63
	SD	4.78	3.44	6.00

Oregon Standard Setting Grade 10 Science
Round 2 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	235	240	253
Median	2	235	241	249
Median	3	233	240	249
Median	Overall	235	240	249
Minimum	1	234	240	249
Minimum	2	235	241	248
Minimum	3	228	237	243
Minimum	Overall	228	237	243
Maximum	1	236	241	253
Maximum	2	240	243	251
Maximum	3	235	241	250
Maximum	Overall	240	243	253
SD	1	0.71	0.55	1.79
SD	2	2.17	0.89	1.34
SD	3	2.51	1.51	2.73
SD	Overall	2.48	1.41	2.73

Overall	Median	235	240	249
	Minimum	228	237	243
	Maximum	240	243	253
	SD	2.48	1.41	2.73

Oregon Standard Setting Grade 10 Science Round 2 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	21	32	63
2	21	33	56
3	16.5	32	54.5
Overall	20	32.5	55.5

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	26.6	17.4	35.3	20.7

Oregon Standard Setting Grade 10 Science
Round 3 Bookmark Placements

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	23	34	63
1	3	21	31	56
1	4	21	31	56
1	5	19	29	55
1	6	23	33	63
2	7	18	30	56
2	8	23	31	54
2	9	21	33	56
2	10	19	24	56
2	11	24	35	57
3	12	19	29	53
3	13	21	32	58
3	14	19	29	52
3	15	16	33	55
3	16	18	24	48
3	17	23	33	61

Overall	Median	21	31	56
	Minimum	16	24	48
	Maximum	24	35	63
	SD	2.31	3.18	3.85

Oregon Standard Setting Grade 10 Science
Round 3 Cut Scores

Table	Participant	Nearly Meets	Meets	Exceeds
1	2	236	241	253
1	3	235	240	249
1	4	235	240	249
1	5	234	238	249
1	6	236	241	253
2	7	234	240	249
2	8	236	240	248
2	9	235	241	249
2	10	234	237	249
2	11	237	241	250
3	12	234	238	248
3	13	235	240	250
3	14	234	238	247
3	15	233	241	249
3	16	234	237	246
3	17	236	241	252

Overall	Median	235	240	249
	Minimum	233	237	246
	Maximum	237	241	253
	SD	1.09	1.50	1.93

Oregon Standard Setting Grade 10 Science
Round 3 Summary of Bookmark Placements

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	21	31	56
Median	2	21	31	56
Median	3	19	30.5	54
Median	Overall	21	31	56
Minimum	1	19	29	55
Minimum	2	18	24	54
Minimum	3	16	24	48
Minimum	Overall	16	24	48
Maximum	1	23	34	63
Maximum	2	24	35	57
Maximum	3	23	33	61
Maximum	Overall	24	35	63
SD	1	1.67	1.95	4.04
SD	2	2.55	4.16	1.10
SD	3	2.42	3.46	4.59
SD	Overall	2.31	3.18	3.85

Overall	Median	21	31	56
	Minimum	16	24	48
	Maximum	24	35	63
	SD	2.31	3.18	3.85

Oregon Standard Setting Grade 10 Science
Round 3 Summary of Cut Scores

Statistic	Table	Nearly Meets	Meets	Exceeds
Median	1	235	240	249
Median	2	235	240	249
Median	3	234	239	249
Median	Overall	235	240	249
Minimum	1	234	238	249
Minimum	2	234	237	248
Minimum	3	233	237	246
Minimum	Overall	233	237	246
Maximum	1	236	241	253
Maximum	2	237	241	250
Maximum	3	236	241	252
Maximum	Overall	237	241	253
SD	1	0.84	1.22	2.19
SD	2	1.30	1.64	0.71
SD	3	1.03	1.72	2.16
SD	Overall	1.09	1.50	1.93

Overall	Median	235	240	249
	Minimum	233	237	246
	Maximum	237	241	253
	SD	1.09	1.50	1.93

Oregon Standard Setting Grade 10 Science Round 3 Median Bookmark Summary

Table	Nearly Meets	Meets	Exceeds
1	21	31	56
2	21	31	56
3	19	30.5	54
Overall	21	31	56

Impact Data

	Does Not Yet Meet	Nearly Meets	Meets	Exceeds
Overall	26.6	17.4	35.3	20.7

SECTION G

Participant Judgments Plus/Minus 1, 2, and 3 Standard Errors

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, \bar{Y}_k is the average cut score for group k , and $\bar{\bar{Y}}$ is the average of all Round 2 cut scores, then

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

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, $SE_{cut} = \left(\sqrt{\frac{\pi}{2}} \right) \left(\sqrt{\frac{S^2}{N}} \right)$. 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

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Oregon Standard Setting Grade 3 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.22	0.47	1.00	
Recommended Cut Point* + 3 SE		202	205	218	+ 3 SE
Percent of Students in Each Level	12.9	10.4	53.2	23.5	
Recommended Cut Point* + 2 SE		202	205	217	+ 2 SE
Percent of Students in Each Level	12.9	10.4	49.7	27.0	
Recommended Cut Point* + 1 SE		201	205	216	+ 1 SE
Percent of Students in Each Level	11.4	11.8	45.9	30.9	
Recommended Cut Point*		201	204	215	Recommended Cut Points*
Percent of Students in Each Level	11.4	8.2	45.2	35.2	
Recommended Cut Point* -1 SE		201	204	214	-1 SE
Percent of Students in Each Level	11.4	8.2	41.2	39.2	
Recommended Cut Point* -2 SE		201	203	213	-2 SE
Percent of Students in Each Level	11.4	4.7	40.4	43.5	
Recommended Cut Point* -3 SE		200	203	212	-3 SE
Percent of Students in Each Level	10.2	5.9	36.4	47.5	

* Participants' Large Group Medians

Oregon Standard Setting Grade 3 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.52	3.51	3.55	
Recommended Cut Point* + 3 SE		212	215	226	+ 3 SE
Percent of Students in Each Level	52.5	12.3	29.3	5.9	
Recommended Cut Point* + 2 SE		208	211	222	+ 2 SE
Percent of Students in Each Level	35.7	12.7	39.3	12.3	
Recommended Cut Point* + 1 SE		205	208	219	+ 1 SE
Percent of Students in Each Level	23.3	12.4	44.3	20.0	
Recommended Cut Point*		201	204	215	Recommended Cut Points*
Percent of Students in Each Level	11.4	8.2	45.2	35.2	
Recommended Cut Point* -1 SE		198	201	212	-1 SE
Percent of Students in Each Level	7.7	3.7	41.1	47.5	
Recommended Cut Point* -2 SE		194	197	208	-2 SE
Percent of Students in Each Level	4.2	2.5	29.0	64.3	
Recommended Cut Point* -3 SE		191	194	204	-3 SE
Percent of Students in Each Level	2.6	1.7	15.4	80.3	

* Participants' Large Group Medians

Oregon Standard Setting Grade 3 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.52	3.53	3.68	
Recommended Cut Point* + 3 SE		212	215	226	+ 3 SE
Percent of Students in Each Level	52.5	12.3	29.3	5.9	
Recommended Cut Point* + 2 SE		208	211	222	+ 2 SE
Percent of Students in Each Level	35.7	12.7	39.3	12.3	
Recommended Cut Point* + 1 SE		205	208	219	+ 1 SE
Percent of Students in Each Level	23.3	12.4	44.3	20.0	
Recommended Cut Point*		201	204	215	Recommended Cut Points*
Percent of Students in Each Level	11.4	8.2	45.2	35.2	
Recommended Cut Point* -1 SE		198	201	211	-1 SE
Percent of Students in Each Level	7.7	3.7	37.0	51.6	
Recommended Cut Point* -2 SE		194	197	208	-2 SE
Percent of Students in Each Level	4.2	2.5	29.0	64.3	
Recommended Cut Point* -3 SE		191	193	204	-3 SE
Percent of Students in Each Level	2.6	1.0	16.1	80.3	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.48	0.65	1.28	
Recommended Cut Point* + 3 SE		216	220	234	+ 3 SE
Percent of Students in Each Level	18.9	17.5	50.3	13.3	
Recommended Cut Point* + 2 SE		215	219	233	+ 2 SE
Percent of Students in Each Level	14.9	17.1	52.3	15.7	
Recommended Cut Point* + 1 SE		215	219	231	+ 1 SE
Percent of Students in Each Level	14.9	17.1	46.9	21.1	
Recommended Cut Point*		214	218	230	Recommended Cut Points*
Percent of Students in Each Level	13.1	14.4	48.9	23.6	
Recommended Cut Point* -1 SE		214	217	229	-1 SE
Percent of Students in Each Level	13.1	9.8	50.7	26.4	
Recommended Cut Point* -2 SE		213	217	228	-2 SE
Percent of Students in Each Level	11.3	11.6	47.4	29.7	
Recommended Cut Point* -3 SE		213	216	226	-3 SE
Percent of Students in Each Level	11.3	7.6	44.1	37.0	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.51	3.51	3.50	
Recommended Cut Point* + 3 SE		225	229	241	+ 3 SE
Percent of Students in Each Level	58.8	14.7	22.0	4.5	
Recommended Cut Point* + 2 SE		221	225	237	+ 2 SE
Percent of Students in Each Level	41.0	17.8	33.0	8.2	
Recommended Cut Point* + 1 SE		218	222	234	+ 1 SE
Percent of Students in Each Level	27.4	18.2	41.1	13.3	
Recommended Cut Point*		214	218	230	Recommended Cut Points*
Percent of Students in Each Level	13.1	14.4	48.9	23.6	
Recommended Cut Point* -1 SE		211	215	227	-1 SE
Percent of Students in Each Level	8.6	6.4	51.8	33.2	
Recommended Cut Point* -2 SE		207	211	223	-2 SE
Percent of Students in Each Level	4.6	3.9	41.5	50.0	
Recommended Cut Point* -3 SE		204	208	220	-3 SE
Percent of Students in Each Level	2.8	2.7	31.0	63.5	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.54	3.57	3.72	
Recommended Cut Point* + 3 SE		225	229	241	+ 3 SE
Percent of Students in Each Level	58.8	14.7	22.0	4.5	
Recommended Cut Point* + 2 SE		221	225	238	+ 2 SE
Percent of Students in Each Level	41.0	17.8	34.3	6.9	
Recommended Cut Point* + 1 SE		218	222	234	+ 1 SE
Percent of Students in Each Level	27.4	18.2	41.1	13.3	
Recommended Cut Point*		214	218	230	Recommended Cut Points*
Percent of Students in Each Level	13.1	14.4	48.9	23.6	
Recommended Cut Point* -1 SE		211	215	226	-1 SE
Percent of Students in Each Level	8.6	6.4	48.1	36.9	
Recommended Cut Point* -2 SE		207	211	223	-2 SE
Percent of Students in Each Level	4.6	3.9	41.5	50.0	
Recommended Cut Point* -3 SE		203	207	219	-3 SE
Percent of Students in Each Level	2.4	2.2	27.4	68.0	

* Participants' Large Group Medians

250

Oregon Standard Setting Grade 8 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.69	1.74	0.79	
Recommended Cut Point* + 3 SE		227	235	243	+ 3 SE
Percent of Students in Each Level	24.4	27.1	26.1	22.4	
Recommended Cut Point* + 2 SE		226	234	243	+ 2 SE
Percent of Students in Each Level	21.7	25.6	30.3	22.4	
Recommended Cut Point* + 1 SE		226	232	242	+ 1 SE
Percent of Students in Each Level	21.7	17.1	36.4	24.8	
Recommended Cut Point*		225	230	241	Recommended Cut Points*
Percent of Students in Each Level	19.2	13.1	40.3	27.4	
Recommended Cut Point* -1 SE		224	228	240	-1 SE
Percent of Students in Each Level	16.9	10.2	42.4	30.5	
Recommended Cut Point* -2 SE		224	227	240	-2 SE
Percent of Students in Each Level	16.9	7.5	45.2	30.4	
Recommended Cut Point* -3 SE		223	225	239	-3 SE
Percent of Students in Each Level	15.0	4.2	47.3	33.5	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.53	3.51	3.50	
Recommended Cut Point* + 3 SE		236	241	252	+ 3 SE
Percent of Students in Each Level	55.4	17.2	20.1	7.3	
Recommended Cut Point* + 2 SE		232	237	248	+ 2 SE
Percent of Students in Each Level	38.9	20.7	27.4	13.0	
Recommended Cut Point* + 1 SE		229	234	245	+ 1 SE
Percent of Students in Each Level	29.9	17.4	34.2	18.5	
Recommended Cut Point*		225	230	241	Recommended Cut Points*
Percent of Students in Each Level	19.2	13.1	40.3	27.4	
Recommended Cut Point* -1 SE		222	227	238	-1 SE
Percent of Students in Each Level	13.3	11.1	38.8	36.8	
Recommended Cut Point* -2 SE		218	223	234	-2 SE
Percent of Students in Each Level	7.6	7.4	32.3	52.7	
Recommended Cut Point* -3 SE		214	220	231	-3 SE
Percent of Students in Each Level	3.5	6.7	24.8	65.0	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.59	3.92	3.58	
Recommended Cut Point* + 3 SE		236	242	252	+ 3 SE
Percent of Students in Each Level	55.4	19.9	17.4	7.3	
Recommended Cut Point* + 2 SE		232	238	248	+ 2 SE
Percent of Students in Each Level	38.9	24.3	23.7	13.1	
Recommended Cut Point* + 1 SE		229	234	245	+ 1 SE
Percent of Students in Each Level	29.9	17.4	34.2	18.5	
Recommended Cut Point*		225	230	241	Recommended Cut Points*
Percent of Students in Each Level	19.2	13.1	40.3	27.4	
Recommended Cut Point* -1 SE		221	226	238	-1 SE
Percent of Students in Each Level	11.5	10.2	41.5	36.8	
Recommended Cut Point* -2 SE		218	222	234	-2 SE
Percent of Students in Each Level	7.6	5.7	34.0	52.7	
Recommended Cut Point* -3 SE		214	218	230	-3 SE
Percent of Students in Each Level	3.5	4.1	24.7	67.7	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.78	0.85	0.57	
Recommended Cut Point* + 3 SE		233	239	248	+ 3 SE
Percent of Students in Each Level	35.5	20.4	31.5	12.6	
Recommended Cut Point* + 2 SE		233	238	247	+ 2 SE
Percent of Students in Each Level	35.5	17.2	32.7	14.6	
Recommended Cut Point* + 1 SE		232	237	247	+ 1 SE
Percent of Students in Each Level	32.5	16.7	36.2	14.6	
Recommended Cut Point*		231	236	246	Recommended Cut Points*
Percent of Students in Each Level	29.8	15.9	37.7	16.6	
Recommended Cut Point* -1 SE		230	235	246	-1 SE
Percent of Students in Each Level	27.1	15.1	41.1	16.7	
Recommended Cut Point* -2 SE		230	234	245	-2 SE
Percent of Students in Each Level	27.1	11.8	41.8	19.3	
Recommended Cut Point* -3 SE		229	234	244	-3 SE
Percent of Students in Each Level	24.6	14.3	39.1	22.0	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.53	3.51	3.48	
Recommended Cut Point* + 3 SE		242	247	257	+ 3 SE
Percent of Students in Each Level	70.8	14.6	11.3	3.3	
Recommended Cut Point* + 2 SE		238	243	253	+ 2 SE
Percent of Students in Each Level	52.7	22.1	19.0	6.2	
Recommended Cut Point* + 1 SE		235	240	250	+ 1 SE
Percent of Students in Each Level	42.2	19.4	28.7	9.7	
Recommended Cut Point*		231	236	246	Recommended Cut Points*
Percent of Students in Each Level	29.8	15.9	37.7	16.6	
Recommended Cut Point* -1 SE		228	233	243	-1 SE
Percent of Students in Each Level	22.1	13.3	39.4	25.2	
Recommended Cut Point* -2 SE		224	229	239	-2 SE
Percent of Students in Each Level	14.0	10.6	31.2	44.2	
Recommended Cut Point* -3 SE		220	226	236	-3 SE
Percent of Students in Each Level	8.1	9.8	27.7	54.4	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Mathematics

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.61	3.61	3.53	
Recommended Cut Point* + 3 SE		242	247	257	+ 3 SE
Percent of Students in Each Level	70.8	14.6	11.3	3.3	
Recommended Cut Point* + 2 SE		238	243	253	+ 2 SE
Percent of Students in Each Level	52.7	22.1	19.0	6.2	
Recommended Cut Point* + 1 SE		235	240	250	+ 1 SE
Percent of Students in Each Level	42.2	19.4	28.7	9.7	
Recommended Cut Point*		231	236	246	Recommended Cut Points*
Percent of Students in Each Level	29.8	15.9	37.7	16.6	
Recommended Cut Point* -1 SE		227	232	243	-1 SE
Percent of Students in Each Level	19.9	12.7	42.3	25.1	
Recommended Cut Point* -2 SE		224	229	239	-2 SE
Percent of Students in Each Level	14.0	10.6	31.2	44.2	
Recommended Cut Point* -3 SE		220	225	235	-3 SE
Percent of Students in Each Level	8.1	7.7	26.3	57.9	

* Participants' Large Group Medians

Oregon Standard Setting Grade 3 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.38	0.72	0.78	
Recommended Cut Point* + 3 SE		200	205	218	+ 3 SE
Percent of Students in Each Level	9.4	11.9	44.5	34.2	
Recommended Cut Point* + 2 SE		200	205	218	+ 2 SE
Percent of Students in Each Level	9.4	11.9	44.5	34.2	
Recommended Cut Point* + 1 SE		199	204	217	+ 1 SE
Percent of Students in Each Level	8.5	9.8	43.9	37.8	
Recommended Cut Point*		199	203	216	Recommended Cut Points*
Percent of Students in Each Level	8.5	7.1	42.4	42.0	
Recommended Cut Point* -1 SE		199	202	215	-1 SE
Percent of Students in Each Level	8.5	4.4	41.8	45.3	
Recommended Cut Point* -2 SE		198	202	215	-2 SE
Percent of Students in Each Level	7.5	5.3	41.8	45.4	
Recommended Cut Point* -3 SE		198	201	214	-3 SE
Percent of Students in Each Level	7.5	2.8	41.2	48.5	

* Participants' Large Group Medians

Oregon Standard Setting Grade 3 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.60	3.58	3.90	
Recommended Cut Point* + 3 SE		210	214	228	+ 3 SE
Percent of Students in Each Level	37.5	14.0	36.8	11.7	
Recommended Cut Point* + 2 SE		206	210	224	+ 2 SE
Percent of Students in Each Level	24.3	13.2	43.5	19.0	
Recommended Cut Point* + 1 SE		203	207	220	+ 1 SE
Percent of Students in Each Level	15.6	11.7	44.3	28.4	
Recommended Cut Point*		199	203	216	Recommended Cut Points*
Percent of Students in Each Level	8.5	7.1	42.4	42.0	
Recommended Cut Point* -1 SE		195	200	212	-1 SE
Percent of Students in Each Level	5.1	4.3	35.0	55.6	
Recommended Cut Point* -2 SE		192	196	208	-2 SE
Percent of Students in Each Level	3.1	2.9	24.6	69.4	
Recommended Cut Point* -3 SE		188	192	204	-3 SE
Percent of Students in Each Level	1.2	1.8	15.3	81.7	

* Participants' Large Group Medians

Oregon Standard Setting Grade 3 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.61	3.64	3.97	
Recommended Cut Point* + 3 SE		210	214	228	+ 3 SE
Percent of Students in Each Level	37.5	14.0	36.8	11.7	
Recommended Cut Point* + 2 SE		206	210	224	+ 2 SE
Percent of Students in Each Level	24.3	13.2	43.5	19.0	
Recommended Cut Point* + 1 SE		203	207	220	+ 1 SE
Percent of Students in Each Level	15.6	11.7	44.3	28.4	
Recommended Cut Point*		199	203	216	Recommended Cut Points*
Percent of Students in Each Level	8.5	7.1	42.4	42.0	
Recommended Cut Point* -1 SE		195	199	212	-1 SE
Percent of Students in Each Level	5.1	3.4	35.9	55.6	
Recommended Cut Point* -2 SE		192	196	208	-2 SE
Percent of Students in Each Level	3.1	2.9	24.6	69.4	
Recommended Cut Point* -3 SE		188	192	204	-3 SE
Percent of Students in Each Level	1.2	1.8	15.3	81.7	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.65	1.05	0.92	
Recommended Cut Point* + 3 SE		211	221	233	+ 3 SE
Percent of Students in Each Level	10.0	31.7	40.9	17.4	
Recommended Cut Point* + 2 SE		210	220	232	+ 2 SE
Percent of Students in Each Level	8.8	28.8	42.4	20.0	
Recommended Cut Point* + 1 SE		210	219	231	+ 1 SE
Percent of Students in Each Level	8.8	24.3	43.8	23.1	
Recommended Cut Point*		209	218	230	Recommended Cut Points*
Percent of Students in Each Level	7.7	20.9	45.8	25.6	
Recommended Cut Point* -1 SE		208	217	229	-1 SE
Percent of Students in Each Level	6.7	17.6	47.1	28.6	
Recommended Cut Point* -2 SE		208	216	228	-2 SE
Percent of Students in Each Level	6.7	13.4	48.0	31.9	
Recommended Cut Point* -3 SE		207	215	227	-3 SE
Percent of Students in Each Level	5.8	10.4	48.6	35.2	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.42	3.41	4.10	
Recommended Cut Point* + 3 SE		219	228	242	+ 3 SE
Percent of Students in Each Level	33.0	35.1	27.8	4.1	
Recommended Cut Point* + 2 SE		216	225	238	+ 2 SE
Percent of Students in Each Level	20.1	37.8	34.1	8.0	
Recommended Cut Point* + 1 SE		213	221	234	+ 1 SE
Percent of Students in Each Level	12.7	29.1	43.1	15.1	
Recommended Cut Point*		209	218	230	Recommended Cut Points*
Percent of Students in Each Level	7.7	20.9	45.8	25.6	
Recommended Cut Point* -1 SE		206	215	226	-1 SE
Percent of Students in Each Level	5.1	11.1	45.4	38.4	
Recommended Cut Point* -2 SE		202	211	222	-2 SE
Percent of Students in Each Level	2.8	7.2	36.1	53.9	
Recommended Cut Point* -3 SE		199	208	218	-3 SE
Percent of Students in Each Level	1.6	5.1	21.9	71.4	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.48	3.56	4.20	
Recommended Cut Point* + 3 SE		220	229	243	+ 3 SE
Percent of Students in Each Level	37.6	33.9	25.4	3.1	
Recommended Cut Point* + 2 SE		216	225	238	+ 2 SE
Percent of Students in Each Level	20.1	37.8	34.1	8.0	
Recommended Cut Point* + 1 SE		213	222	234	+ 1 SE
Percent of Students in Each Level	12.7	33.4	38.7	15.2	
Recommended Cut Point*		209	218	230	Recommended Cut Points*
Percent of Students in Each Level	7.7	20.9	45.8	25.6	
Recommended Cut Point* -1 SE		206	215	226	-1 SE
Percent of Students in Each Level	5.1	11.1	45.4	38.4	
Recommended Cut Point* -2 SE		202	211	222	-2 SE
Percent of Students in Each Level	2.8	7.2	36.1	53.9	
Recommended Cut Point* -3 SE		199	207	217	-3 SE
Percent of Students in Each Level	1.6	4.2	18.5	75.7	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.84	0.93	1.01	
Recommended Cut Point* + 3 SE		227	233	244	+ 3 SE
Percent of Students in Each Level	22.6	22.1	41.7	13.6	
Recommended Cut Point* + 2 SE		226	232	243	+ 2 SE
Percent of Students in Each Level	20.1	19.6	44.4	15.9	
Recommended Cut Point* + 1 SE		225	231	242	+ 1 SE
Percent of Students in Each Level	17.9	16.6	46.7	18.8	
Recommended Cut Point*		224	230	241	Recommended Cut Points*
Percent of Students in Each Level	15.9	15.2	47.4	21.5	
Recommended Cut Point* -1 SE		223	229	240	-1 SE
Percent of Students in Each Level	14.1	14.0	46.7	25.2	
Recommended Cut Point* -2 SE		222	228	239	-2 SE
Percent of Students in Each Level	12.5	12.8	45.8	28.9	
Recommended Cut Point* -3 SE		222	227	238	-3 SE
Percent of Students in Each Level	12.5	10.1	44.7	32.7	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.39	3.39	3.96	
Recommended Cut Point* + 3 SE		234	240	253	+ 3 SE
Percent of Students in Each Level	49.8	25.0	23.0	2.2	
Recommended Cut Point* + 2 SE		231	237	249	+ 2 SE
Percent of Students in Each Level	34.5	29.1	31.0	5.4	
Recommended Cut Point* + 1 SE		227	233	245	+ 1 SE
Percent of Students in Each Level	22.6	22.1	43.8	11.5	
Recommended Cut Point*		224	230	241	Recommended Cut Points*
Percent of Students in Each Level	15.9	15.2	47.4	21.5	
Recommended Cut Point* -1 SE		221	227	237	-1 SE
Percent of Students in Each Level	11.1	11.5	41.0	36.4	
Recommended Cut Point* -2 SE		217	223	233	-2 SE
Percent of Students in Each Level	6.4	7.7	30.6	55.3	
Recommended Cut Point* -3 SE		214	220	229	-3 SE
Percent of Students in Each Level	4.0	5.8	18.4	71.8	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.48	3.51	4.08	
Recommended Cut Point* + 3 SE		235	241	253	+ 3 SE
Percent of Students in Each Level	54.6	23.8	19.4	2.2	
Recommended Cut Point* + 2 SE		231	237	249	+ 2 SE
Percent of Students in Each Level	34.5	29.1	31.0	5.4	
Recommended Cut Point* + 1 SE		228	234	245	+ 1 SE
Percent of Students in Each Level	25.3	24.5	38.7	11.5	
Recommended Cut Point*		224	230	241	Recommended Cut Points*
Percent of Students in Each Level	15.9	15.2	47.4	21.5	
Recommended Cut Point* -1 SE		221	227	237	-1 SE
Percent of Students in Each Level	11.1	11.5	41.0	36.4	
Recommended Cut Point* -2 SE		217	223	233	-2 SE
Percent of Students in Each Level	6.4	7.7	30.6	55.3	
Recommended Cut Point* -3 SE		214	220	229	-3 SE
Percent of Students in Each Level	4.0	5.8	18.4	71.8	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		0.75	1.26	0.69	
Recommended Cut Point* + 3 SE		233	240	250	+ 3 SE
Percent of Students in Each Level	26.4	24.0	37.7	11.9	
Recommended Cut Point* + 2 SE		233	239	249	+ 2 SE
Percent of Students in Each Level	26.4	19.0	40.2	14.4	
Recommended Cut Point* + 1 SE		232	237	249	+ 1 SE
Percent of Students in Each Level	23.7	15.1	46.7	14.5	
Recommended Cut Point*		231	236	248	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.2	47.6	16.9	
Recommended Cut Point* -1 SE		230	235	247	-1 SE
Percent of Students in Each Level	19.3	12.8	47.9	20.0	
Recommended Cut Point* -2 SE		230	234	247	-2 SE
Percent of Students in Each Level	19.3	9.9	50.8	20.0	
Recommended Cut Point* -3 SE		229	232	246	-3 SE
Percent of Students in Each Level	17.2	6.5	52.9	23.4	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.38	3.39	3.85	
Recommended Cut Point* + 3 SE		241	246	260	+ 3 SE
Percent of Students in Each Level	55.4	21.2	22.3	1.1	
Recommended Cut Point* + 2 SE		238	243	256	+ 2 SE
Percent of Students in Each Level	42.0	22.4	32.3	3.3	
Recommended Cut Point* + 1 SE		234	239	252	+ 1 SE
Percent of Students in Each Level	29.1	16.2	46.6	8.1	
Recommended Cut Point*		231	236	248	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.2	47.6	16.9	
Recommended Cut Point* -1 SE		228	233	244	-1 SE
Percent of Students in Each Level	15.5	10.9	42.6	31.0	
Recommended Cut Point* -2 SE		224	229	240	-2 SE
Percent of Students in Each Level	9.5	7.7	33.1	49.7	
Recommended Cut Point* -3 SE		221	226	237	-3 SE
Percent of Students in Each Level	6.3	6.0	26.6	61.1	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Reading/Literature

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.45	3.61	3.90	
Recommended Cut Point* + 3 SE		241	247	260	+ 3 SE
Percent of Students in Each Level	55.4	24.6	18.8	1.2	
Recommended Cut Point* + 2 SE		238	243	256	+ 2 SE
Percent of Students in Each Level	42.0	22.4	32.3	3.3	
Recommended Cut Point* + 1 SE		235	240	252	+ 1 SE
Percent of Students in Each Level	32.1	18.3	41.6	8.0	
Recommended Cut Point*		231	236	248	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.2	47.6	16.9	
Recommended Cut Point* -1 SE		228	232	244	-1 SE
Percent of Students in Each Level	15.5	8.3	45.2	31.0	
Recommended Cut Point* -2 SE		224	229	240	-2 SE
Percent of Students in Each Level	9.5	7.7	33.1	49.7	
Recommended Cut Point* -3 SE		221	225	236	-3 SE
Percent of Students in Each Level	6.3	4.6	24.6	64.5	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		1.08	0.59	0.70	
Recommended Cut Point* + 3 SE		219	227	240	+ 3 SE
Percent of Students in Each Level	12.4	22.5	48.4	16.7	
Recommended Cut Point* + 2 SE		218	226	239	+ 2 SE
Percent of Students in Each Level	10.8	20.2	49.5	19.5	
Recommended Cut Point* + 1 SE		217	226	239	+ 1 SE
Percent of Students in Each Level	9.3	21.7	49.5	19.5	
Recommended Cut Point*		216	225	238	Recommended Cut Points*
Percent of Students in Each Level	8.0	19.1	50.5	22.4	
Recommended Cut Point* -1 SE		215	224	237	-1 SE
Percent of Students in Each Level	6.9	16.9	50.8	25.4	
Recommended Cut Point* -2 SE		214	224	237	-2 SE
Percent of Students in Each Level	5.8	18.0	50.8	25.4	
Recommended Cut Point* -3 SE		213	223	236	-3 SE
Percent of Students in Each Level	4.9	15.6	51.2	28.3	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.02	2.99	3.36	
Recommended Cut Point* + 3 SE		225	234	248	+ 3 SE
Percent of Students in Each Level	27.1	37.3	31.4	4.2	
Recommended Cut Point* + 2 SE		222	231	245	+ 2 SE
Percent of Students in Each Level	18.2	33.8	40.8	7.2	
Recommended Cut Point* + 1 SE		219	228	241	+ 1 SE
Percent of Students in Each Level	12.4	26.7	45.9	15.0	
Recommended Cut Point*		216	225	238	Recommended Cut Points*
Percent of Students in Each Level	8.0	19.1	50.5	22.4	
Recommended Cut Point* -1 SE		213	222	235	-1 SE
Percent of Students in Each Level	4.9	13.3	49.9	31.9	
Recommended Cut Point* -2 SE		210	219	231	-2 SE
Percent of Students in Each Level	2.5	9.9	39.6	48.0	
Recommended Cut Point* -3 SE		207	216	228	-3 SE
Percent of Students in Each Level	1.0	7.0	31.1	60.9	

* Participants' Large Group Medians

Oregon Standard Setting Grade 5 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.20	3.04	3.43	
Recommended Cut Point* + 3 SE		226	234	248	+ 3 SE
Percent of Students in Each Level	31.0	33.4	31.4	4.2	
Recommended Cut Point* + 2 SE		222	231	245	+ 2 SE
Percent of Students in Each Level	18.2	33.8	40.8	7.2	
Recommended Cut Point* + 1 SE		219	228	242	+ 1 SE
Percent of Students in Each Level	12.4	26.7	48.3	12.6	
Recommended Cut Point*		216	225	238	Recommended Cut Points*
Percent of Students in Each Level	8.0	19.1	50.5	22.4	
Recommended Cut Point* -1 SE		213	222	235	-1 SE
Percent of Students in Each Level	4.9	13.3	49.9	31.9	
Recommended Cut Point* -2 SE		210	219	231	-2 SE
Percent of Students in Each Level	2.5	9.9	39.6	48.0	
Recommended Cut Point* -3 SE		206	216	228	-3 SE
Percent of Students in Each Level	0.8	7.2	31.1	60.9	

* Participants' Large Group Medians

271

Oregon Standard Setting Grade 8 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		1.11	0.99	0.69	
Recommended Cut Point* + 3 SE		232	237	248	+ 3 SE
Percent of Students in Each Level	28.9	18.5	37.5	15.1	
Recommended Cut Point* + 2 SE		231	236	247	+ 2 SE
Percent of Students in Each Level	26.1	17.1	39.1	17.7	
Recommended Cut Point* + 1 SE		230	235	247	+ 1 SE
Percent of Students in Each Level	23.6	15.6	43.1	17.7	
Recommended Cut Point*		229	234	246	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.3	44.2	20.2	
Recommended Cut Point* -1 SE		228	233	245	-1 SE
Percent of Students in Each Level	19.1	12.7	45.2	23.0	
Recommended Cut Point* -2 SE		227	232	245	-2 SE
Percent of Students in Each Level	16.9	12.0	48.1	23.0	
Recommended Cut Point* -3 SE		226	231	244	-3 SE
Percent of Students in Each Level	15.0	11.1	47.7	26.2	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		2.95	2.96	3.27	
Recommended Cut Point* + 3 SE		238	243	256	+ 3 SE
Percent of Students in Each Level	51.4	18.9	25.3	4.4	
Recommended Cut Point* + 2 SE		235	240	253	+ 2 SE
Percent of Students in Each Level	39.2	20.2	33.6	7.0	
Recommended Cut Point* + 1 SE		232	237	249	+ 1 SE
Percent of Students in Each Level	28.9	18.5	39.4	13.2	
Recommended Cut Point*		229	234	246	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.3	44.2	20.2	
Recommended Cut Point* -1 SE		226	231	243	-1 SE
Percent of Students in Each Level	15.0	11.1	44.3	29.6	
Recommended Cut Point* -2 SE		223	228	240	-2 SE
Percent of Students in Each Level	9.7	9.3	40.3	40.7	
Recommended Cut Point* -3 SE		220	225	236	-3 SE
Percent of Students in Each Level	5.0	8.1	30.0	56.9	

* Participants' Large Group Medians

Oregon Standard Setting Grade 8 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.15	3.11	3.34	
Recommended Cut Point* + 3 SE		239	243	256	+ 3 SE
Percent of Students in Each Level	55.4	15.0	25.3	4.3	
Recommended Cut Point* + 2 SE		235	240	253	+ 2 SE
Percent of Students in Each Level	39.2	20.2	33.6	7.0	
Recommended Cut Point* + 1 SE		232	237	249	+ 1 SE
Percent of Students in Each Level	28.9	18.5	39.4	13.2	
Recommended Cut Point*		229	234	246	Recommended Cut Points*
Percent of Students in Each Level	21.3	14.3	44.2	20.2	
Recommended Cut Point* -1 SE		226	231	243	-1 SE
Percent of Students in Each Level	15.0	11.1	44.3	29.6	
Recommended Cut Point* -2 SE		223	228	239	-2 SE
Percent of Students in Each Level	9.7	9.3	36.3	44.7	
Recommended Cut Point* -3 SE		220	225	236	-3 SE
Percent of Students in Each Level	5.0	8.1	30.0	56.9	

* Participants' Large Group Medians

274

Oregon Standard Setting Grade 10 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
SE (cut score)		1.35	0.79	1.55	
Recommended Cut Point* + 3 SE		239	242	254	+ 3 SE
Percent of Students in Each Level	38.5	13.5	39.4	8.6	
Recommended Cut Point* + 2 SE		238	242	252	+ 2 SE
Percent of Students in Each Level	36.6	15.4	35.5	12.5	
Recommended Cut Point* + 1 SE		236	241	251	+ 1 SE
Percent of Students in Each Level	29.8	19.3	35.6	15.3	
Recommended Cut Point*		235	240	249	Recommended Cut Points*
Percent of Students in Each Level	26.6	17.4	35.3	20.7	
Recommended Cut Point* -1 SE		234	239	248	-1 SE
Percent of Students in Each Level	23.7	14.8	37.0	24.5	
Recommended Cut Point* -2 SE		232	239	246	-2 SE
Percent of Students in Each Level	19.6	19.0	30.4	31.0	
Recommended Cut Point* -3 SE		231	238	244	-3 SE
Percent of Students in Each Level	17.1	19.5	24.8	38.6	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement		3.64	3.76	4.27	
Recommended Cut Point* + 3 SE		246	251	262	+ 3 SE
Percent of Students in Each Level	68.9	15.8	13.2	2.1	
Recommended Cut Point* + 2 SE		242	248	258	+ 2 SE
Percent of Students in Each Level	52.0	23.5	20.1	4.4	
Recommended Cut Point* + 1 SE		239	244	253	+ 1 SE
Percent of Students in Each Level	38.5	22.9	27.4	11.2	
Recommended Cut Point*		235	240	249	Recommended Cut Points*
Percent of Students in Each Level	26.6	17.4	35.3	20.7	
Recommended Cut Point* -1 SE		231	236	245	-1 SE
Percent of Students in Each Level	17.1	12.7	34.6	35.6	
Recommended Cut Point* -2 SE		228	233	241	-2 SE
Percent of Students in Each Level	11.5	10.8	26.8	50.9	
Recommended Cut Point* -3 SE		224	229	236	-3 SE
Percent of Students in Each Level	5.9	7.8	16.2	70.1	

* Participants' Large Group Medians

Oregon Standard Setting Grade 10 Science

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

Performance Level	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Standard Error (SE) measurement + cutscore		3.88	3.83	4.54	
Recommended Cut Point* + 3 SE		247	252	263	+ 3 SE
Percent of Students in Each Level	73.2	14.3	11.1	1.4	
Recommended Cut Point* + 2 SE		243	248	258	+ 2 SE
Percent of Students in Each Level	56.6	18.9	20.1	4.4	
Recommended Cut Point* + 1 SE		239	244	254	+ 1 SE
Percent of Students in Each Level	38.5	22.9	30.0	8.6	
Recommended Cut Point*		235	240	249	Recommended Cut Points*
Percent of Students in Each Level	26.6	17.4	35.3	20.7	
Recommended Cut Point* -1 SE		231	236	245	-1 SE
Percent of Students in Each Level	17.1	12.7	34.6	35.6	
Recommended Cut Point* -2 SE		227	232	240	-2 SE
Percent of Students in Each Level	9.3	10.3	24.4	56.0	
Recommended Cut Point* -3 SE		223	229	235	-3 SE
Percent of Students in Each Level	4.6	9.0	13.0	73.4	

* Participants' Large Group Medians

277

SECTION H

Graphical Representations of Participants' Judgments

Mathematics

Based on Participants' Round 3 Bookmark Recommendations

Quadratic interpolation used to establish cut scores for Grades 4, 6, and 7 *

	3	4	5	6	7	8	10
Does Not Yet Meet	11.4%	10.7%	13.1%	13.2%	17.0%	19.2%	29.8%
Nearly Meets	8.2%	13.2%	14.4%	12.6%	12.2%	13.1%	15.9%
Meets	45.2%	44.8%	48.9%	49.1%	45.5%	40.3%	37.7%
Exceeds	35.2%	31.3%	23.7%	25.1%	25.3%	27.4%	16.7%
Meets & Above	80.4%	76.1%	72.6%	74.3%	70.8%	67.7%	54.4%
Nearly Meets	201	208	214	215	221	225	231
Meets	204	212	218	220	226	230	236
Exceeds	215	224	230	233	239	241	246

Mathematics

Based on Table Leaders' Smoothed Recommendations

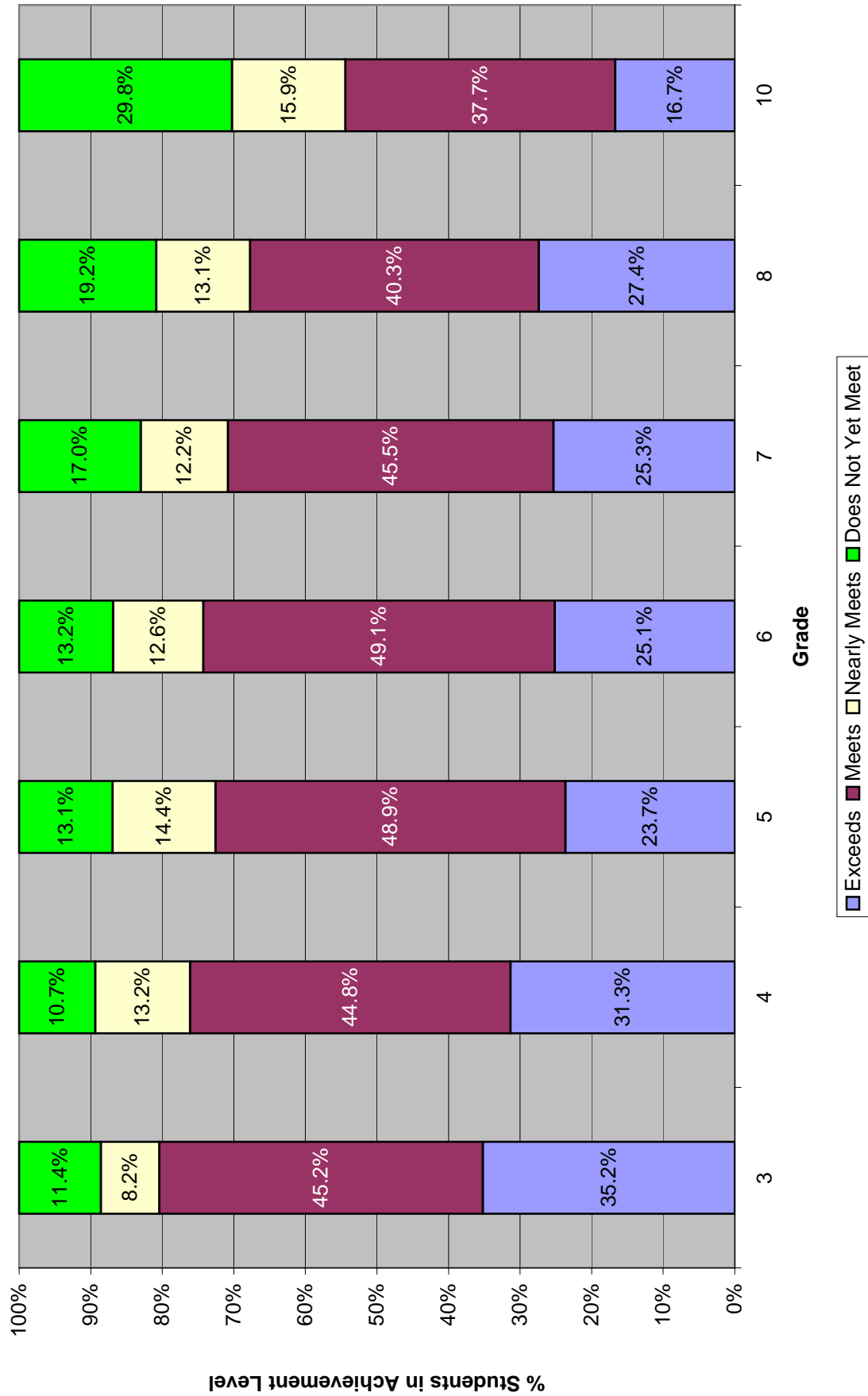
From the cross-grade articulation discussion of December 13, 2006

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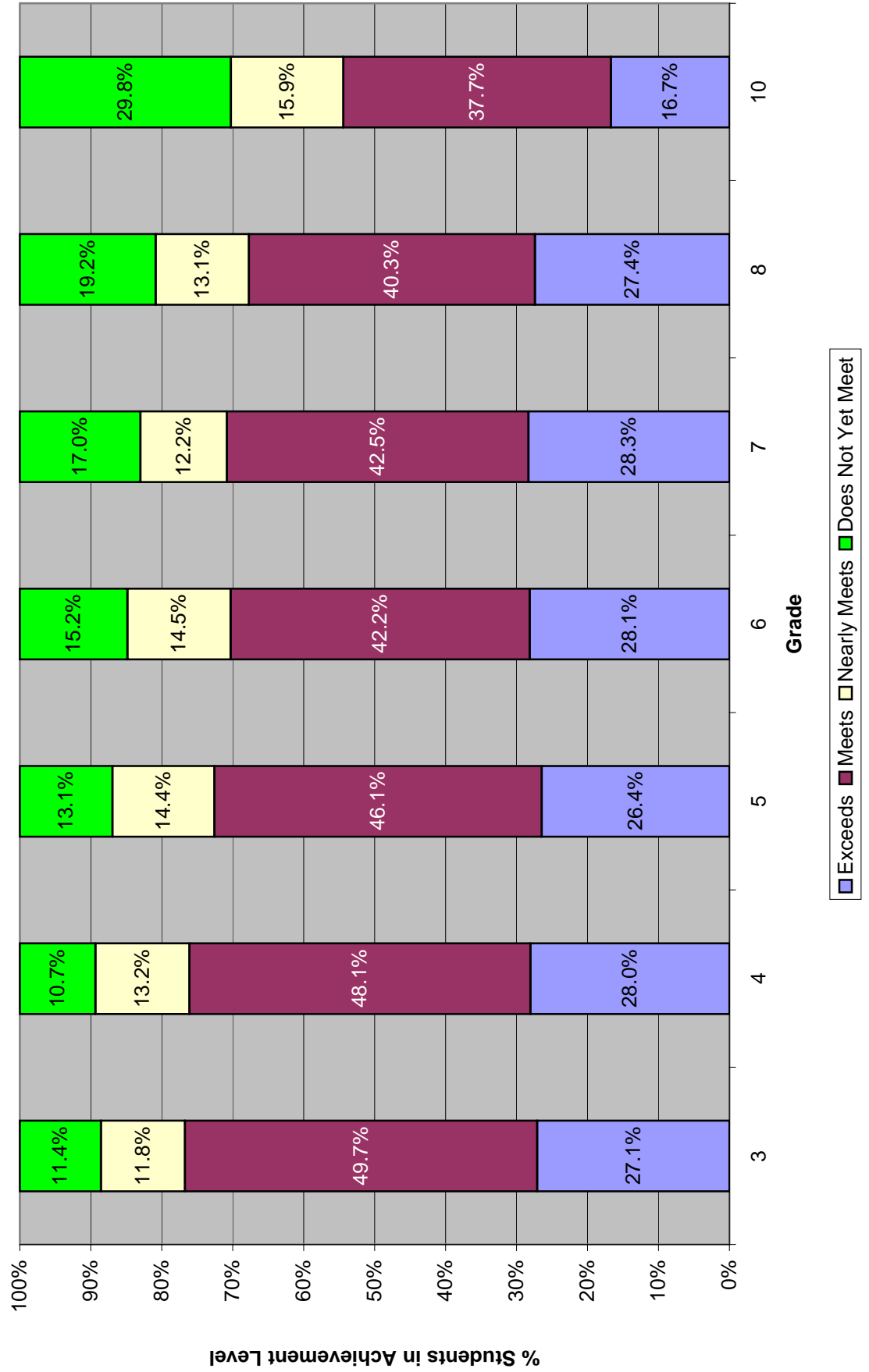
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	3	4	5	6	7	8	10
Does Not Yet Meet	11.4%	10.7%	13.1%	15.2%	17.0%	19.2%	29.8%
Nearly Meets	11.8%	13.2%	14.4%	14.5%	12.2%	13.1%	15.9%
Meets	49.7%	48.1%	46.1%	42.2%	42.5%	40.3%	37.7%
Exceeds	27.1%	28.0%	26.4%	28.1%	28.3%	27.4%	16.7%
Meets & Above	76.7%	76.1%	72.6%	70.3%	70.8%	67.7%	54.4%
Nearly Meets	201	208	214	216	221	225	231
Meets	205	212	218	221	226	230	236
Exceeds	217	225	229	232	238	241	246

Oregon Mathematics: Percent of Students by Achievement Level, Round 3 Recommendations



Oregon Mathematics: Percent of Students by Achievement Level, Table Leader Smoothing Recommendations



Reading

Based on Participants' Round 3 Bookmark Recommendations

Quadratic interpolation used to establish cut scores for Grades 4, 6, and 7 *

	3	4	5	6	7	8	10
Does Not Yet Meet	8.5%	7.7%	7.7%	10.4%	11.4%	15.9%	21.3%
Nearly Meets	7.1%	12.7%	20.9%	19.2%	19.3%	15.2%	14.2%
Meets	42.4%	45.6%	45.8%	45.1%	49.7%	47.4%	47.6%
Exceeds	42.0%	34.0%	25.6%	25.3%	19.6%	21.6%	16.9%
Meets & Above	84.4%	79.6%	71.4%	70.4%	69.3%	68.9%	64.6%
Nearly Meets	199	205	209	214	219	224	231
Meets	203	211	218	222	227	230	236
Exceeds	216	223	230	234	241	241	248

Reading

Based on Table Leaders' Smoothed Recommendations

From the cross-grade articulation discussion of December 13, 2006

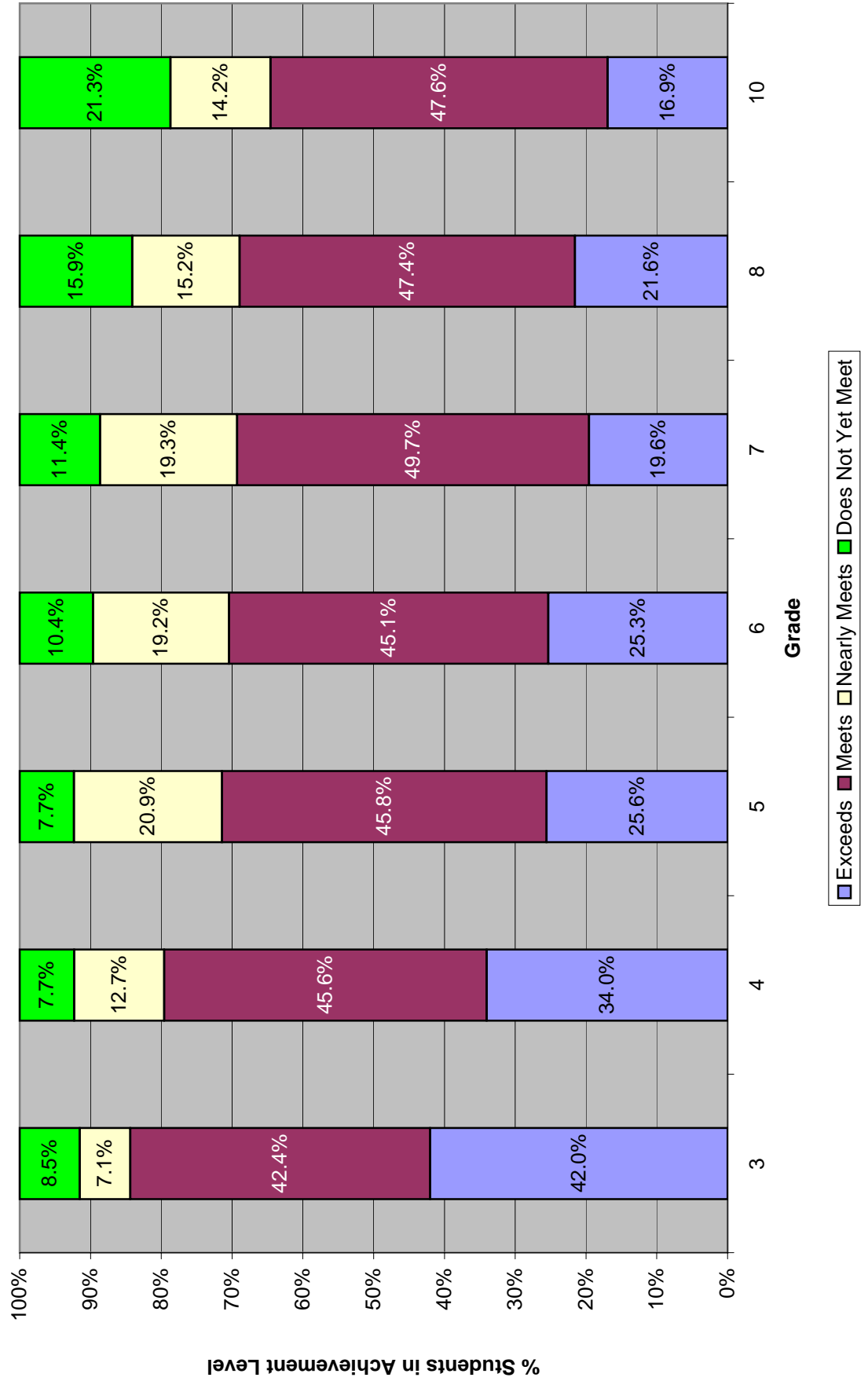
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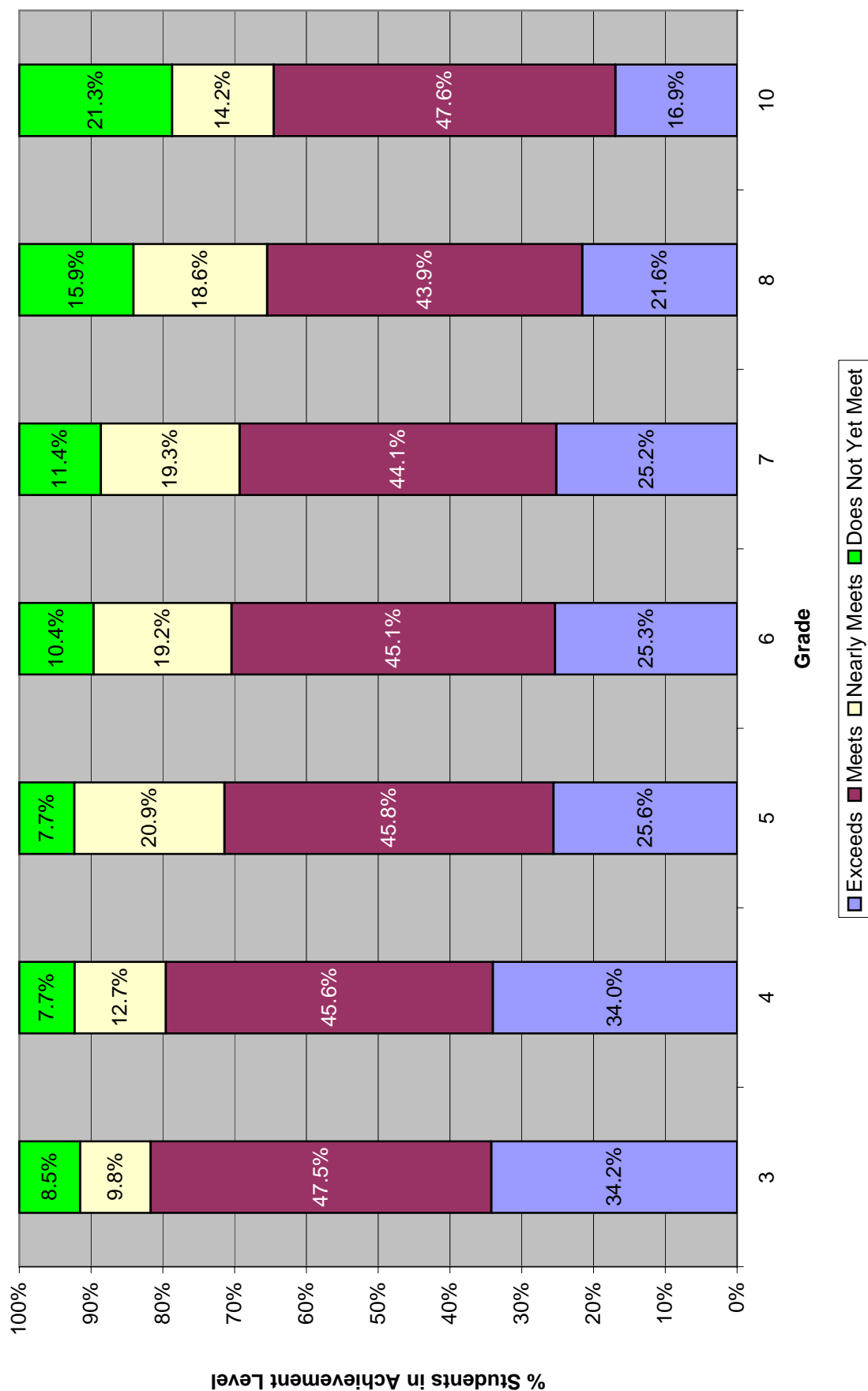
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	3	4	5	6	7	8	10
Does Not Yet Meet	8.5%	7.7%	7.7%	10.4%	11.4%	15.9%	21.3%
Nearly Meets	9.8%	12.7%	20.9%	19.2%	19.3%	18.6%	14.2%
Meets	47.5%	45.6%	45.8%	45.1%	44.1%	43.9%	47.6%
Exceeds	34.2%	34.0%	25.6%	25.3%	25.2%	21.6%	16.9%
Meets & Above	81.7%	79.6%	71.4%	70.4%	69.3%	65.5%	64.6%
Nearly Meets	199	205	209	214	219	224	231
Meets	204	211	218	222	227	231	236
Exceeds	218	223	230	234	239	241	248

Oregon Reading: Percent of Students by Achievement Level, Round 3 Recommendations



Oregon Reading: Percent of Students by Achievement Level, Table Leader Smoothing Recommendations



Science

Based on Participants' Round 3 Bookmark Recommendations
Standard setting workshop held December 11-13, 2006

	5	8	10	Impact
Does Not Yet Meet	8.0%	21.3%	26.6%	
Nearly Meets	19.1%	14.3%	17.4%	
Meets	50.5%	44.2%	35.3%	
Exceeds	22.4%	20.2%	20.7%	
Meets & Above	72.9%	64.4%	56.0%	
Nearly Meets	216	229	235	Cut Score
Meets	225	234	240	
Exceeds	238	246	249	

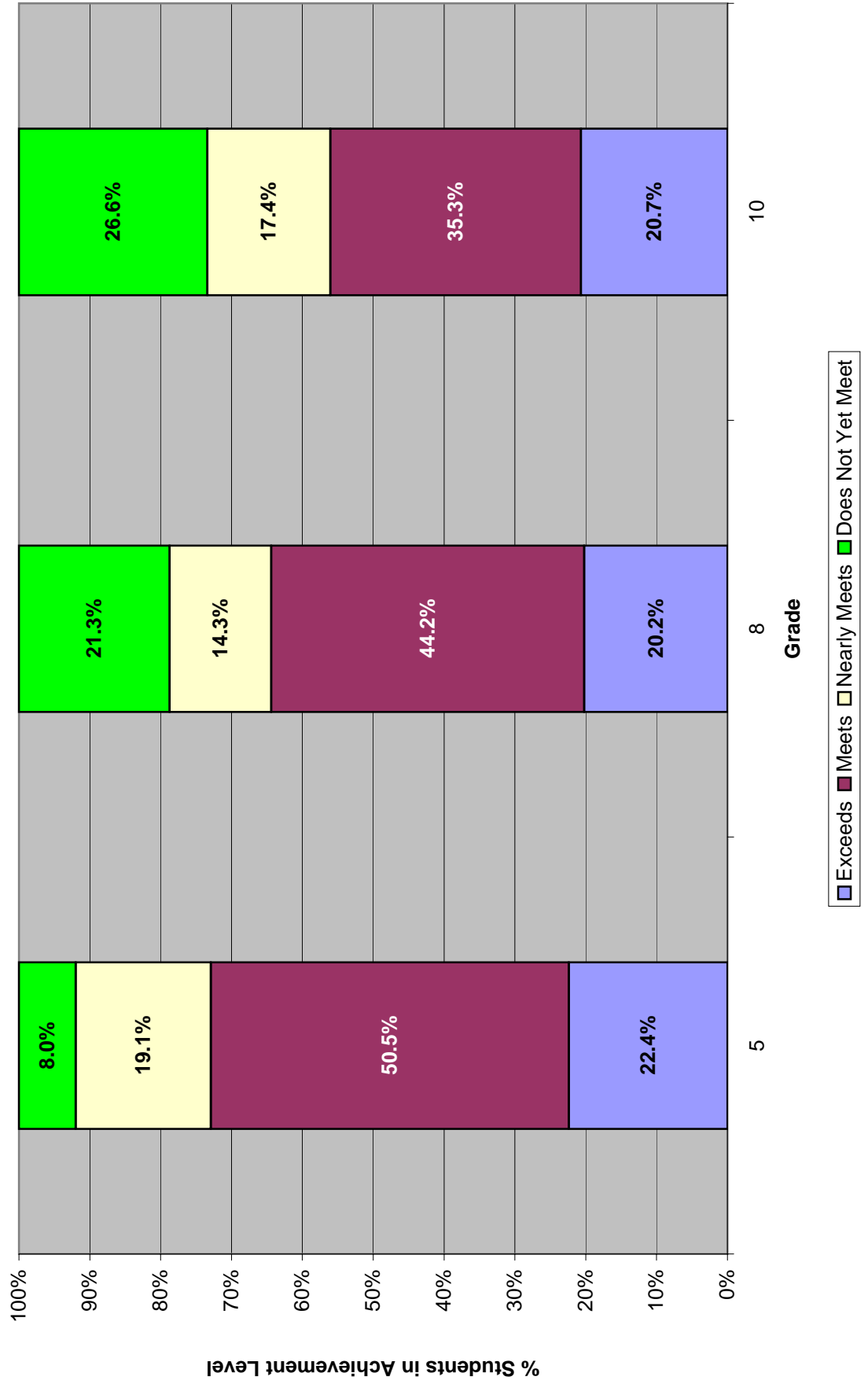
Science

Based on Table Leaders' Smoothed Recommendations

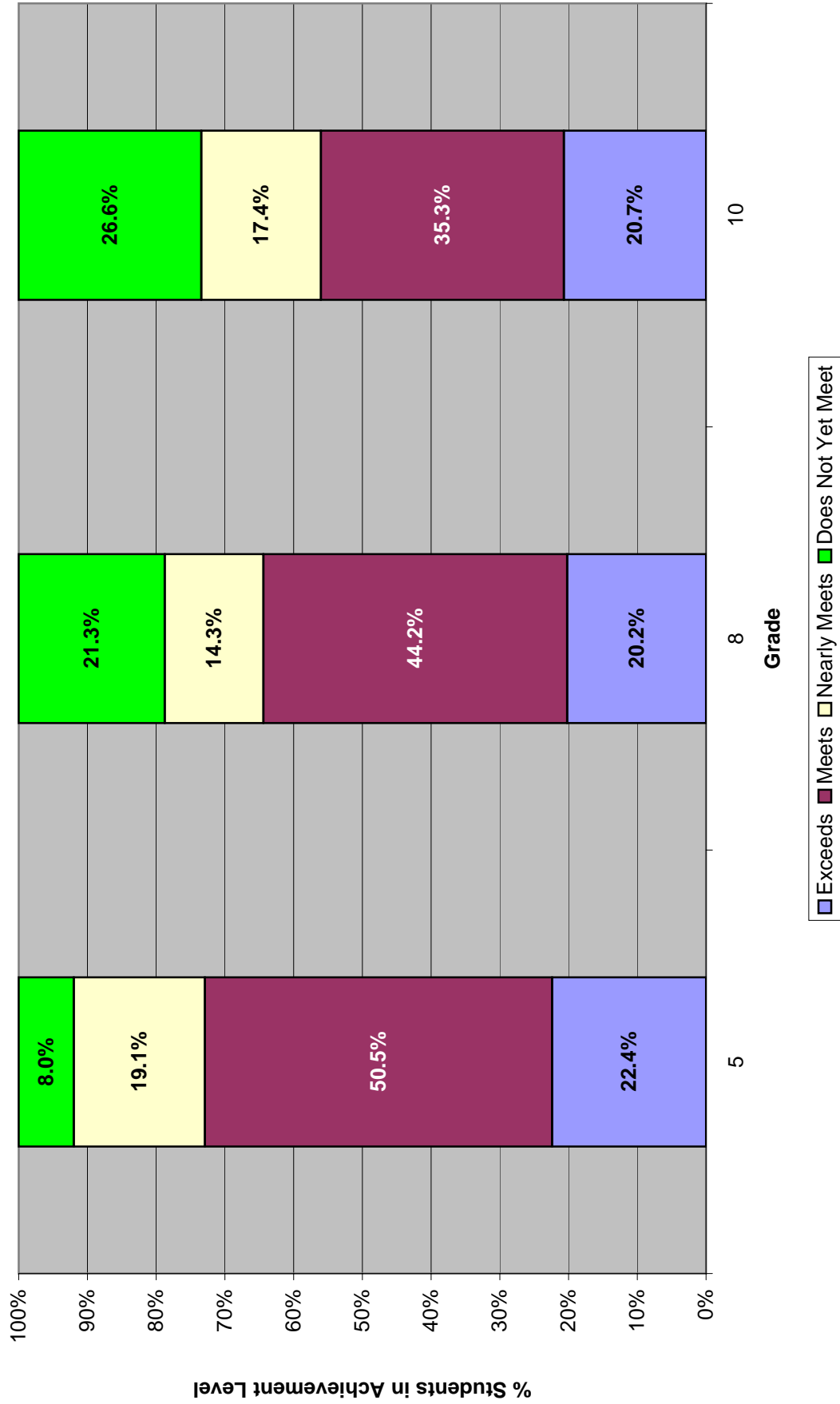
From the cross-grade articulation discussion of December 13, 2006

	5	8	10	Impact
Does Not Yet Meet	8.0%	21.3%	26.6%	
Nearly Meets	19.1%	14.3%	17.4%	
Meets	50.5%	44.2%	35.3%	
Exceeds	22.4%	20.2%	20.7%	
Meets & Above	72.9%	64.4%	56.0%	
Nearly Meets	216	229	235	Cut Score
Meets	225	234	240	
Exceeds	238	246	249	

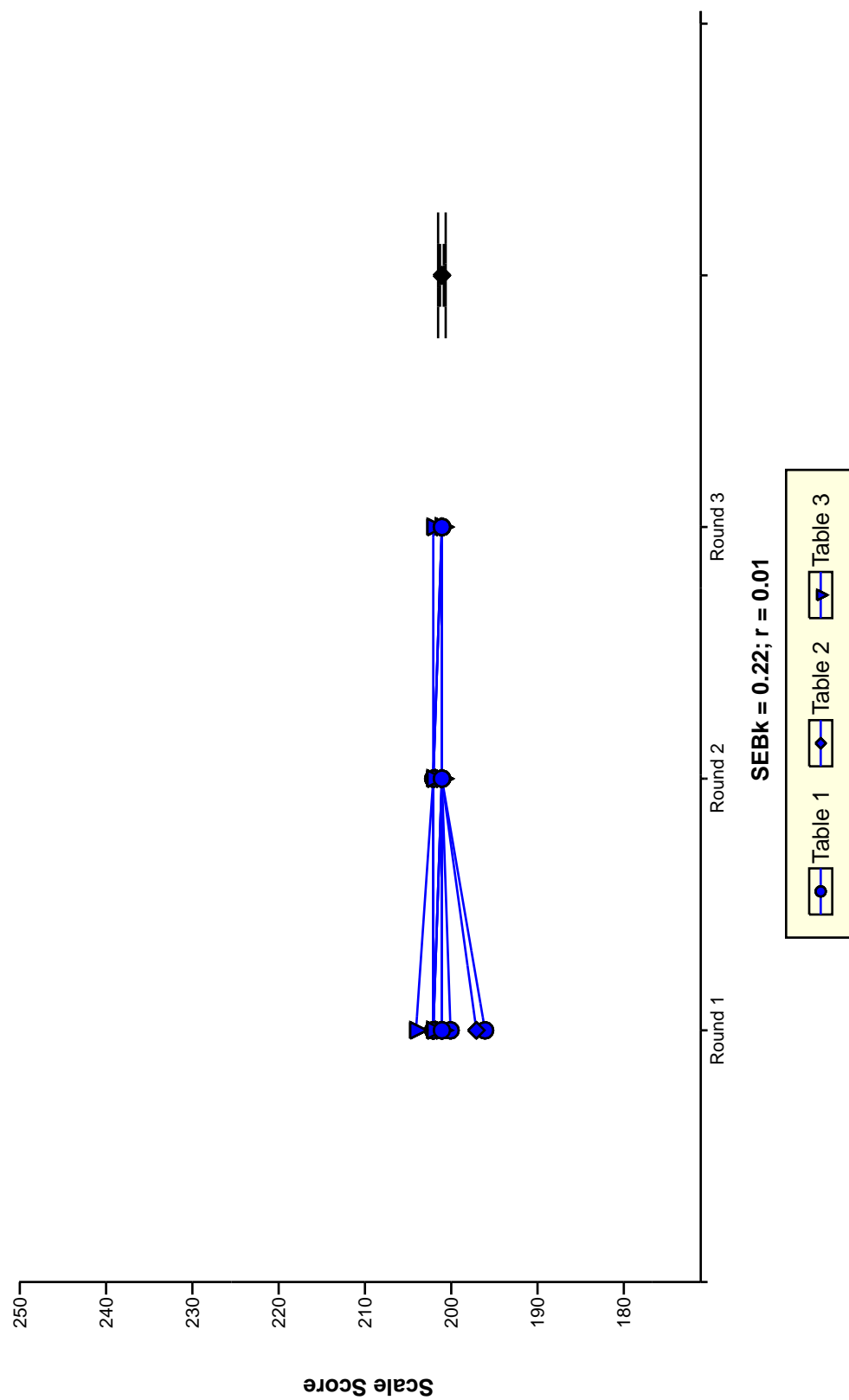
Oregon Science: Percent of Students by Achievement Level, Round 3 Recommendations



Oregon Science: Percent of Students by Achievement Level, Table Leader Smoothing
Recommendations



Oregon Standard Setting Grade 3 Mathematics Nearly Meets Cut Point



Oregon Standard Setting Grade 3 Mathematics Nearly Meets Cut Point

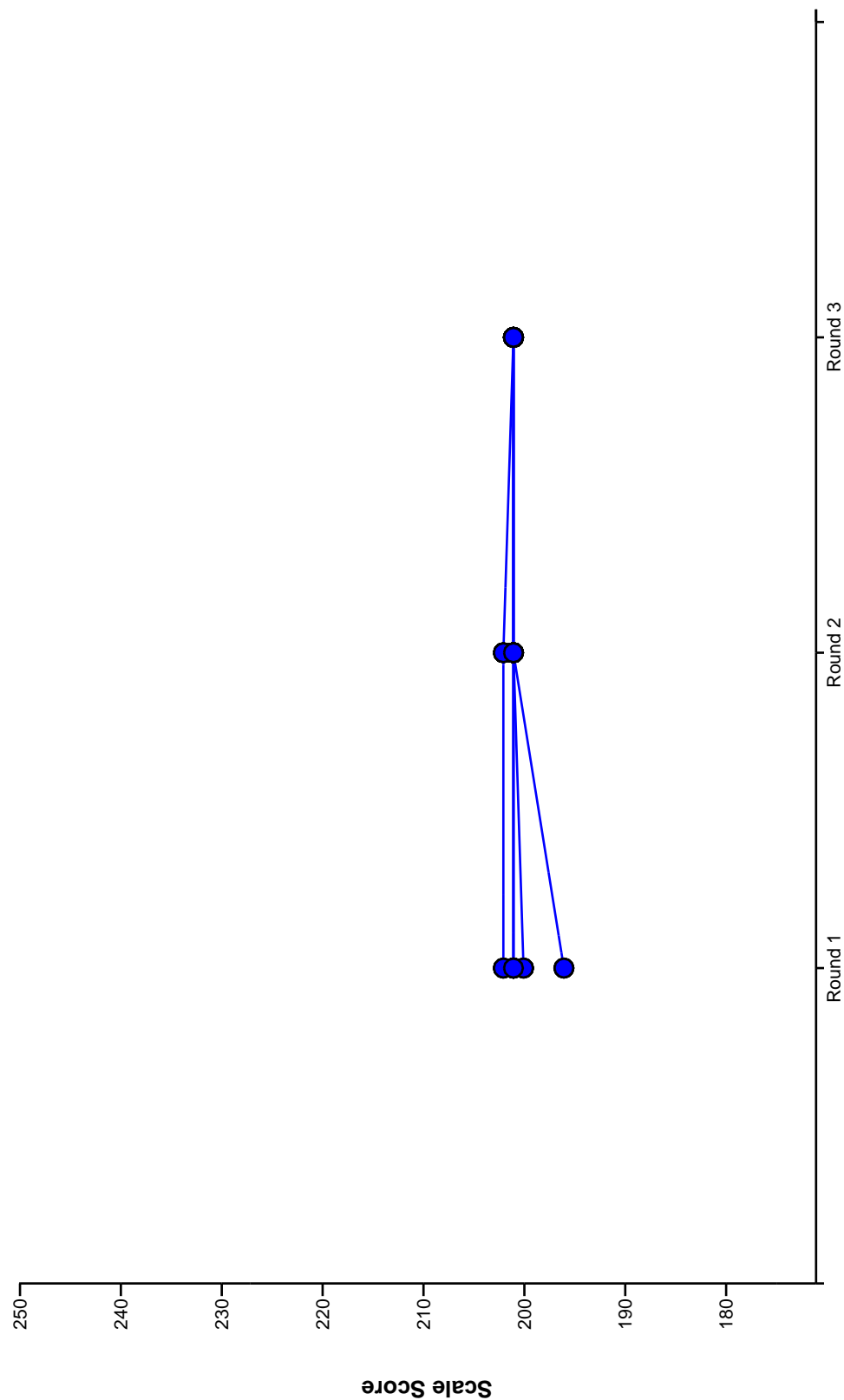


Table 1

Oregon Standard Setting Grade 3 Mathematics Nearly Meets Cut Point

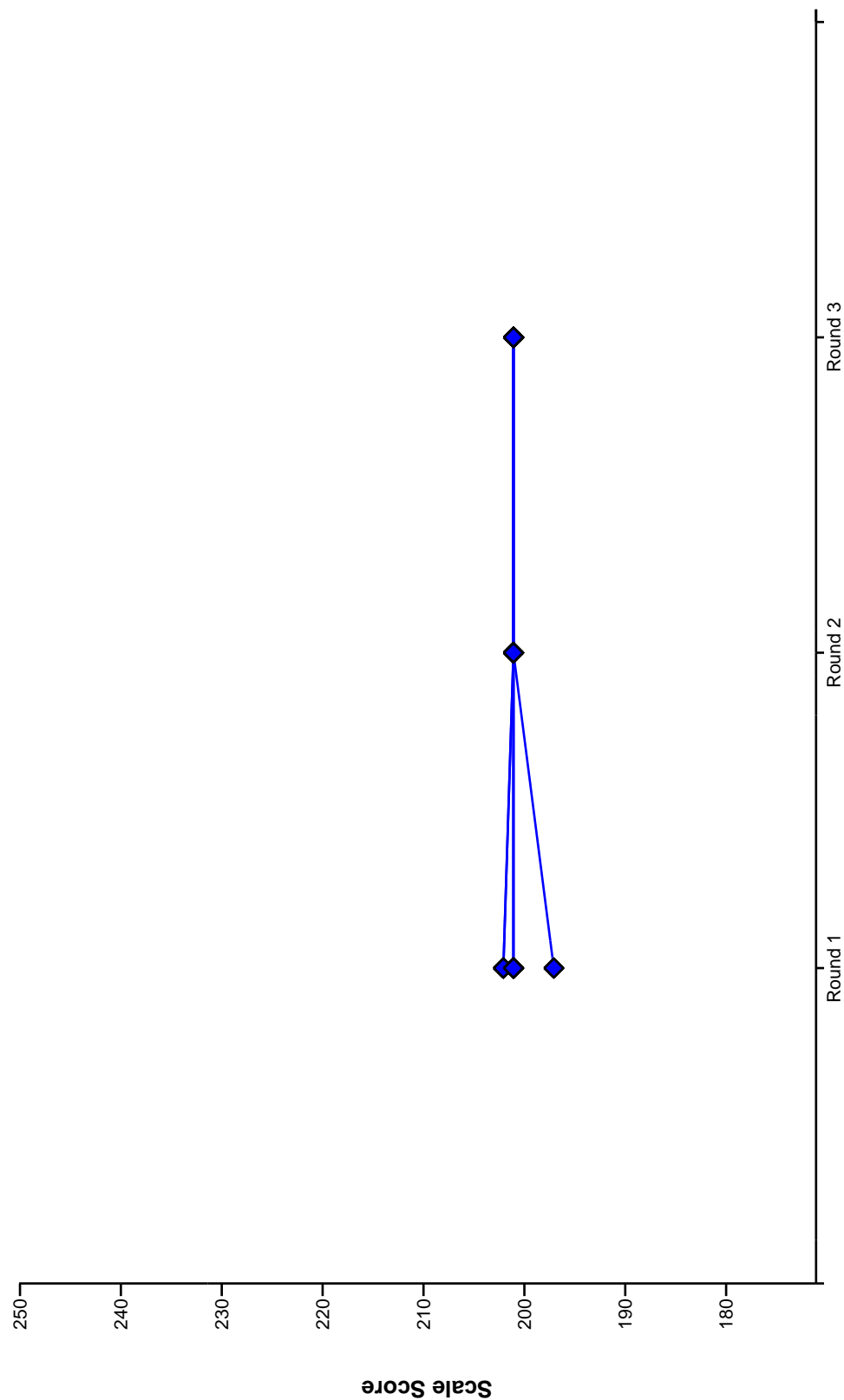


Table 2

Oregon Standard Setting Grade 3 Mathematics Nearly Meets Cut Point

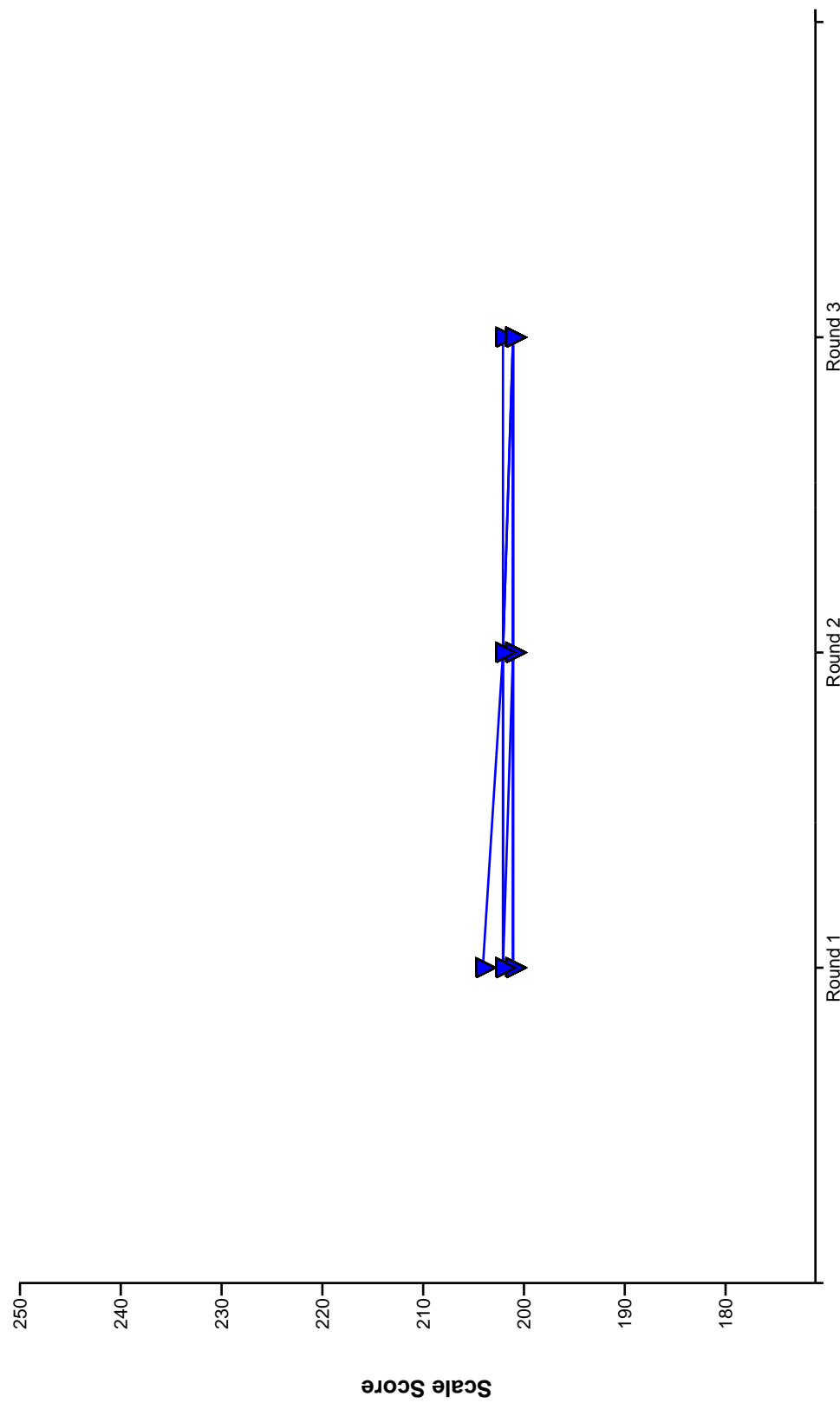
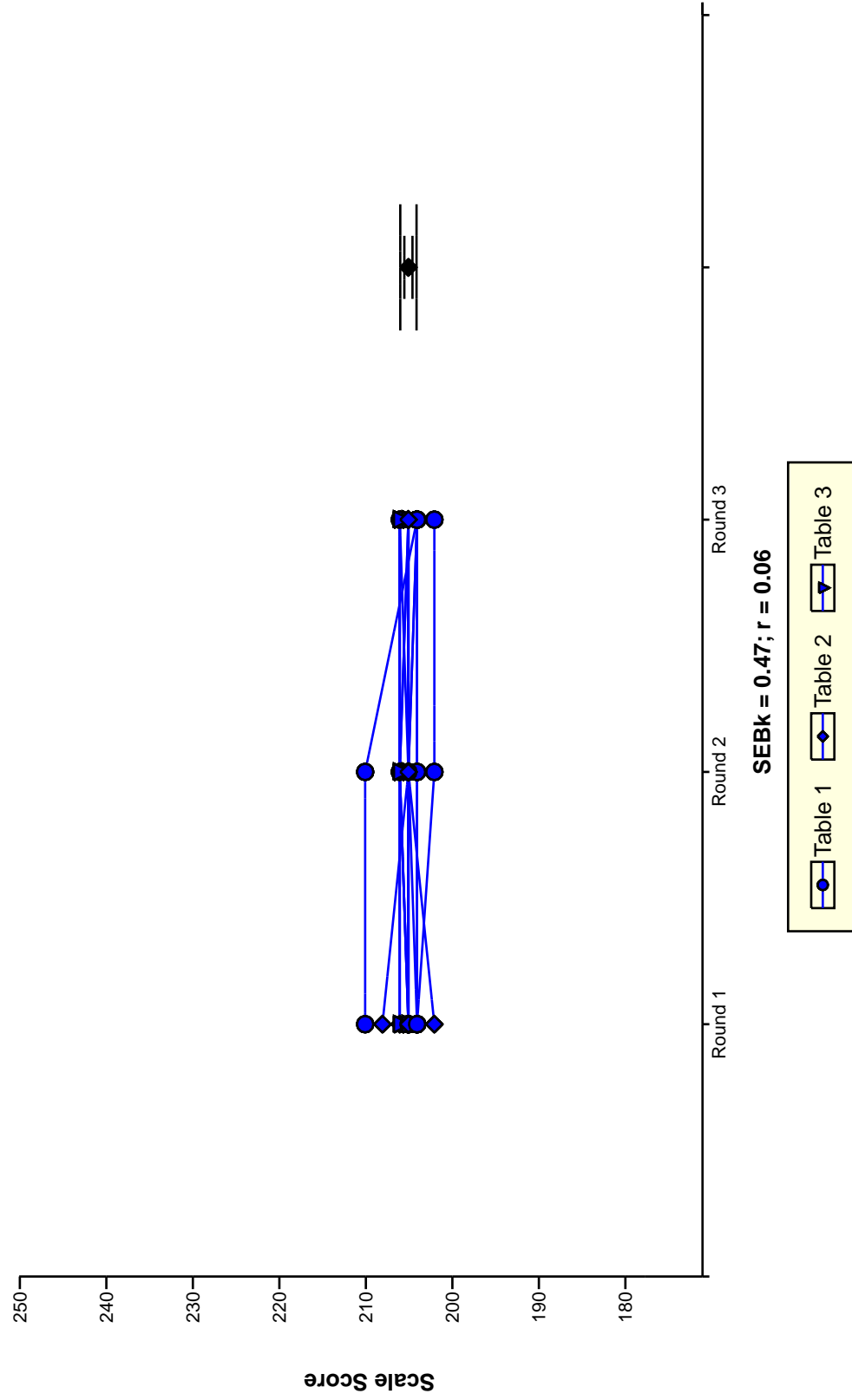


Table 3

Oregon Standard Setting Grade 3 Mathematics Meets Cut Point



Oregon Standard Setting Grade 3 Mathematics Meets Cut Point

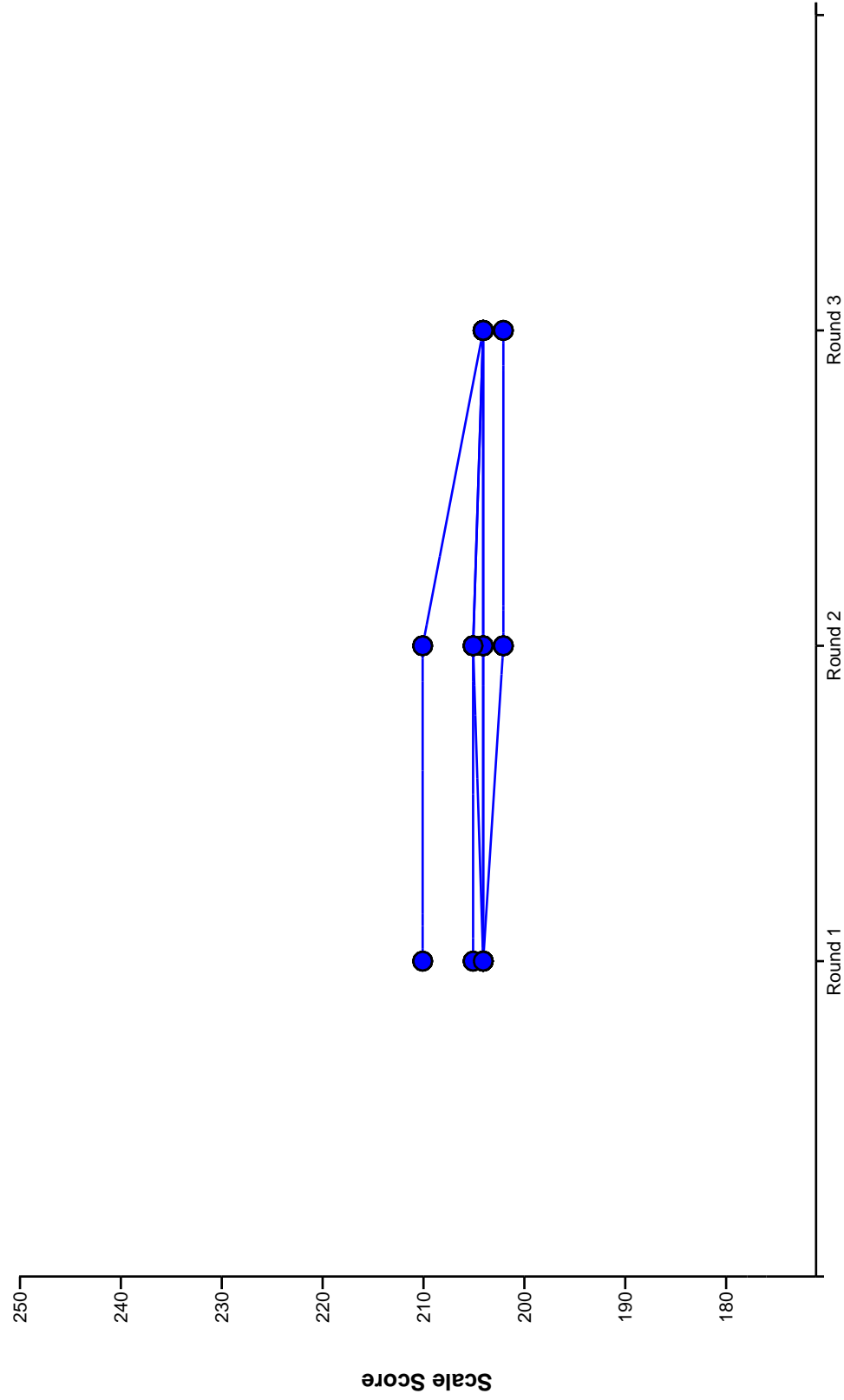


Table 1

Oregon Standard Setting Grade 3 Mathematics Meets Cut Point

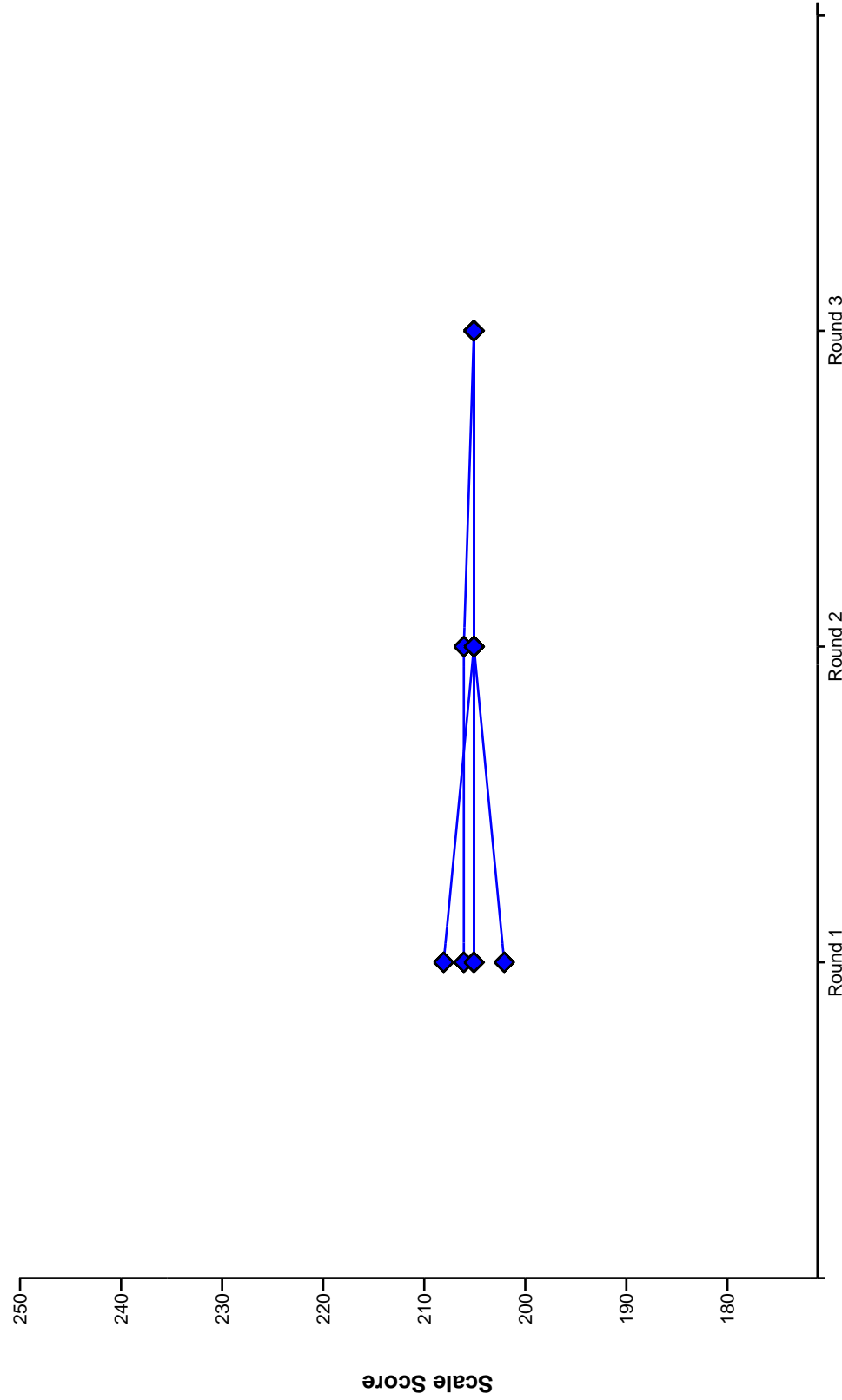


Table 2

Oregon Standard Setting Grade 3 Mathematics Meets Cut Point

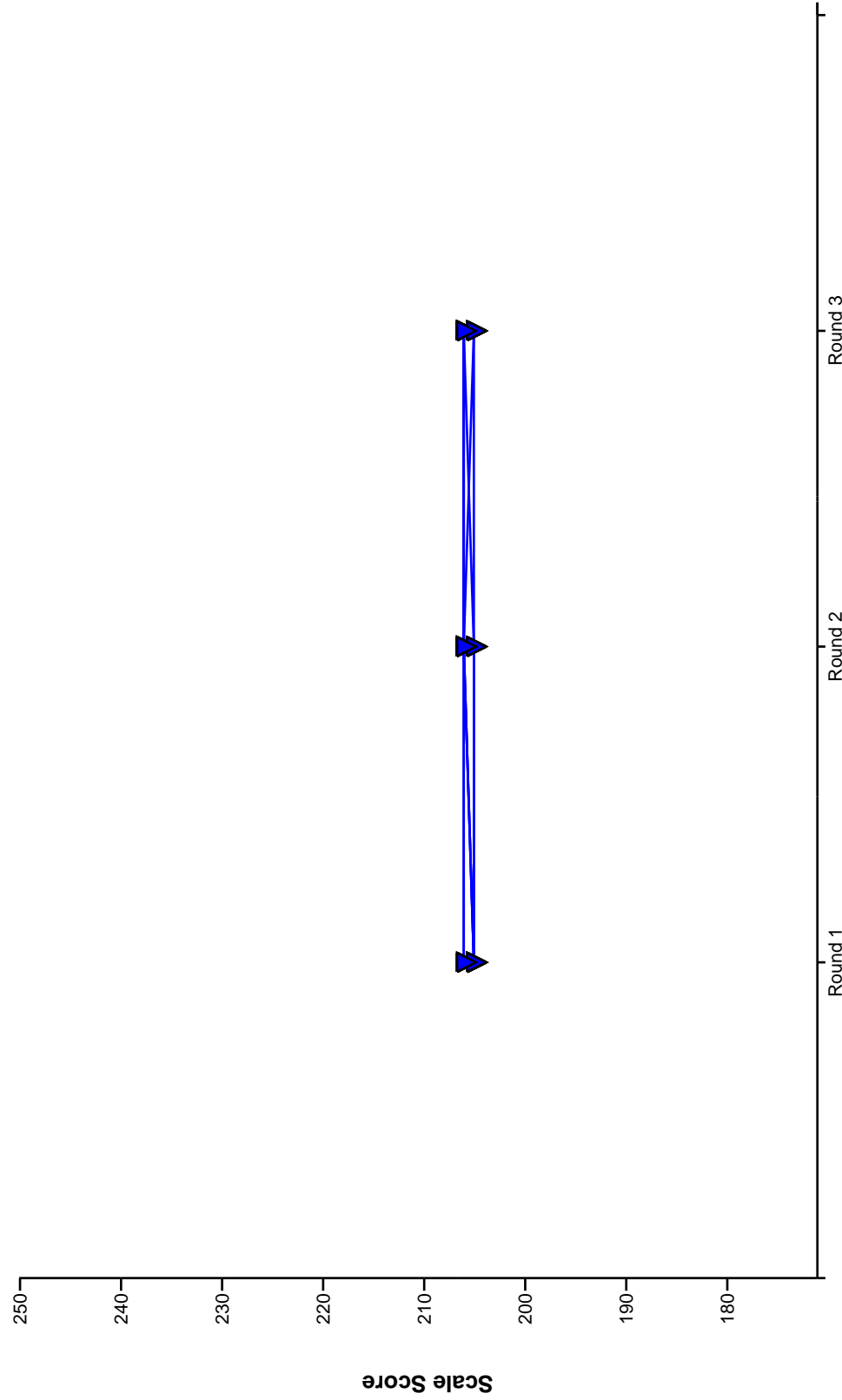
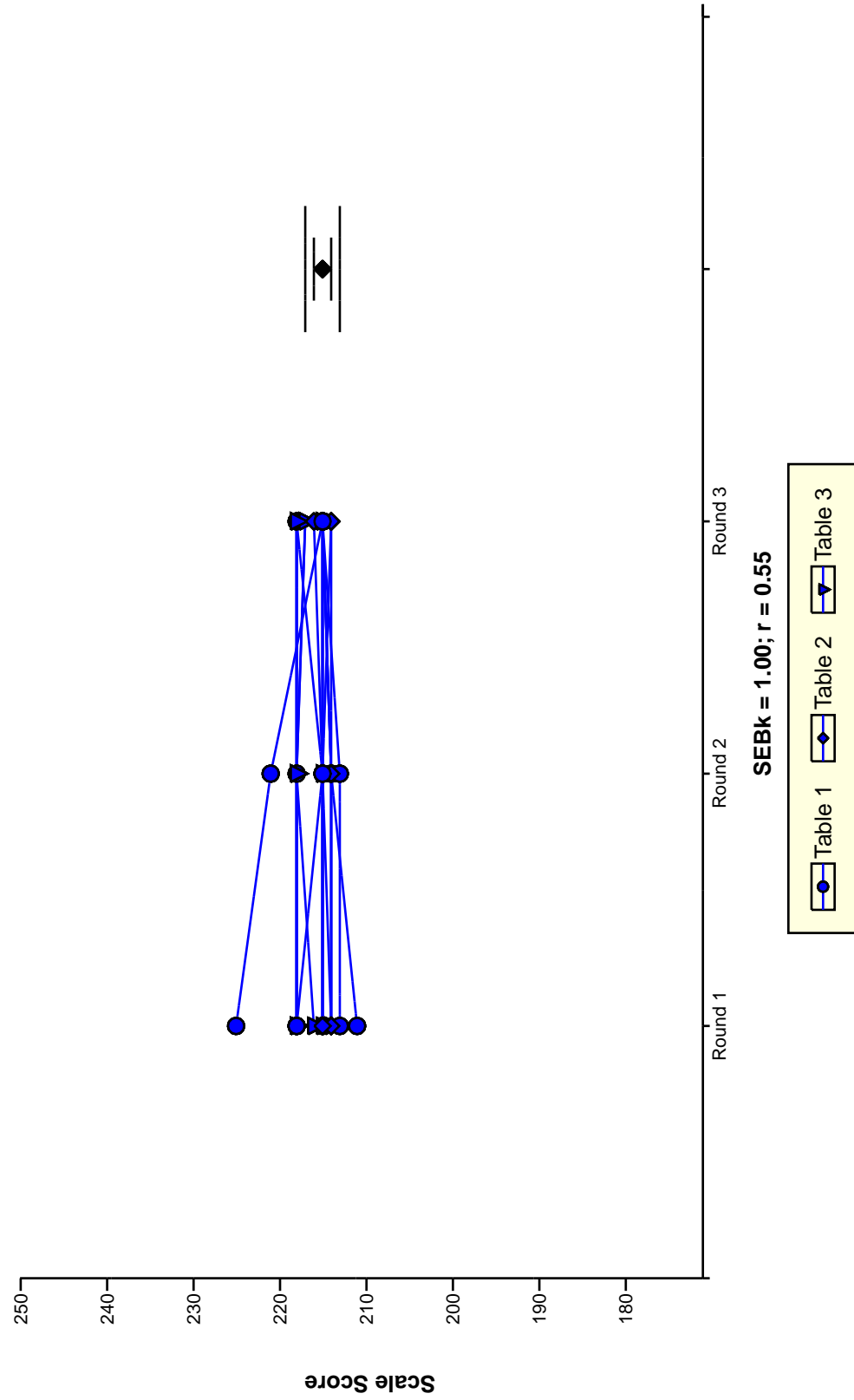


Table 3

Oregon Standard Setting Grade 3 Mathematics Exceeds Cut Point



Oregon Standard Setting Grade 3 Mathematics Exceeds Cut Point

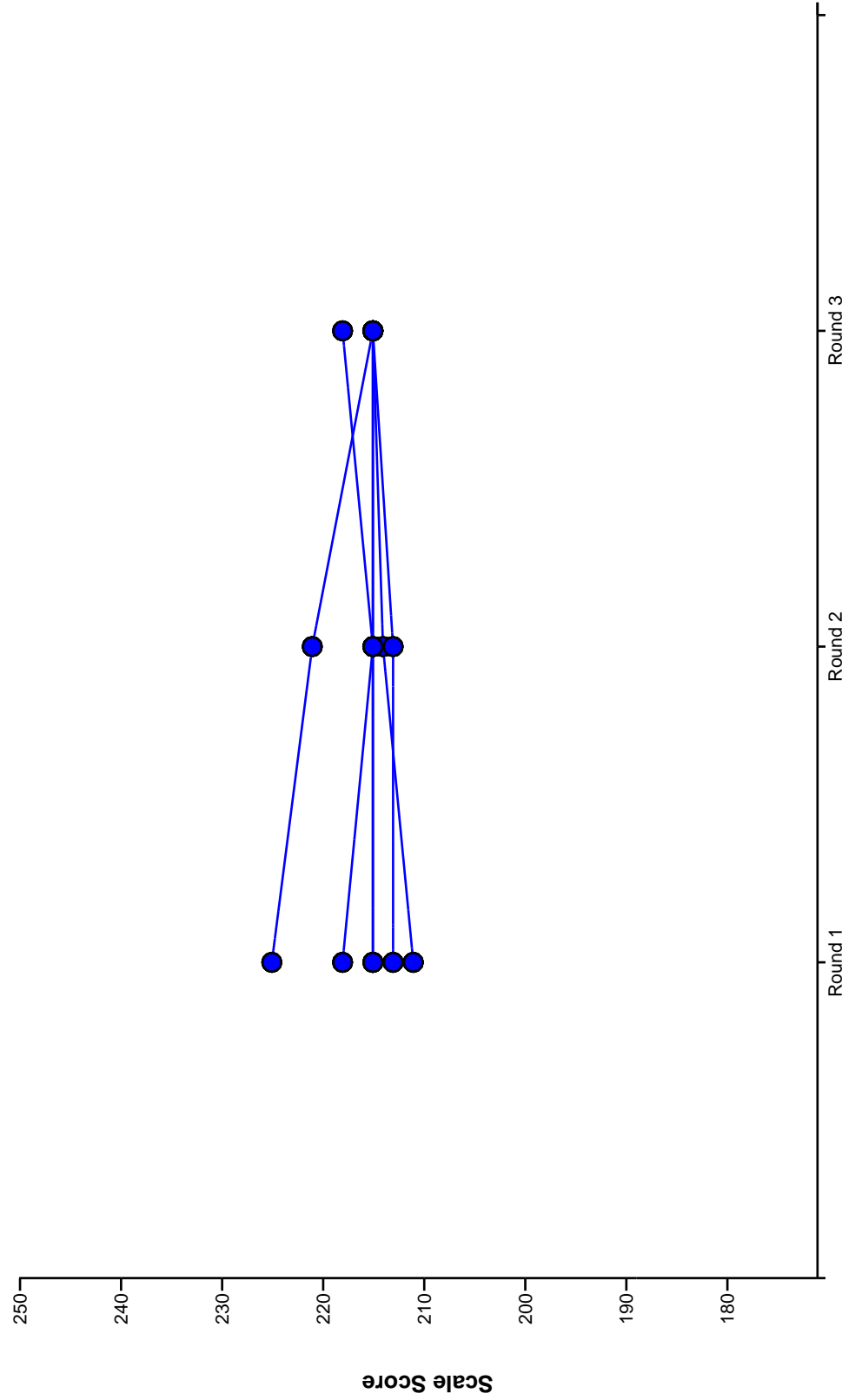


Table 1

Oregon Standard Setting Grade 3 Mathematics Exceeds Cut Point

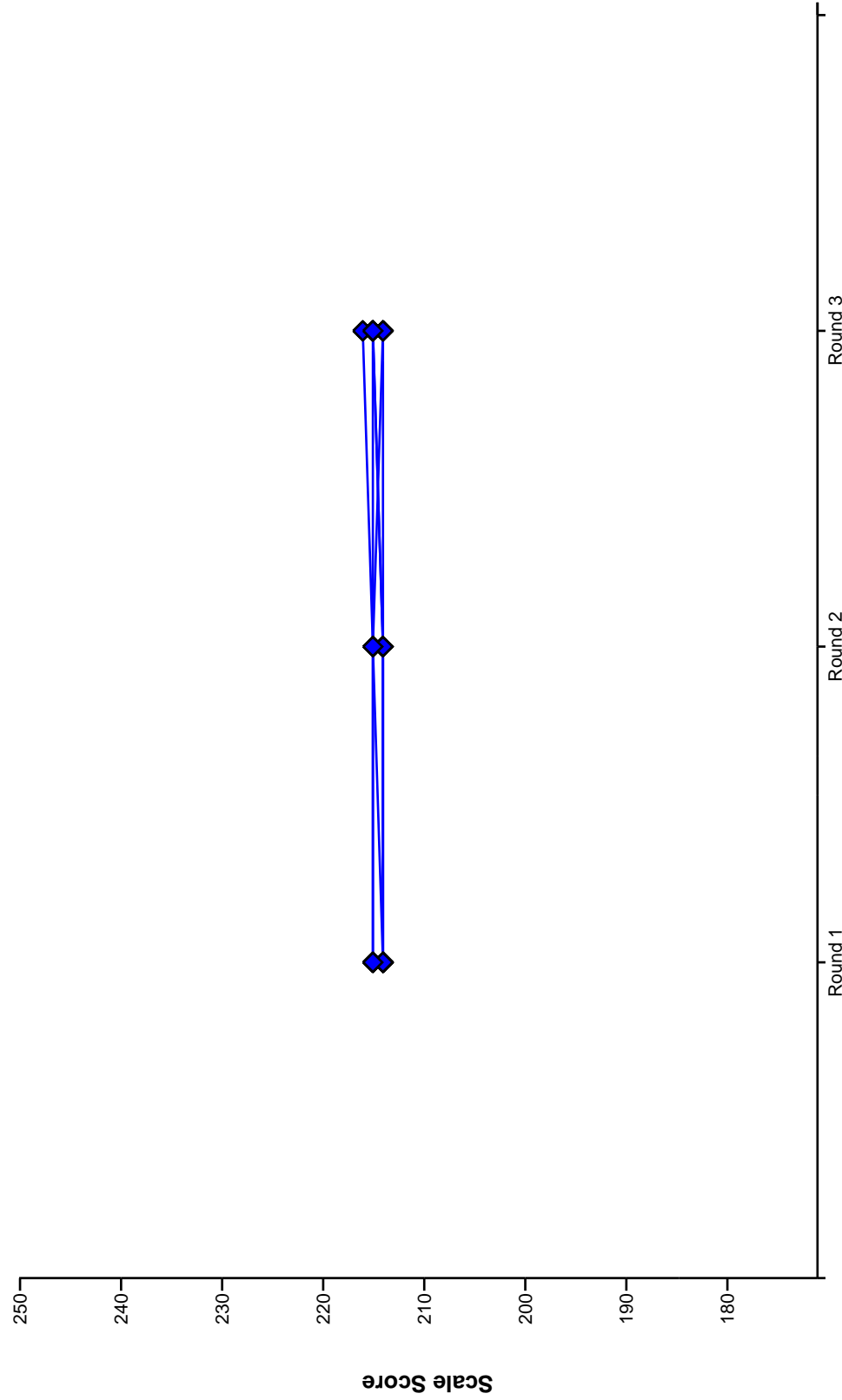


Table 2

Oregon Standard Setting Grade 3 Mathematics Exceeds Cut Point

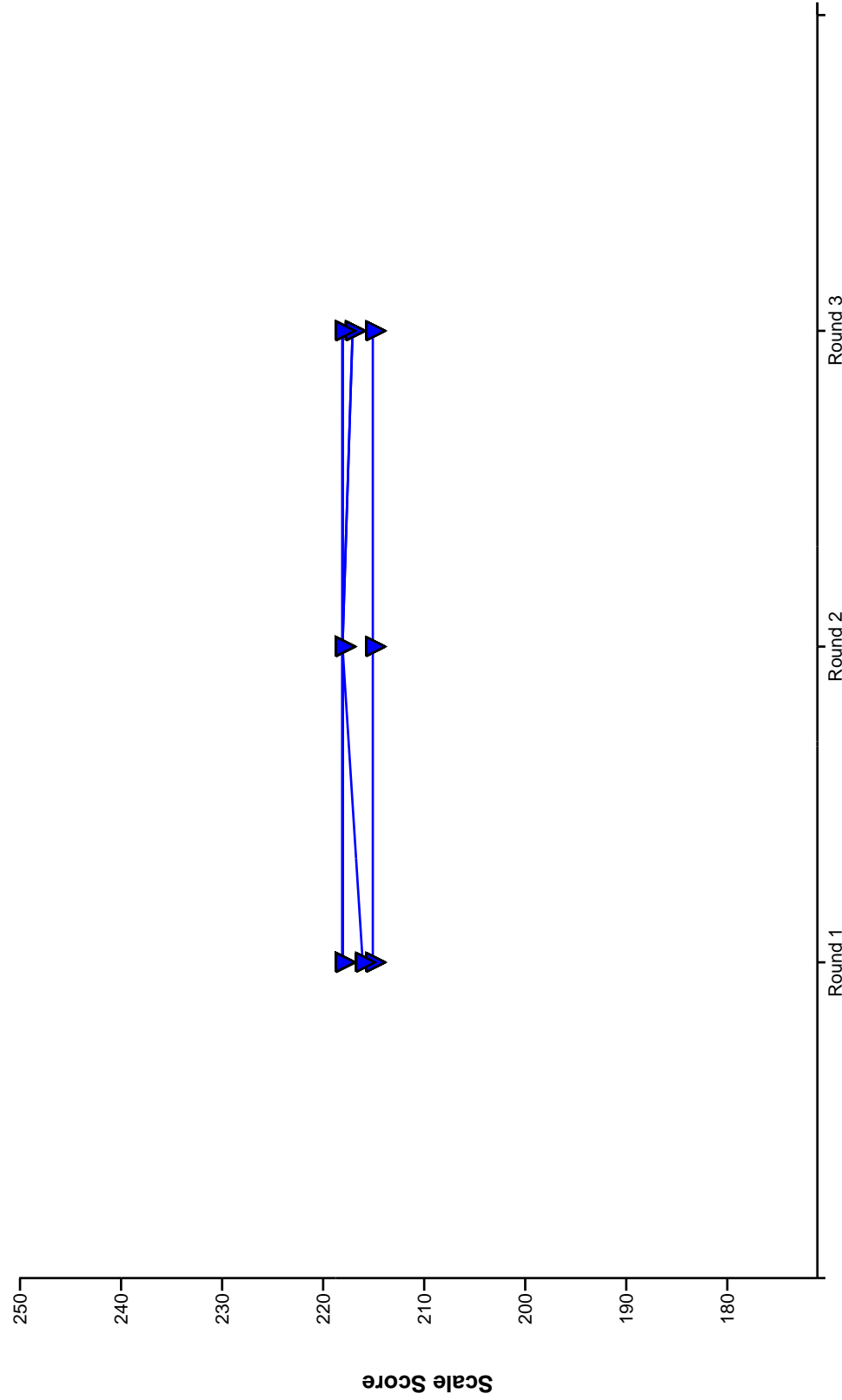
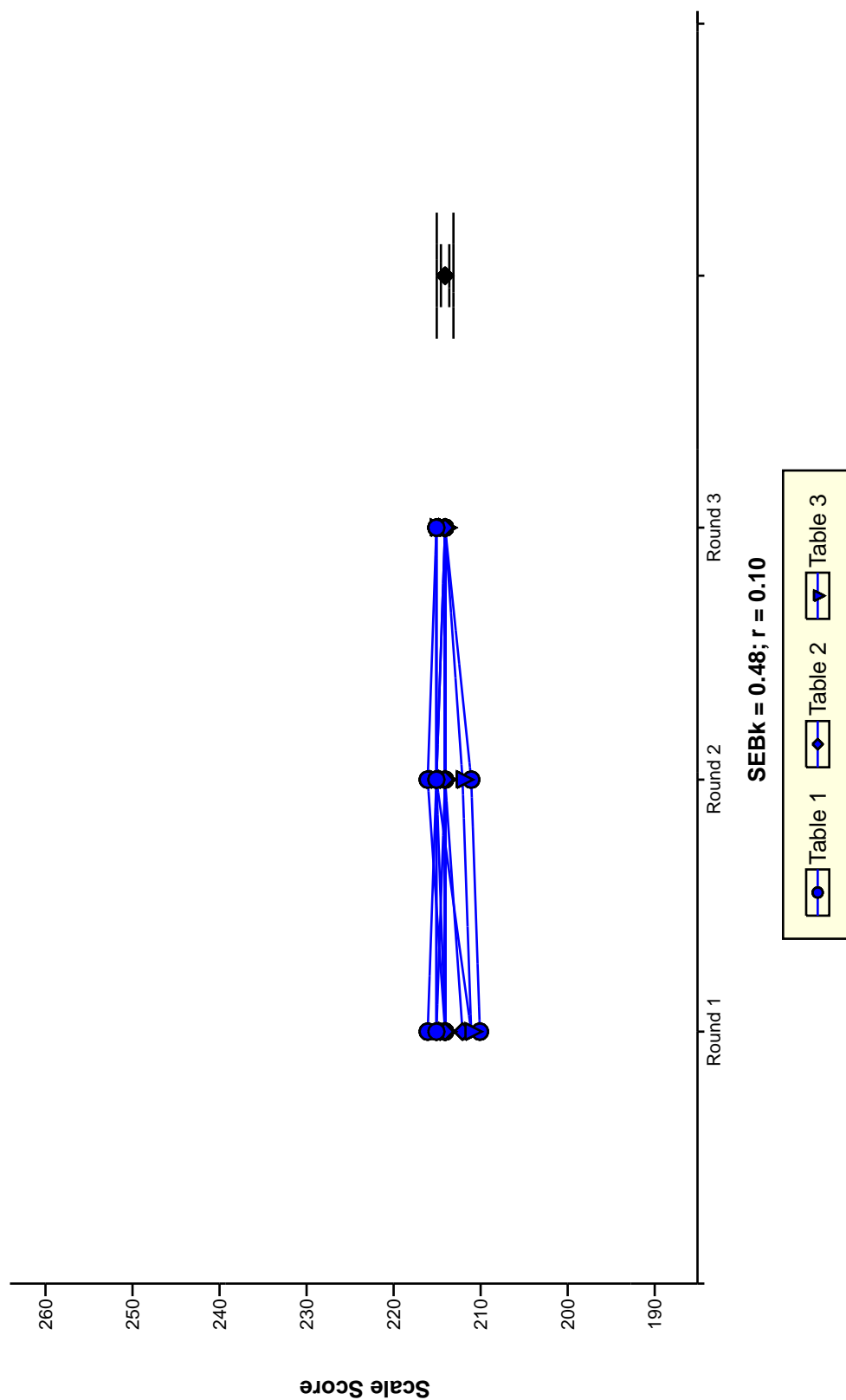


Table 3

Oregon Standard Setting Grade 5 Mathematics Nearly Meets Cut Point



Oregon Standard Setting Grade 5 Mathematics Nearly Meets Cut Point

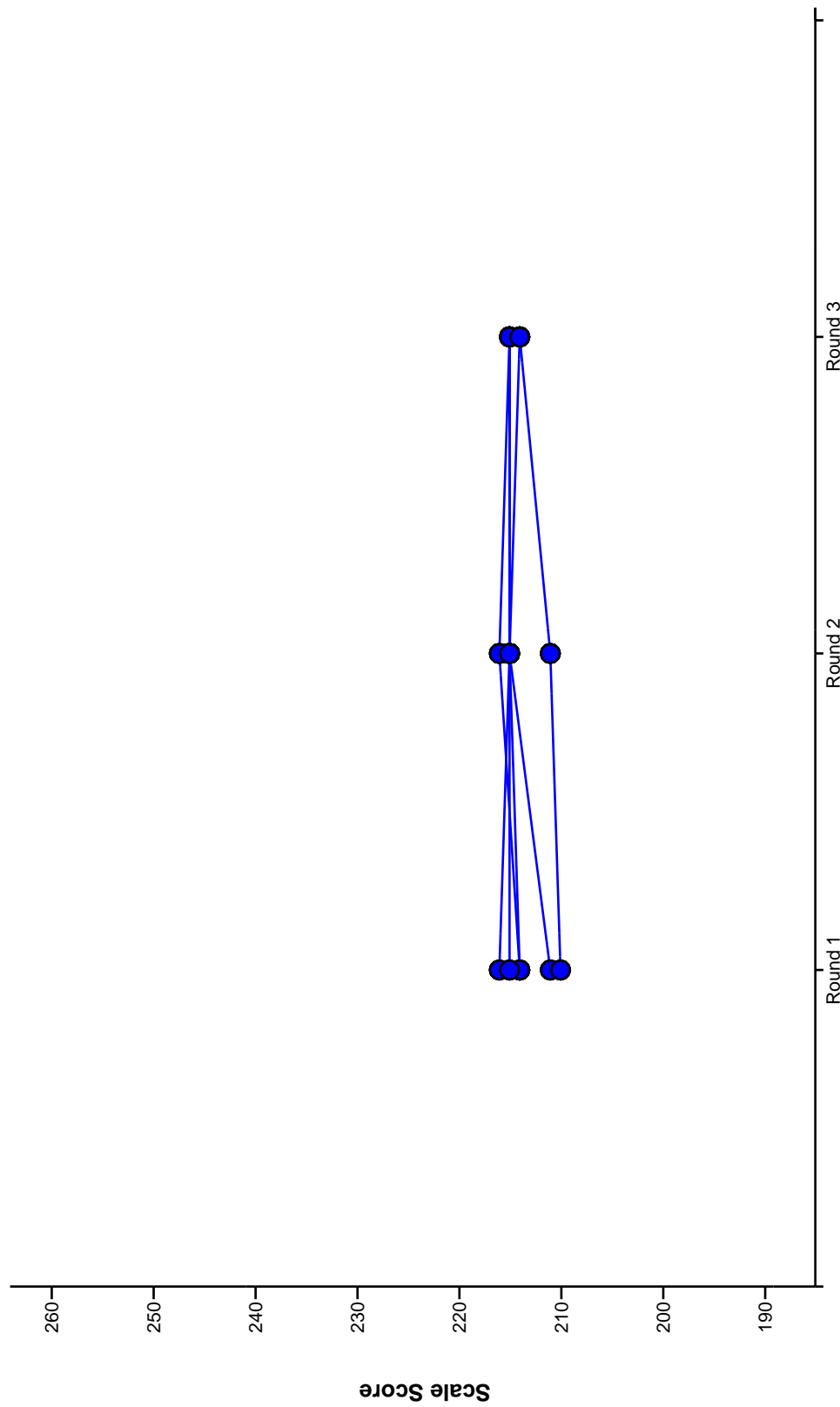


Table 1

Oregon Standard Setting Grade 5 Mathematics Nearly Meets Cut Point

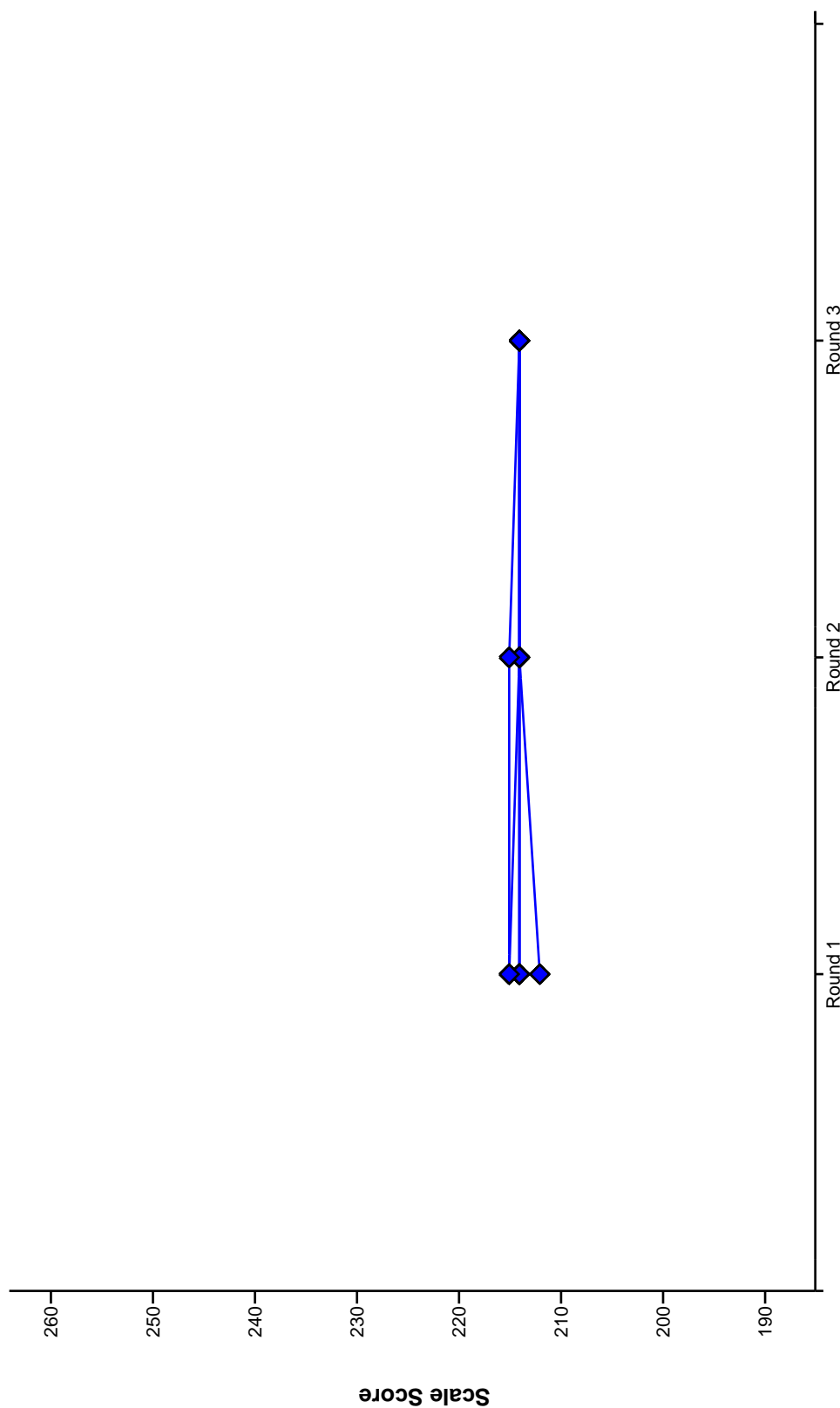


Table 2

Oregon Standard Setting Grade 5 Mathematics Nearly Meets Cut Point

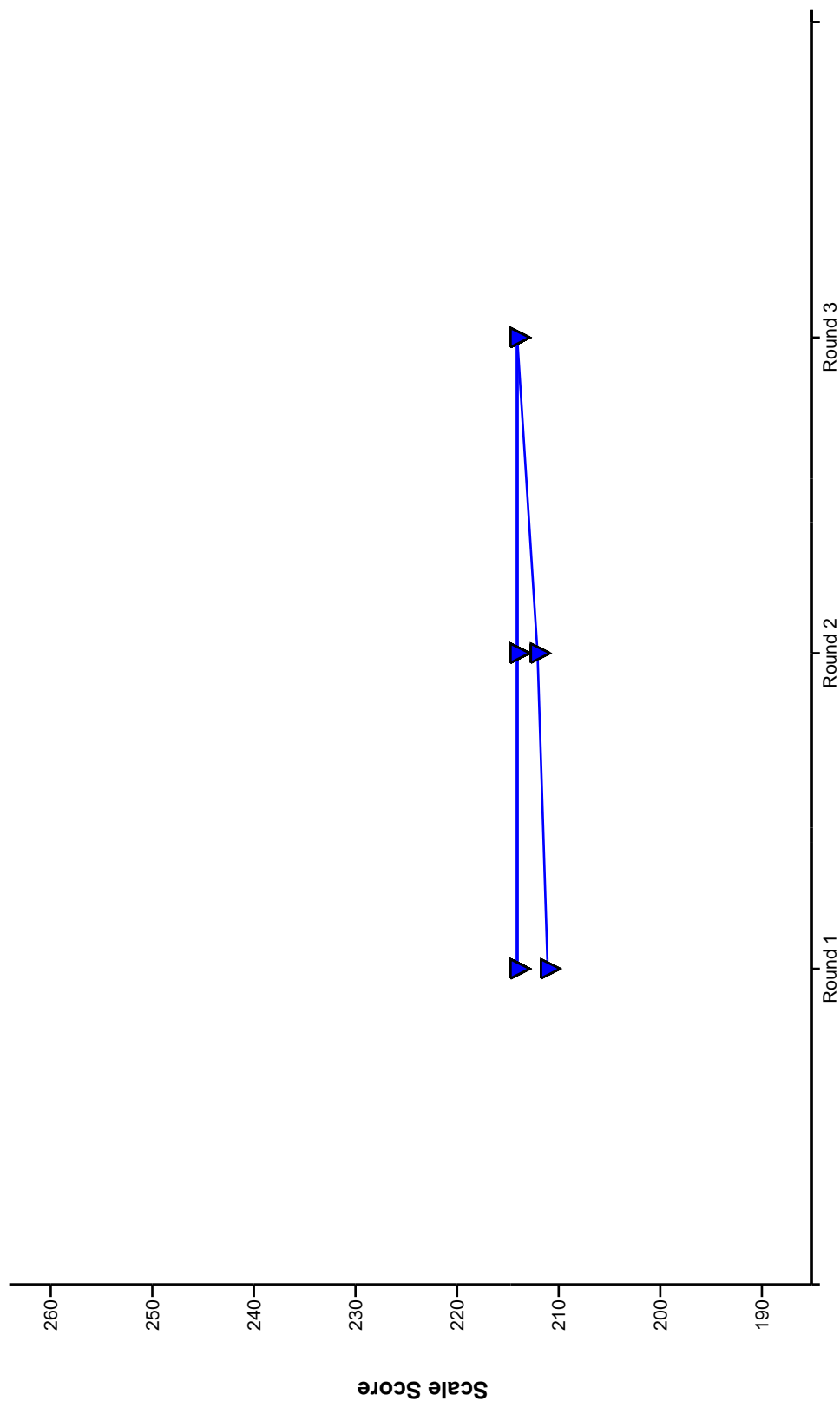
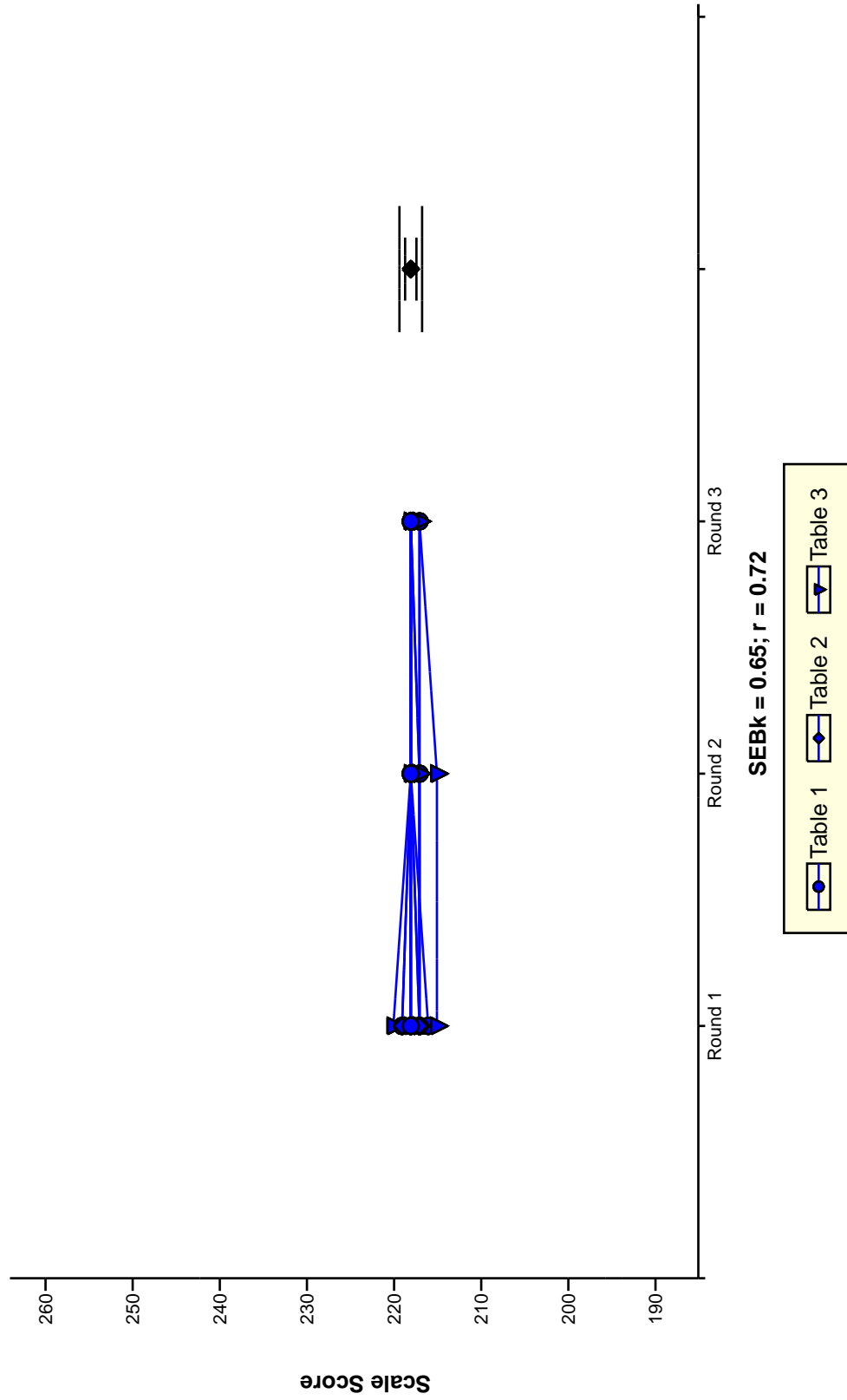


Table 3

Oregon Standard Setting Grade 5 Mathematics Meets Cut Point



Oregon Standard Setting Grade 5 Mathematics Meets Cut Point

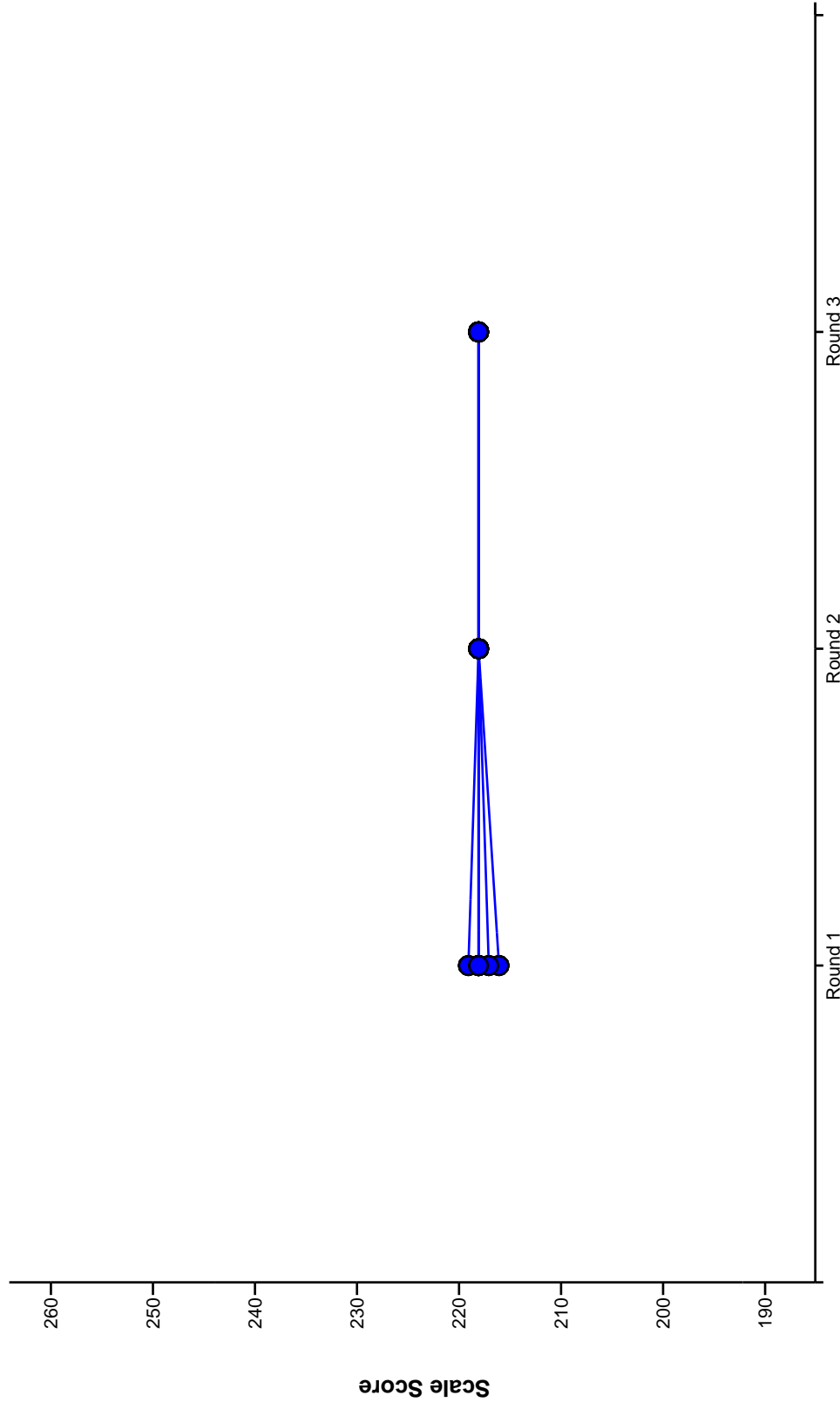


Table 1

Oregon Standard Setting Grade 5 Mathematics Meets Cut Point

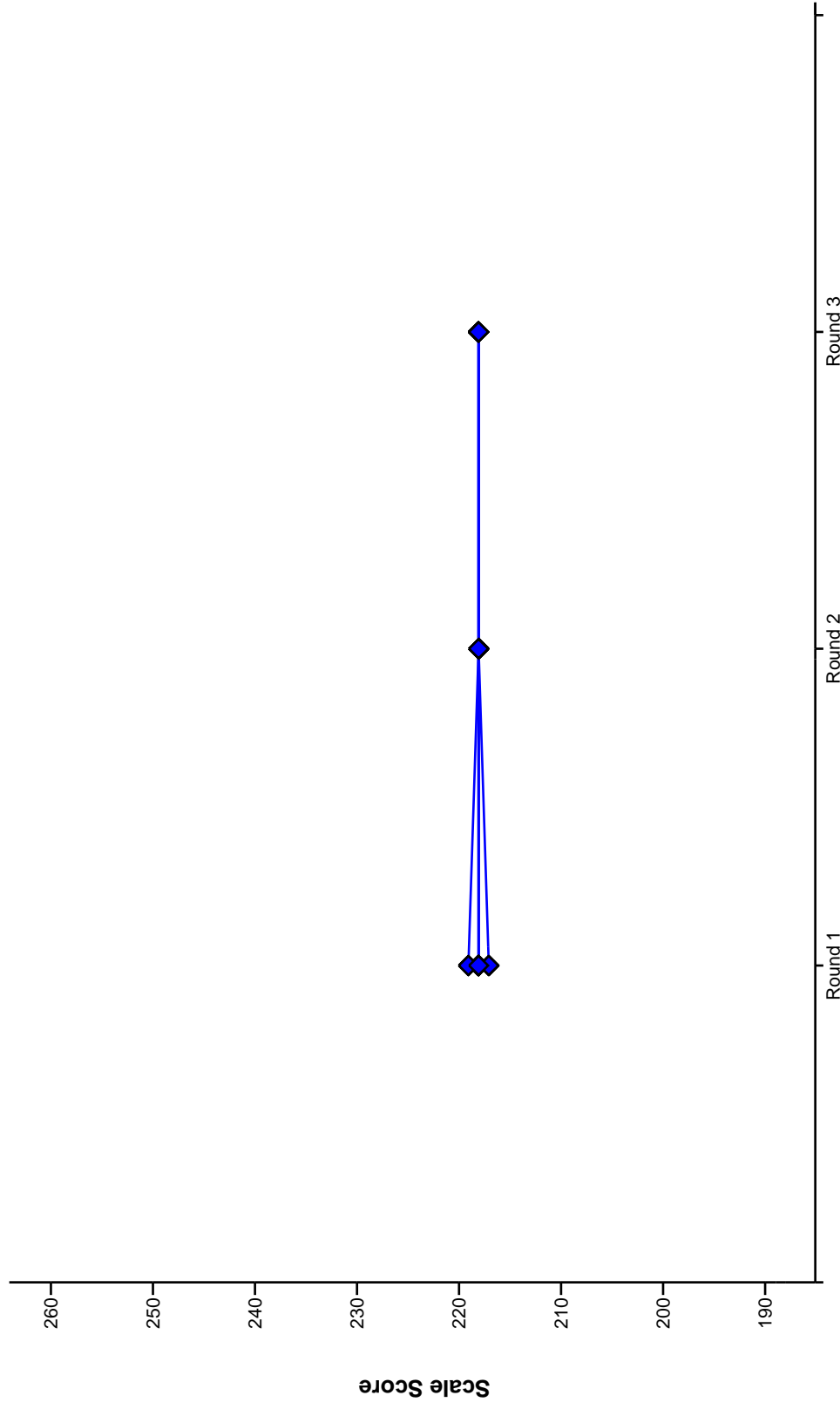


Table 2

Oregon Standard Setting Grade 5 Mathematics Meets Cut Point

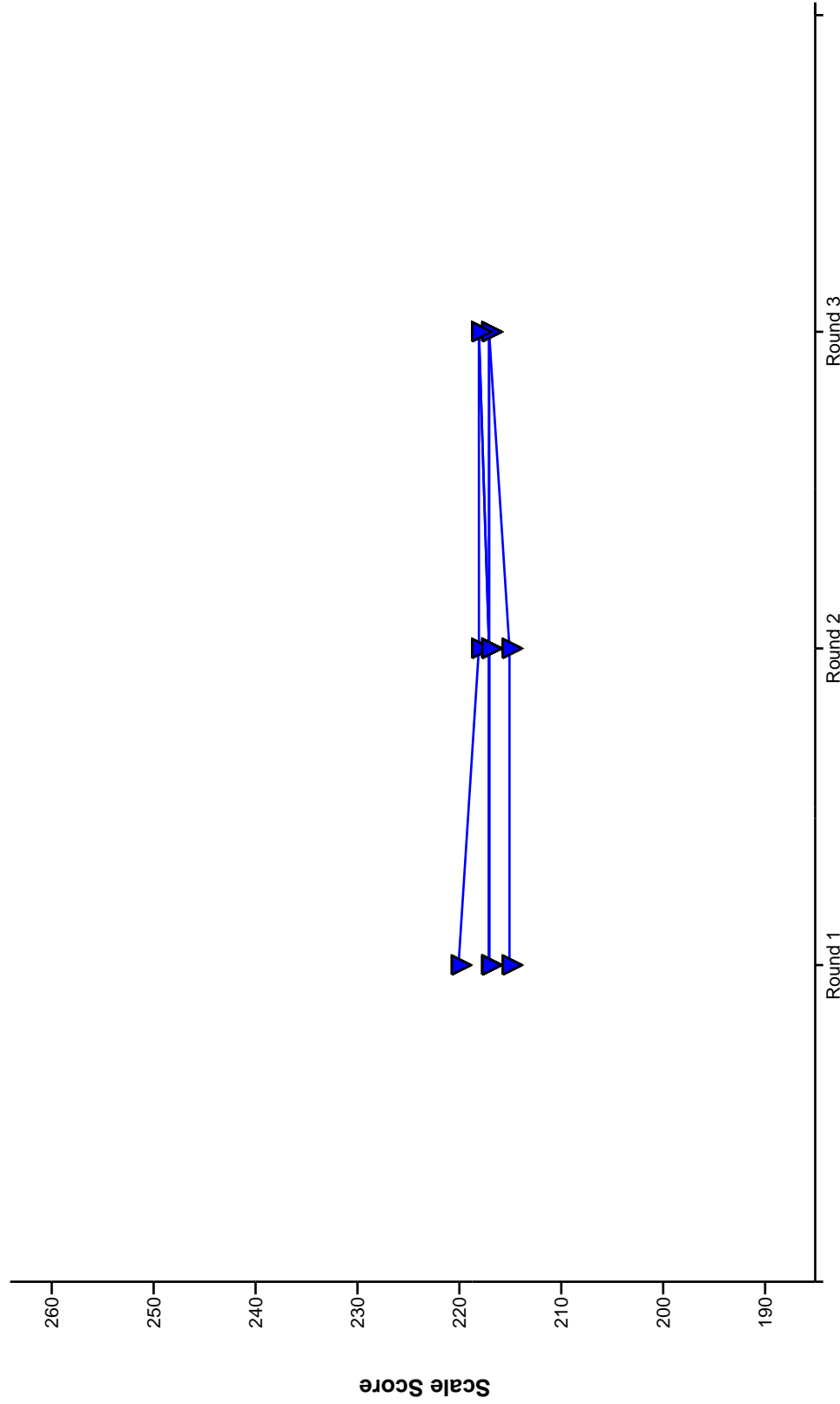
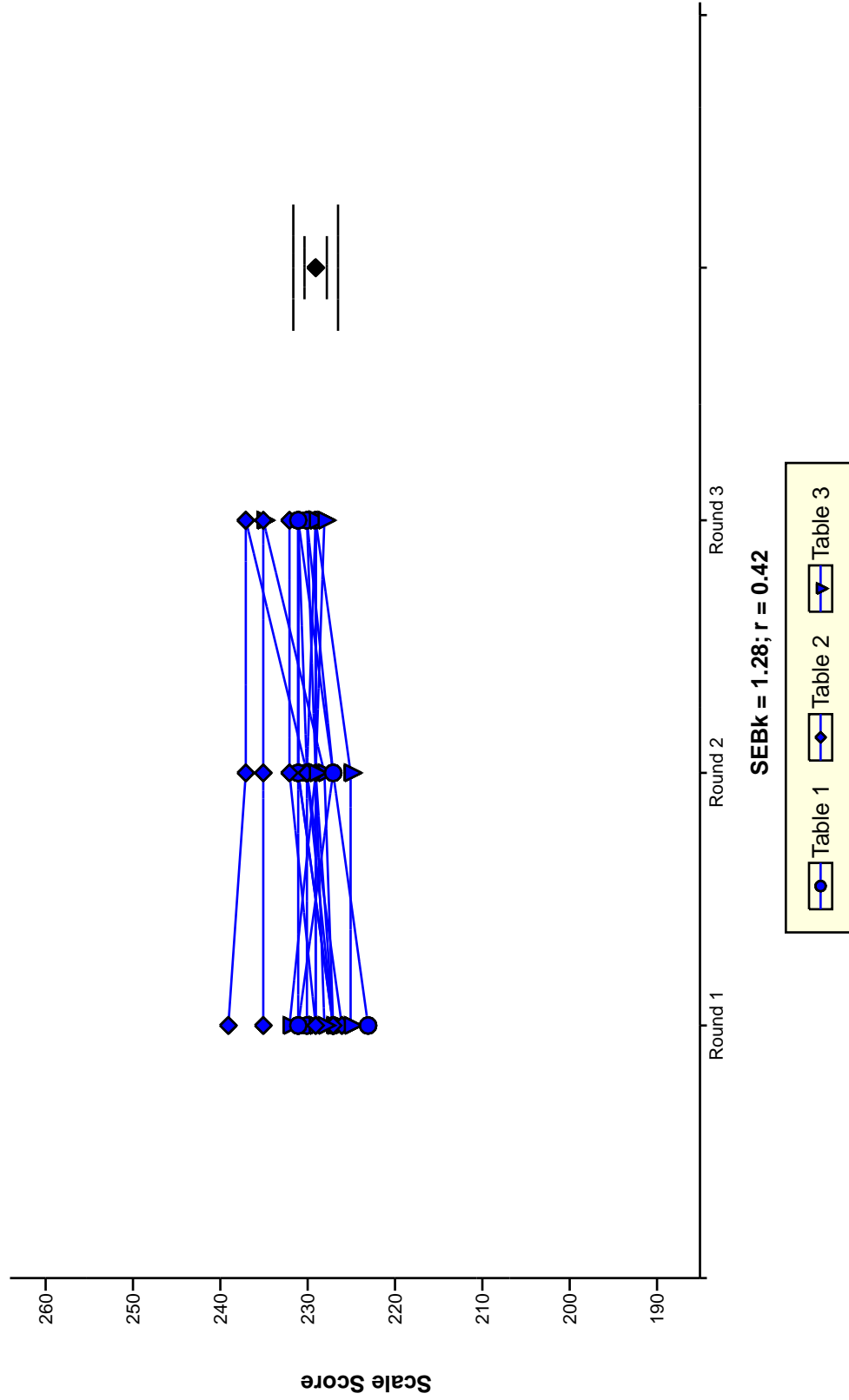


Table 3

Oregon Standard Setting Grade 5 Mathematics Exceeds Cut Point



Oregon Standard Setting Grade 5 Mathematics Exceeds Cut Point

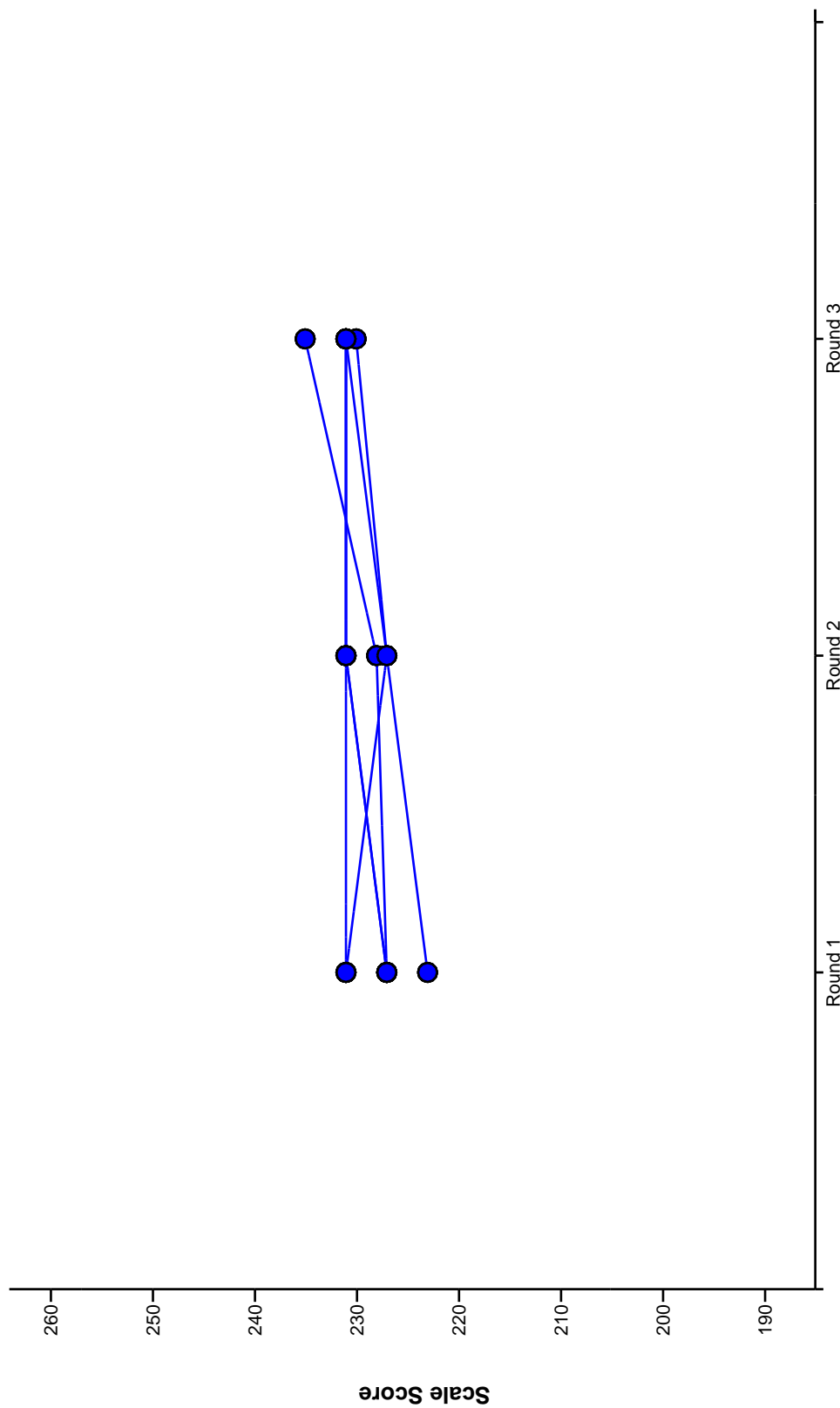


Table 1

Oregon Standard Setting Grade 5 Mathematics Exceeds Cut Point

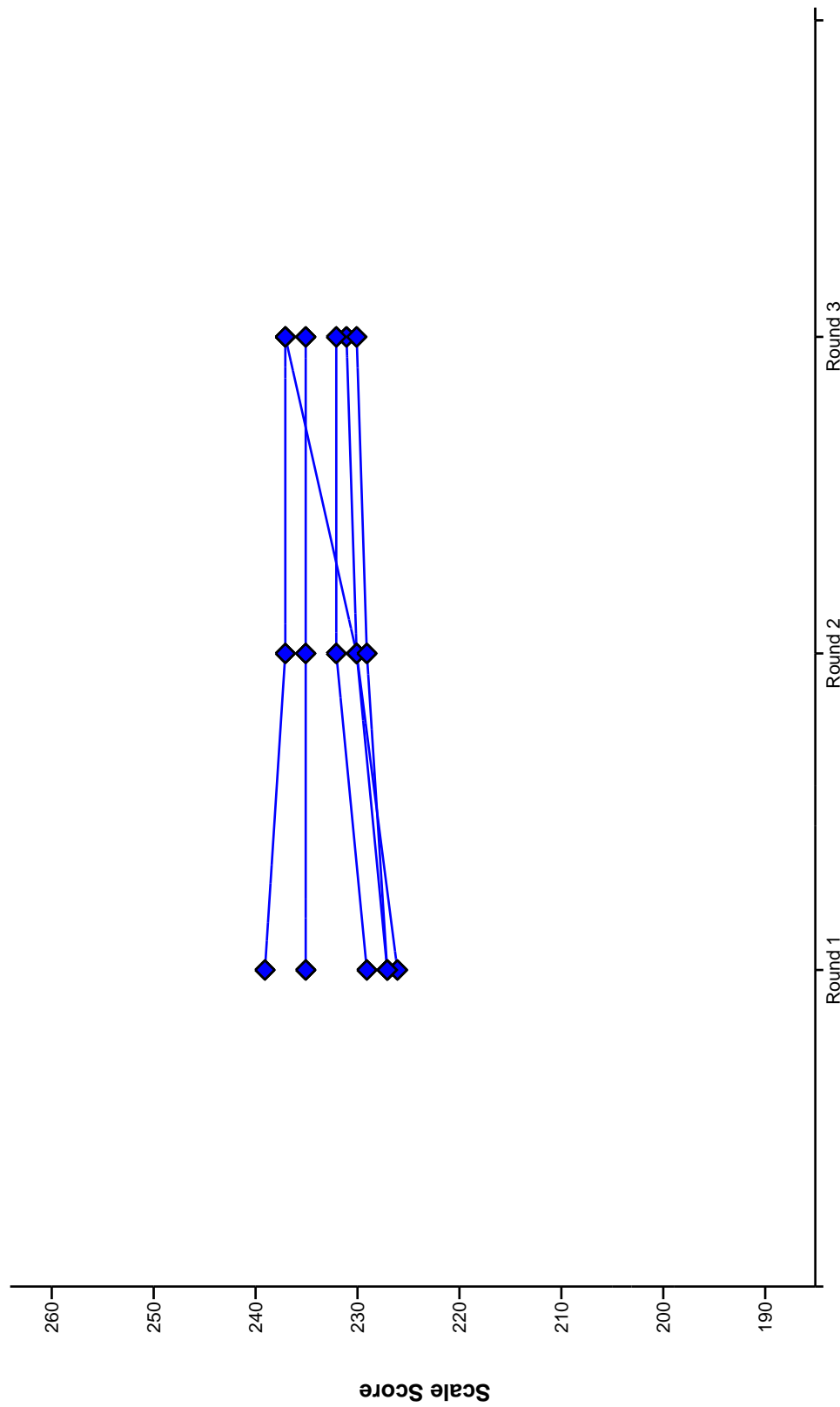


Table 2

Oregon Standard Setting Grade 5 Mathematics Exceeds Cut Point

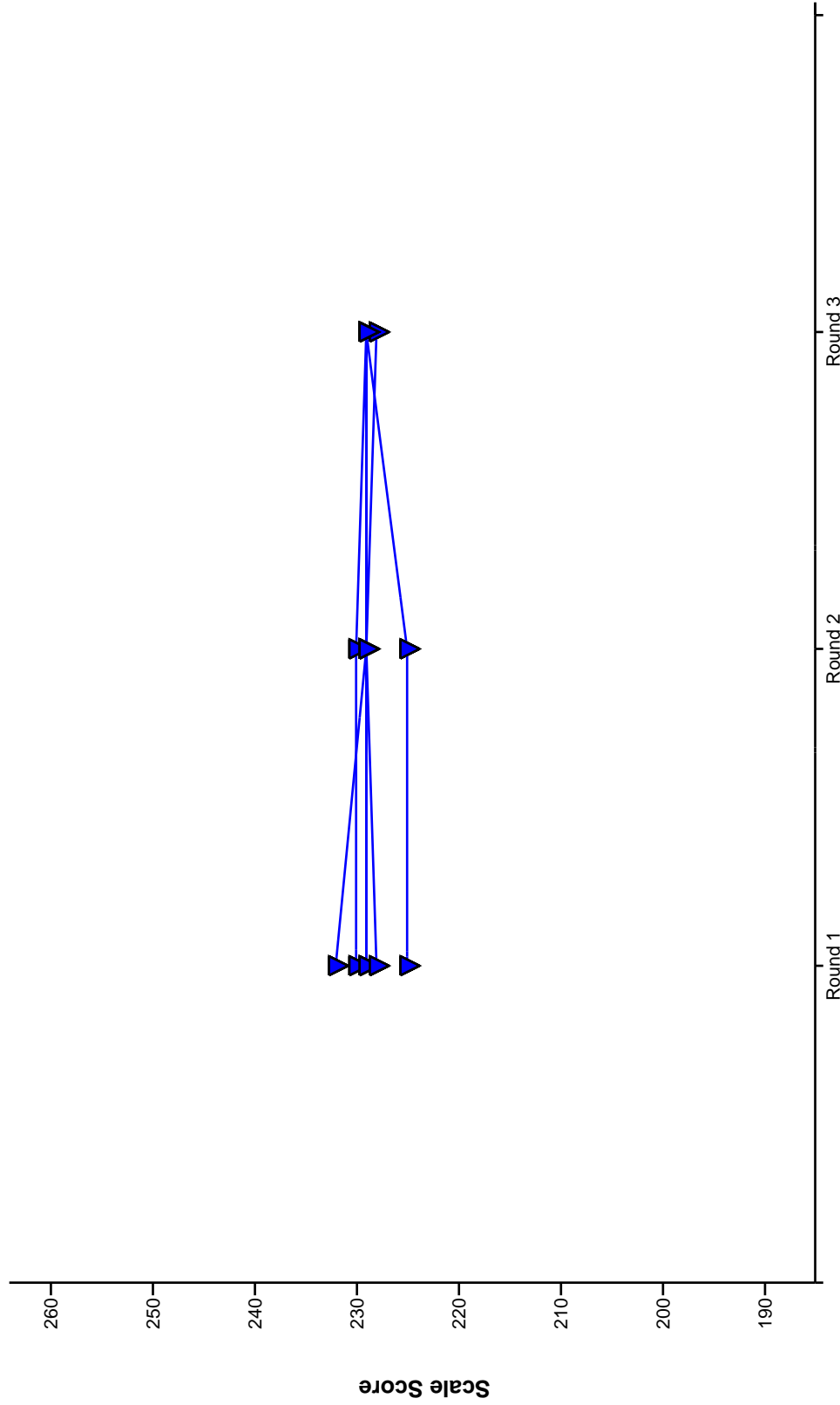
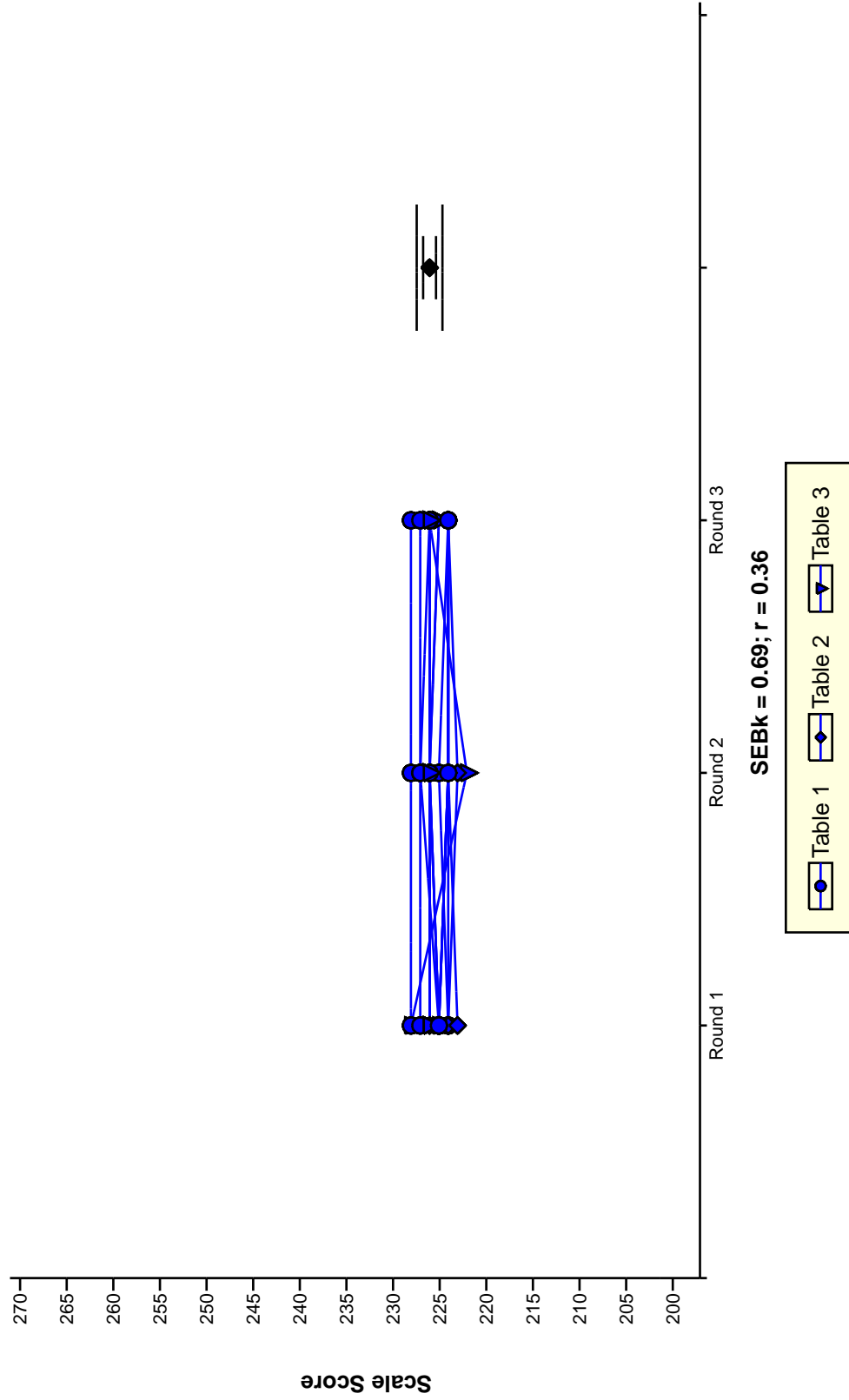


Table 3

Oregon Standard Setting Grade 8 Mathematics Nearly Meets Cut Point



Oregon Standard Setting Grade 8 Mathematics Nearly Meets Cut Point

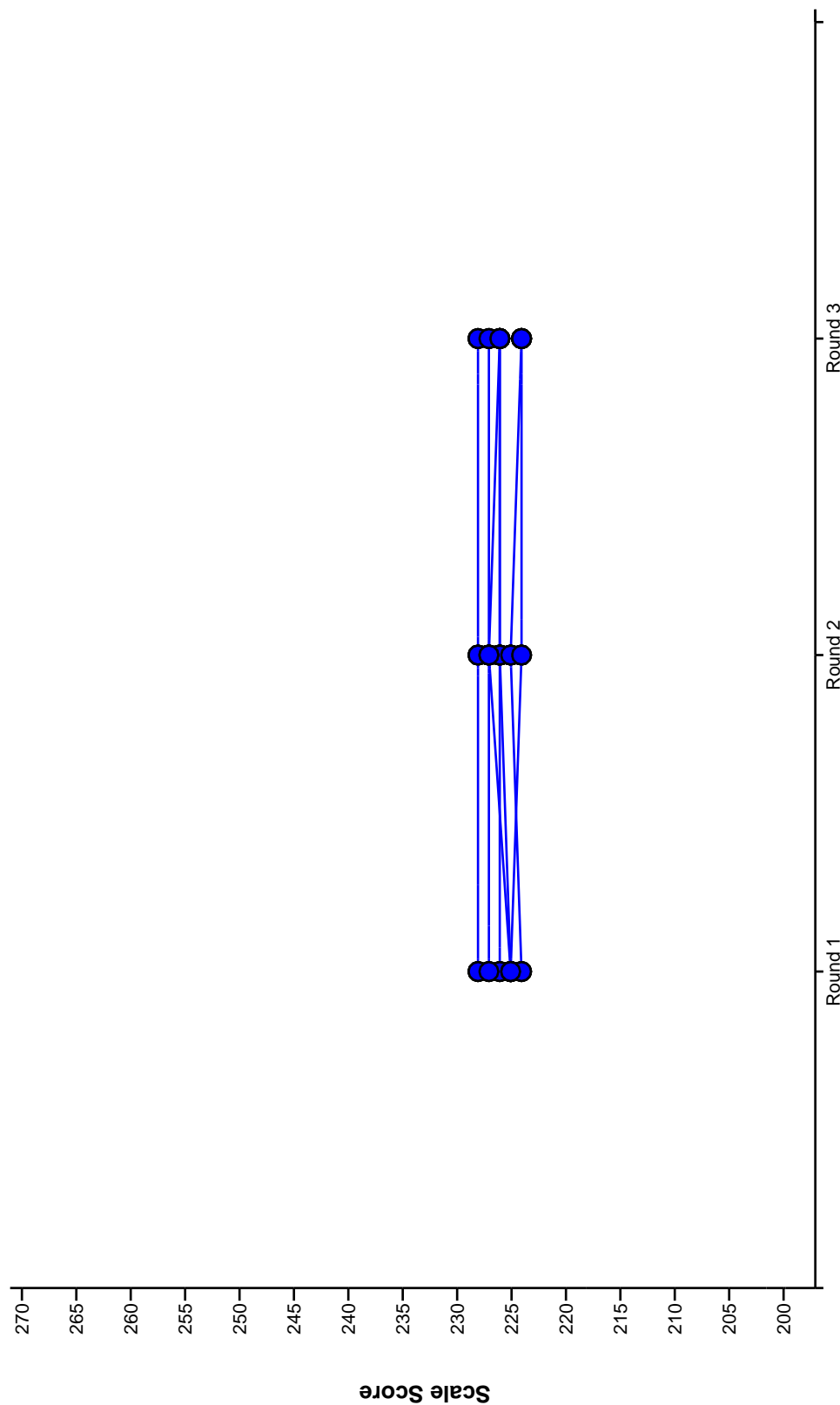


Table 1

Oregon Standard Setting Grade 8 Mathematics Nearly Meets Cut Point

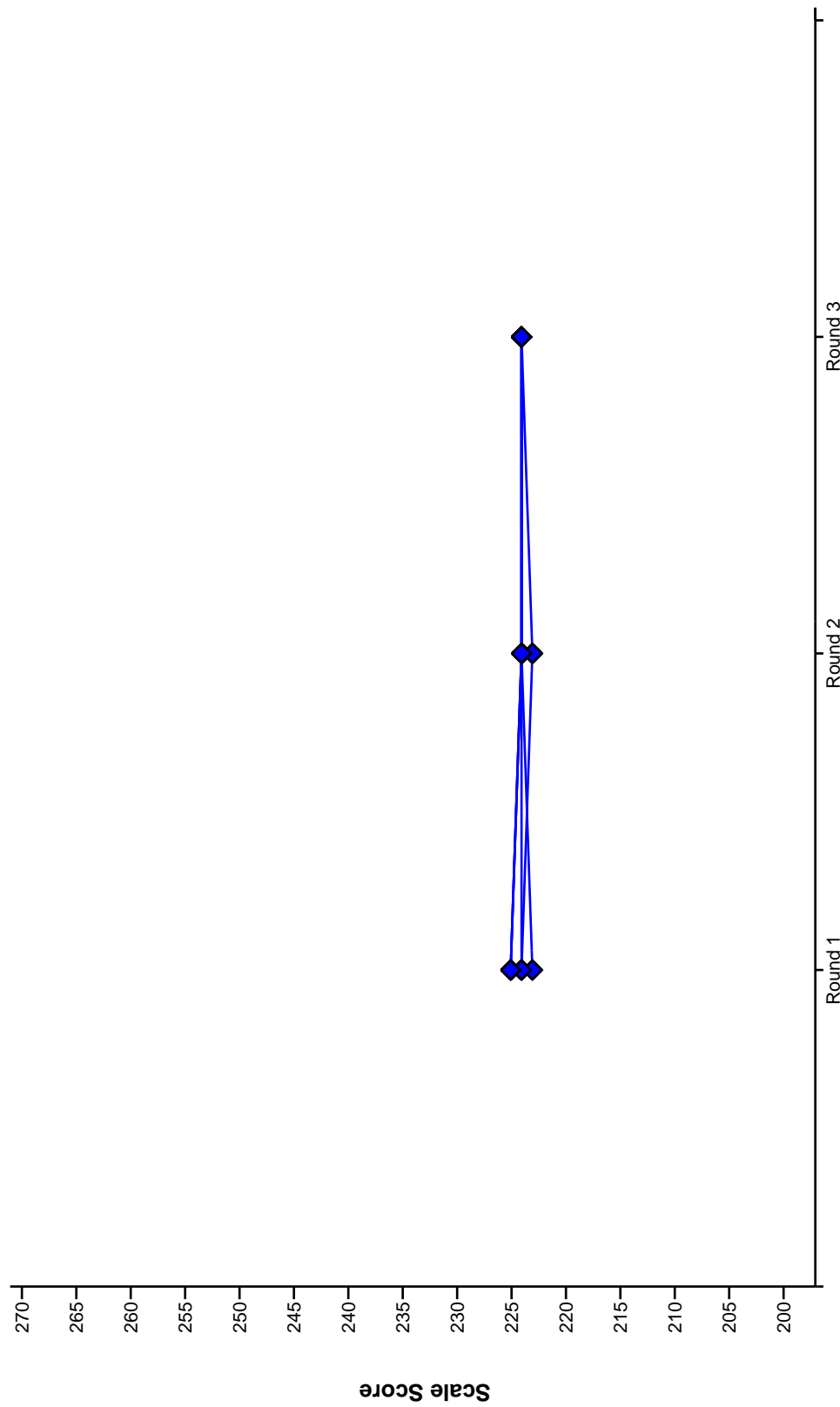


Table 2

Oregon Standard Setting Grade 8 Mathematics Nearly Meets Cut Point

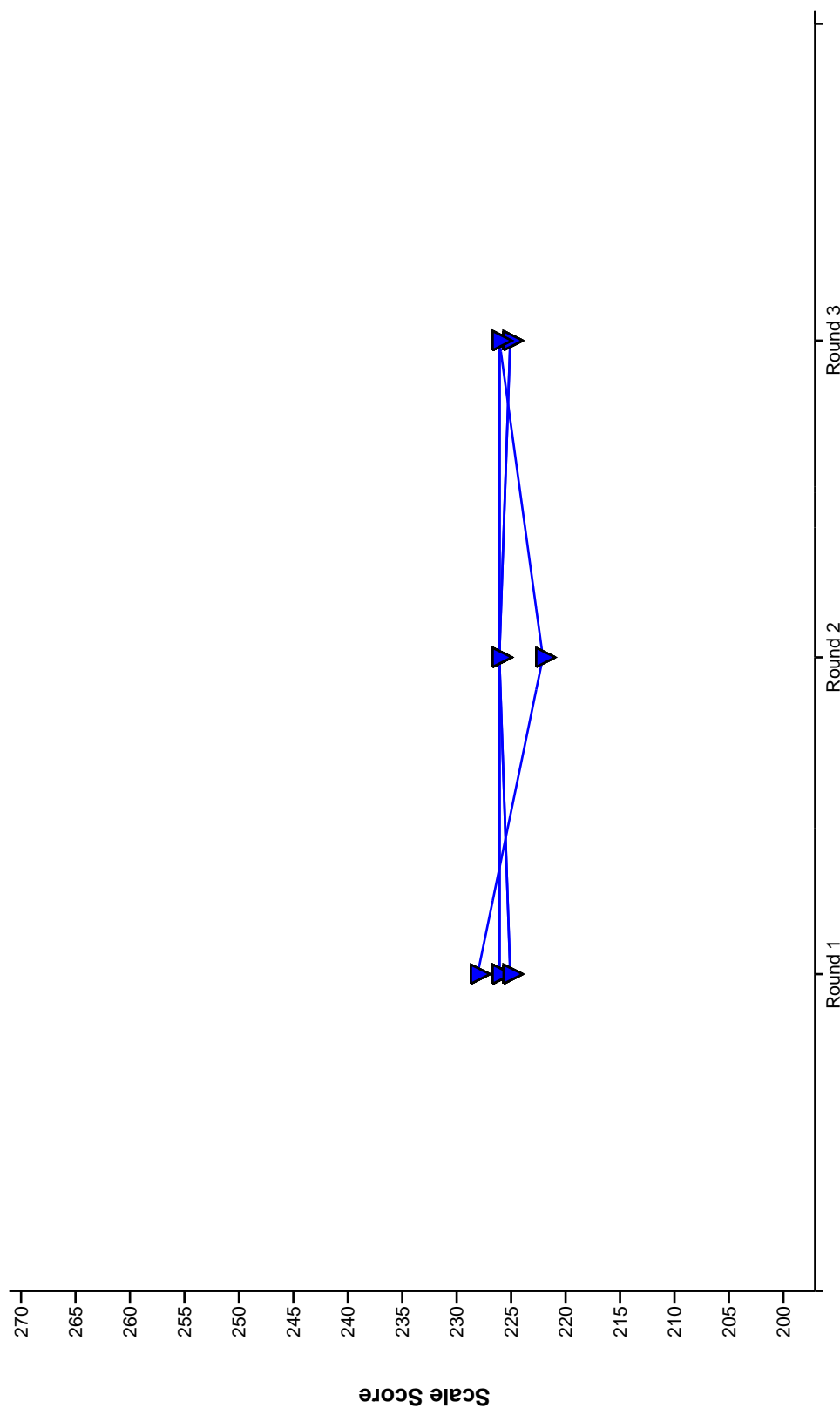
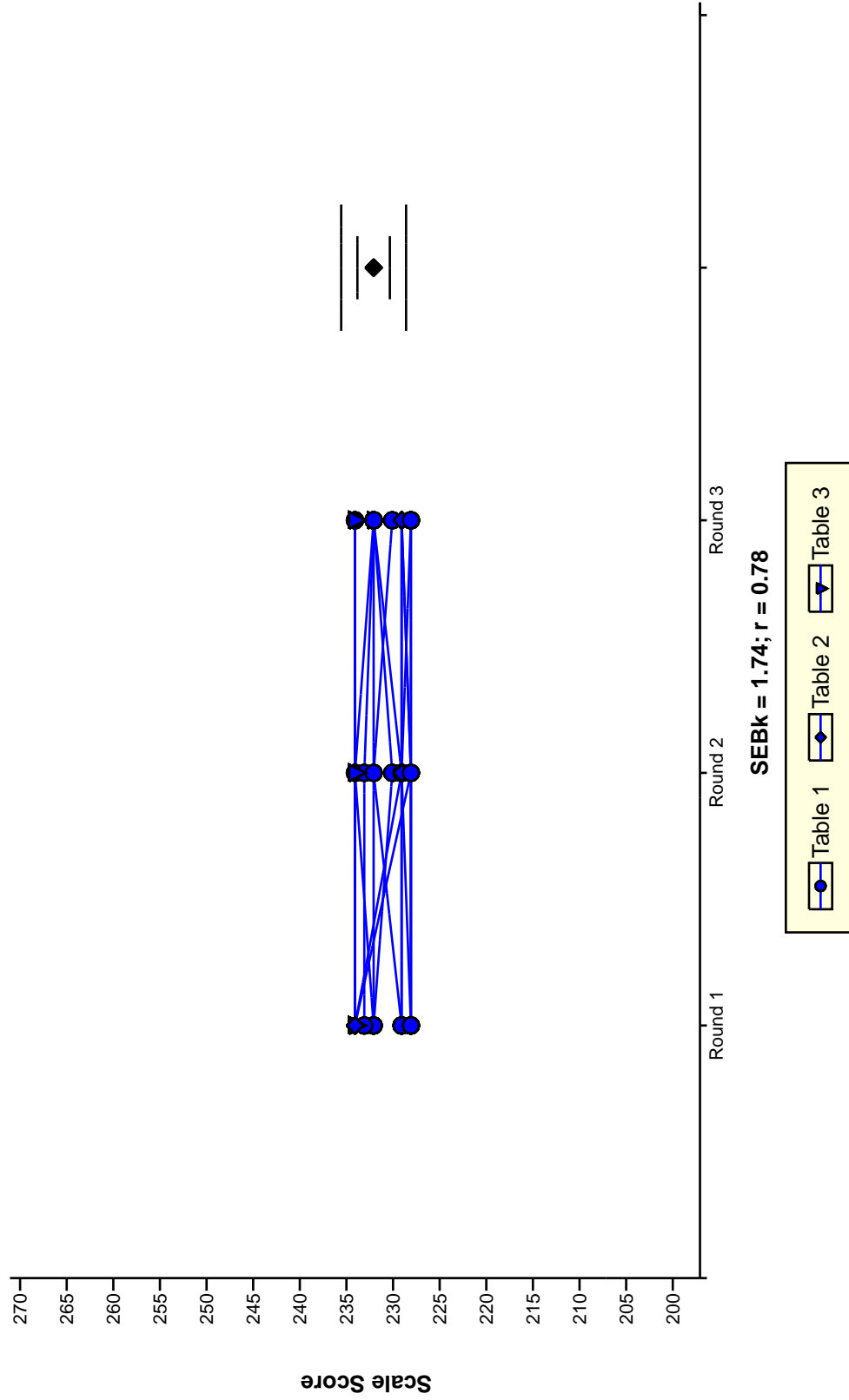


Table 3

Oregon Standard Setting Grade 8 Mathematics Meets Cut Point



Oregon Standard Setting Grade 8 Mathematics Meets Cut Point

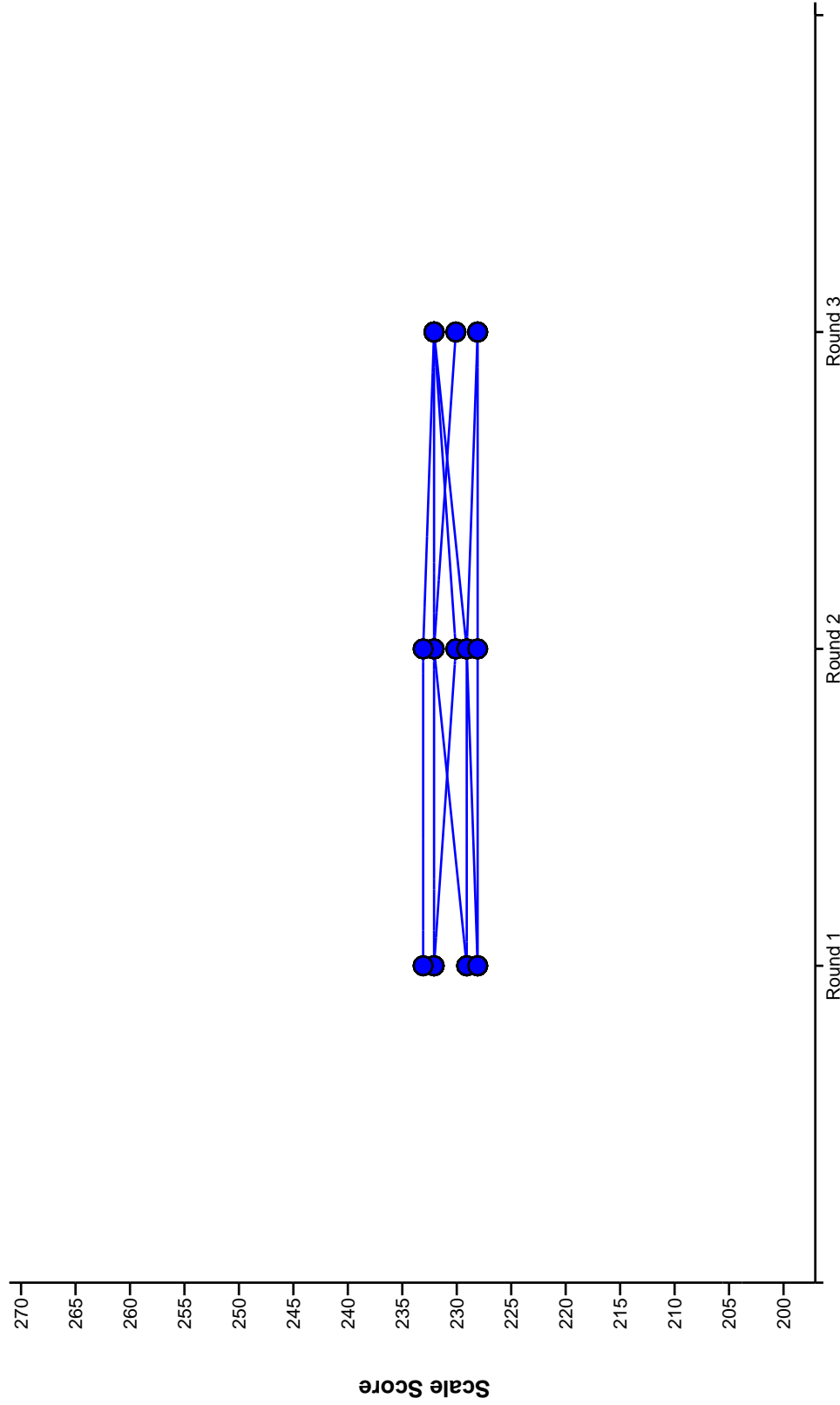


Table 1

Oregon Standard Setting Grade 8 Mathematics Meets Cut Point

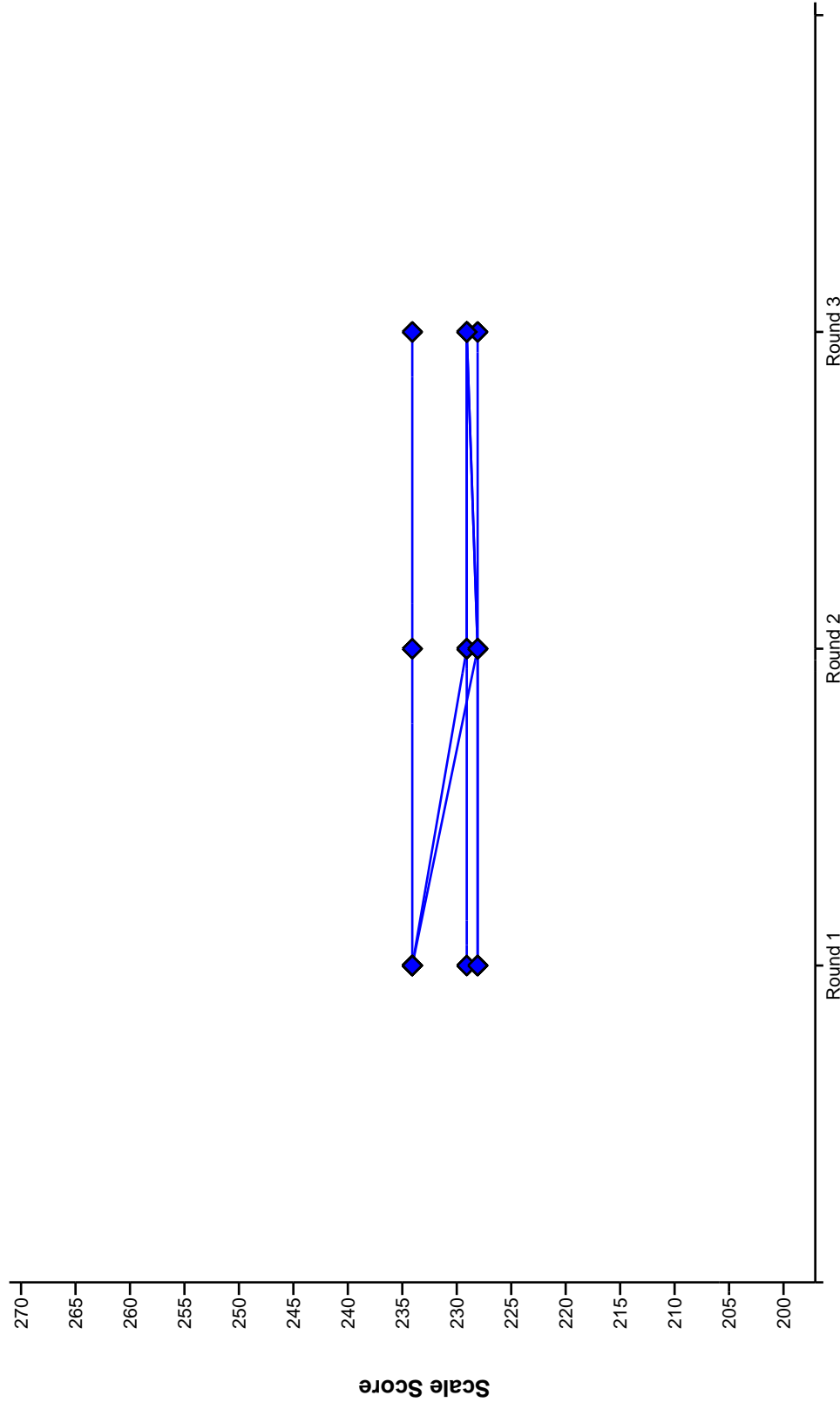


Table 2

Oregon Standard Setting Grade 8 Mathematics Meets Cut Point

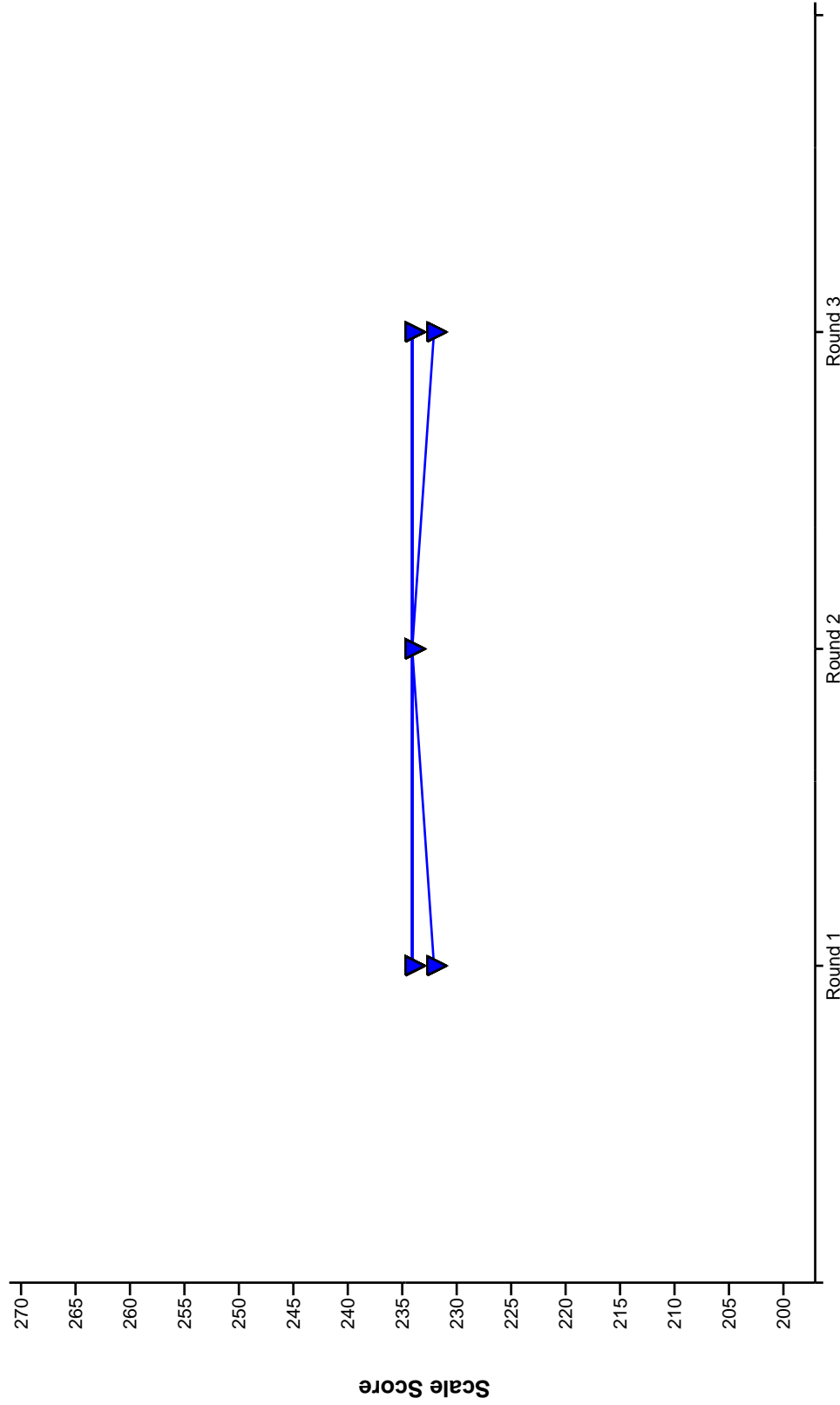
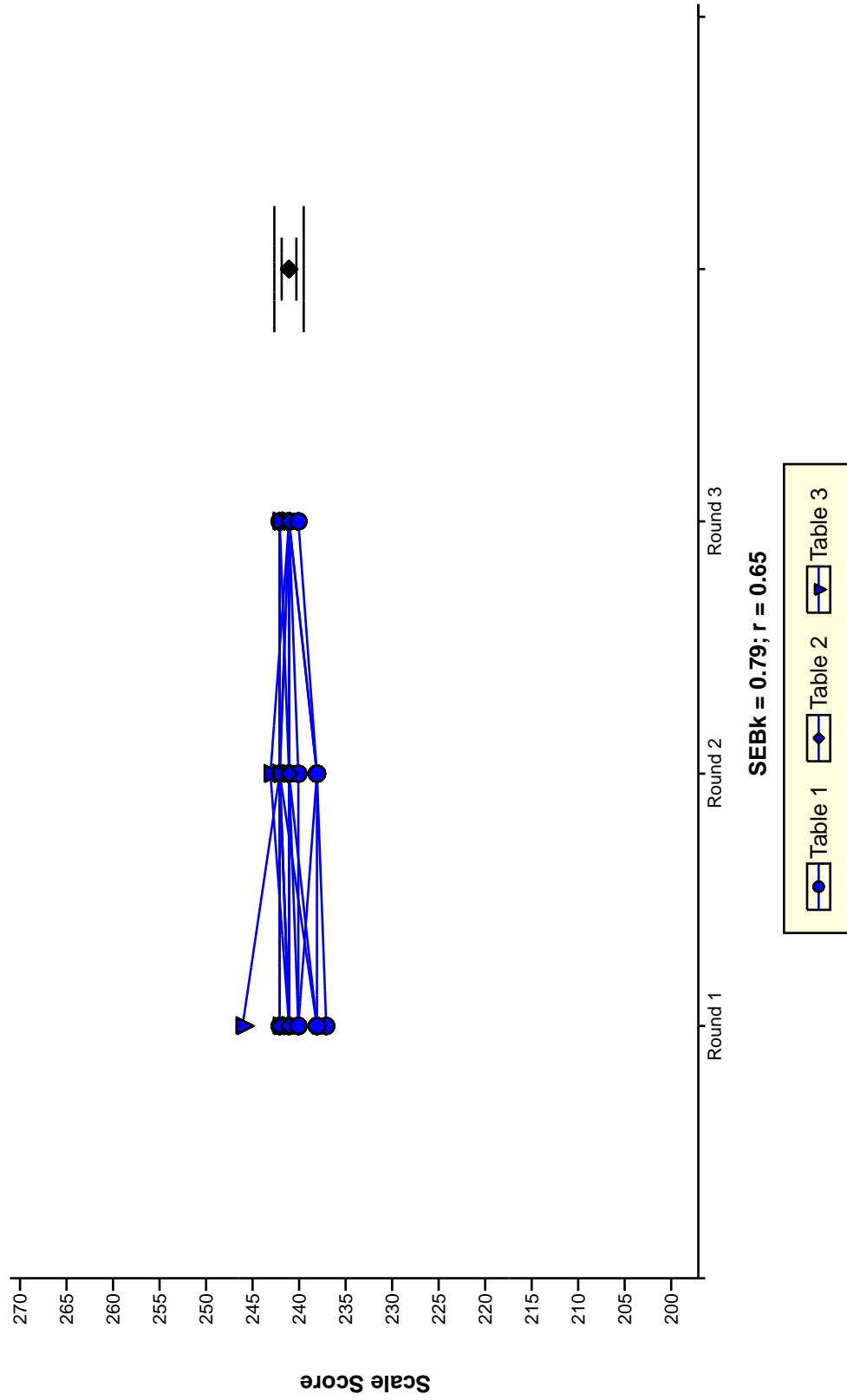


Table 3

Oregon Standard Setting Grade 8 Mathematics Exceeds Cut Point



Oregon Standard Setting Grade 8 Mathematics Exceeds Cut Point

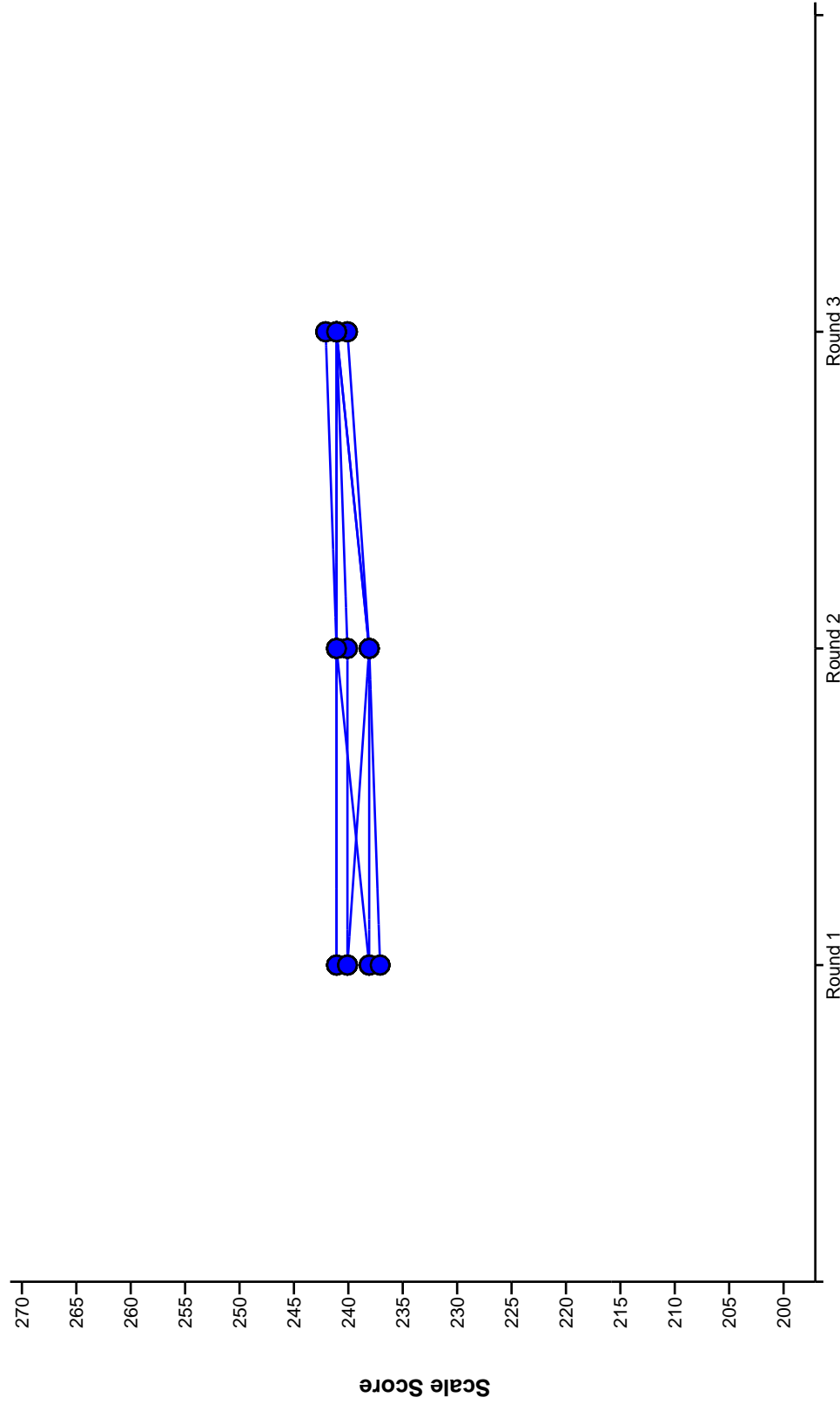


Table 1

Oregon Standard Setting Grade 8 Mathematics Exceeds Cut Point

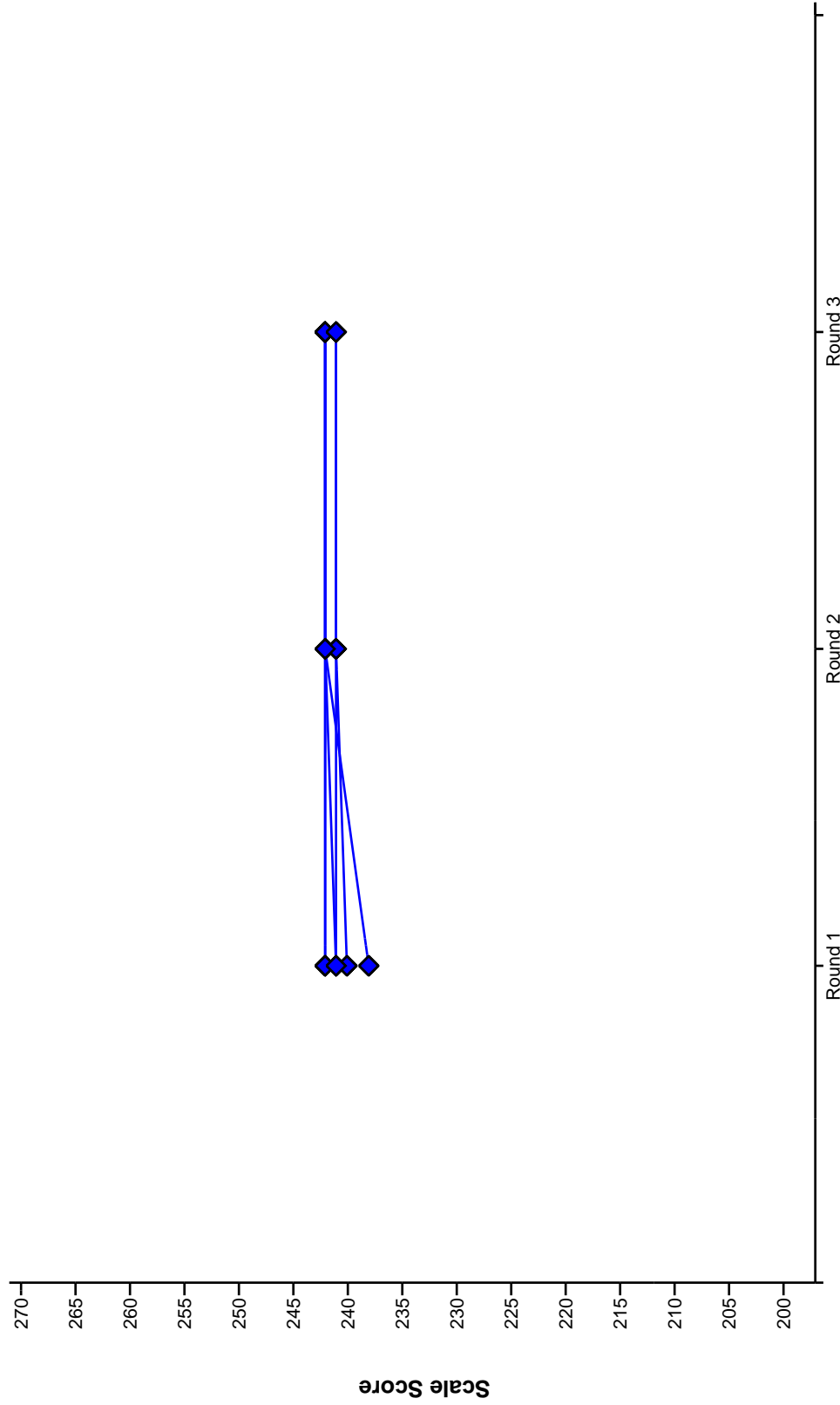


Table 2

Oregon Standard Setting Grade 8 Mathematics Exceeds Cut Point

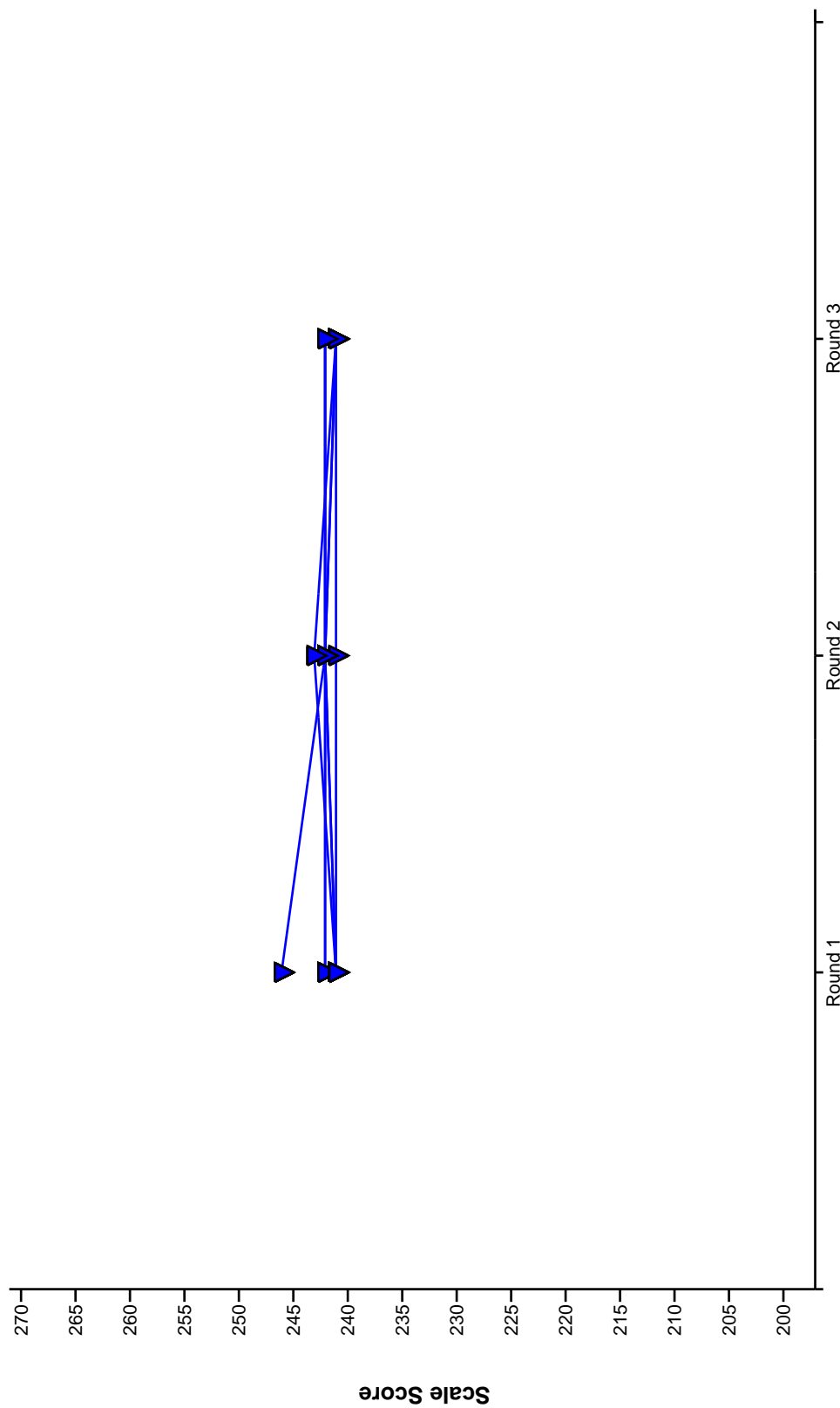
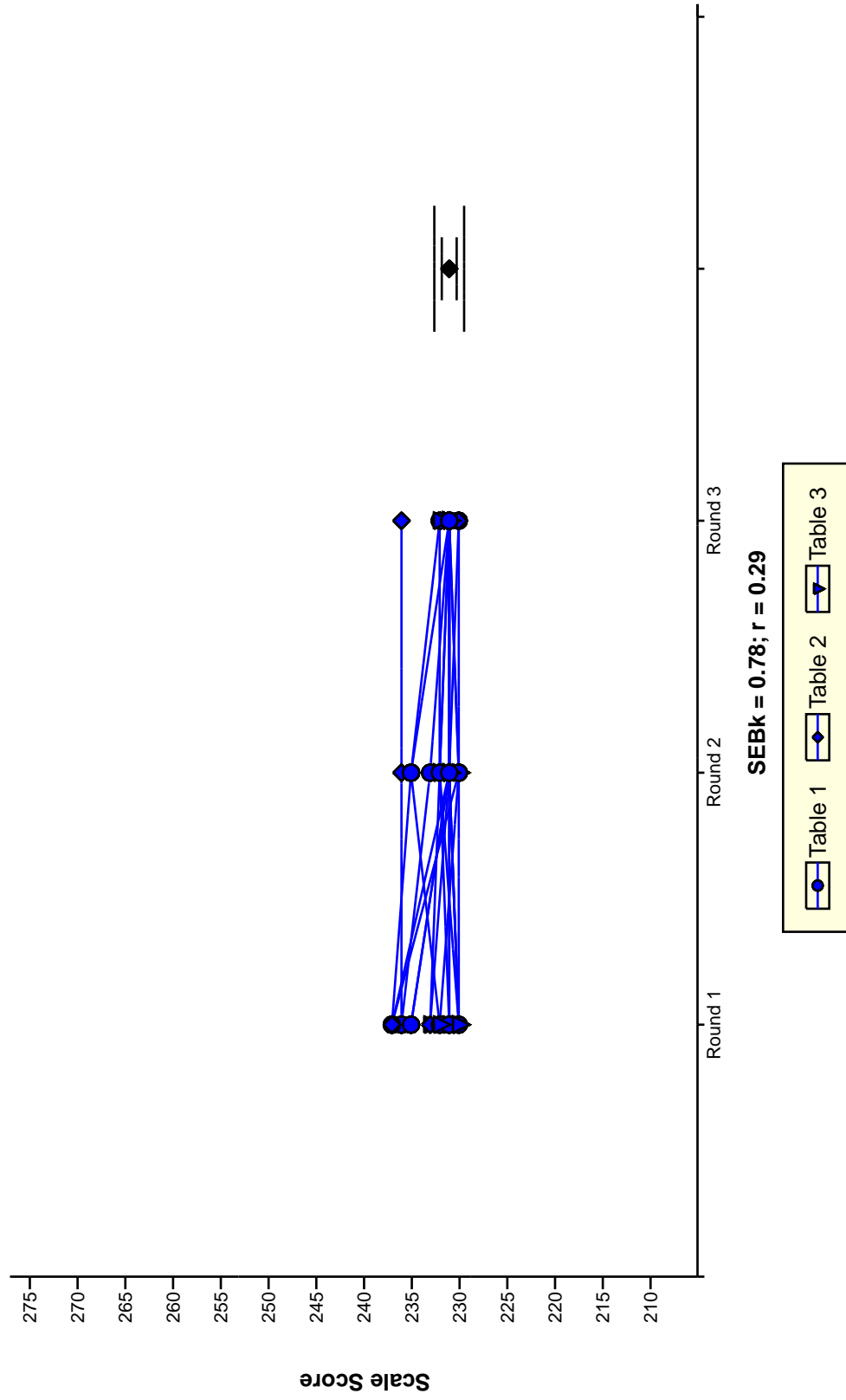


Table 3

Oregon Standard Setting Grade 10 Mathematics Nearly Meets Cut Point



Oregon Standard Setting Grade 10 Mathematics Nearly Meets Cut Point

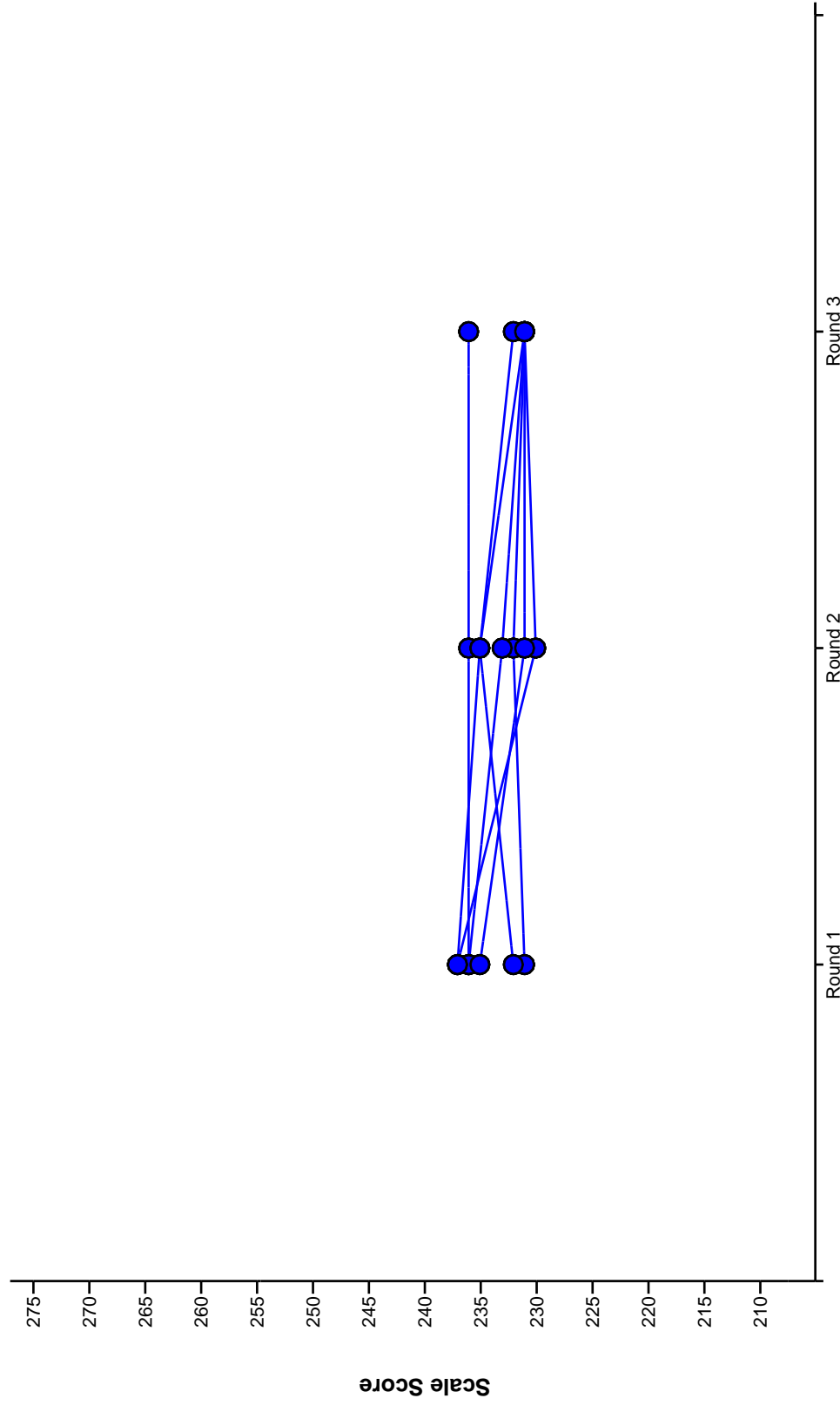


Table 1

Oregon Standard Setting Grade 10 Mathematics Nearly Meets Cut Point

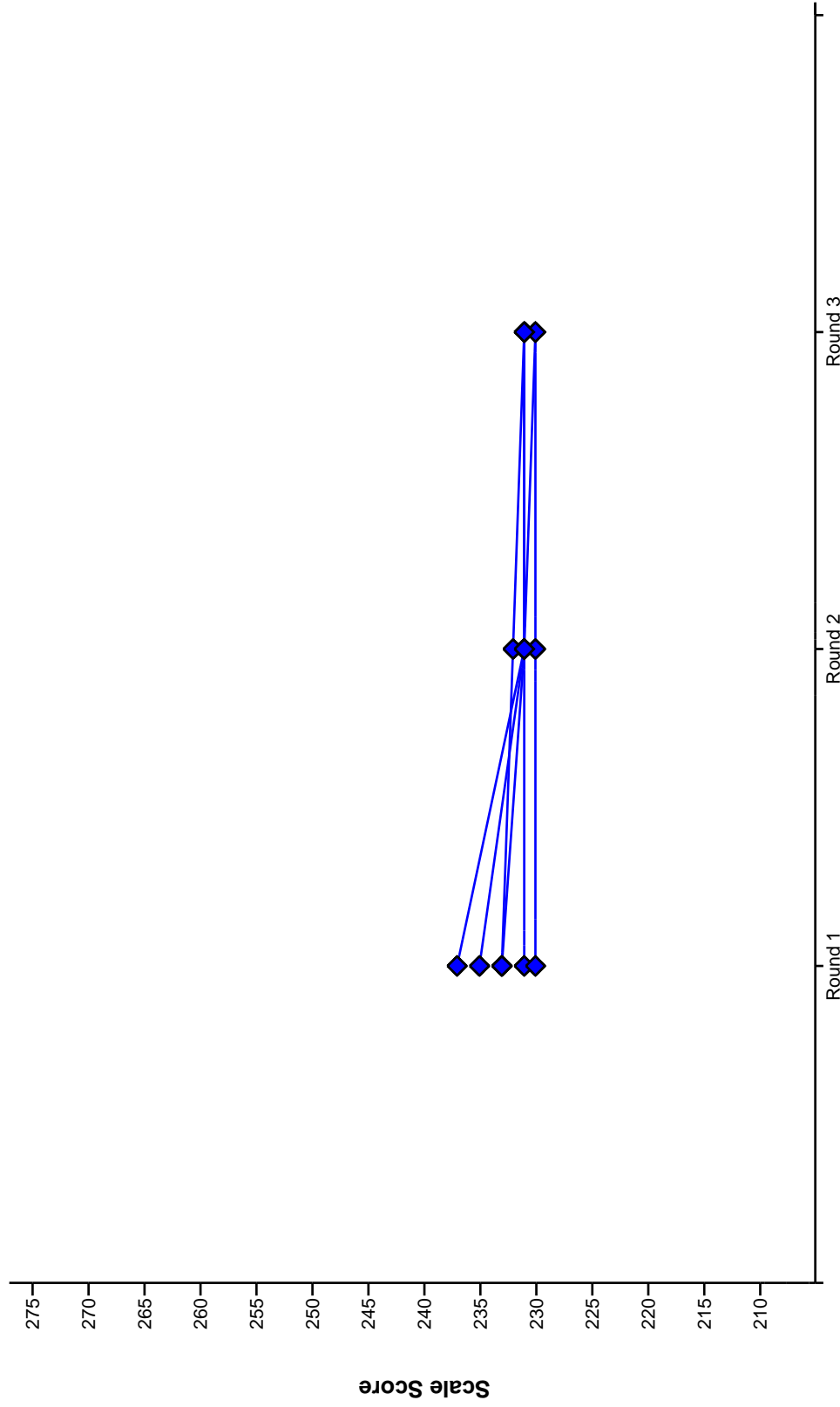


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Oregon Standard Setting Grade 10 Mathematics Nearly Meets Cut Point

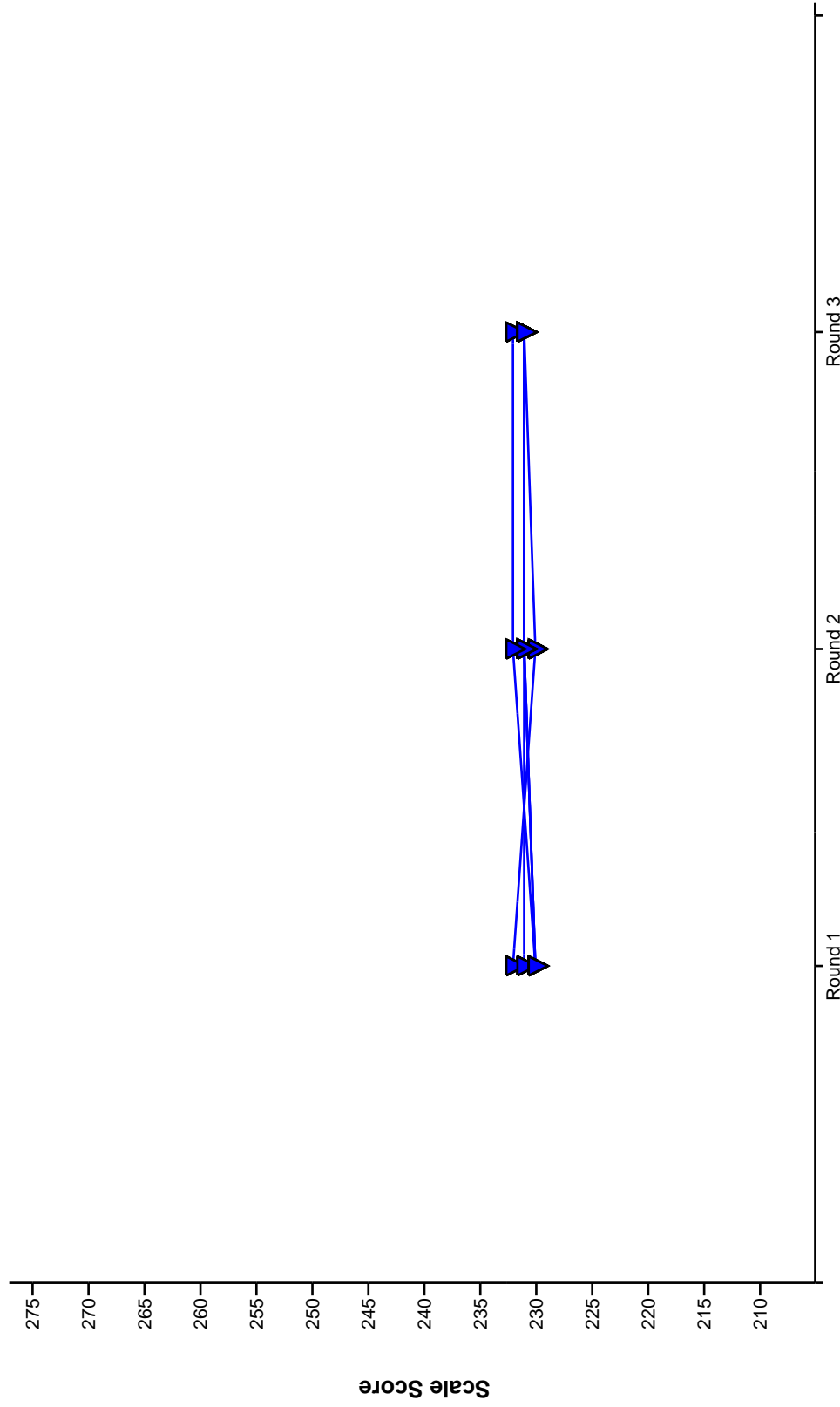
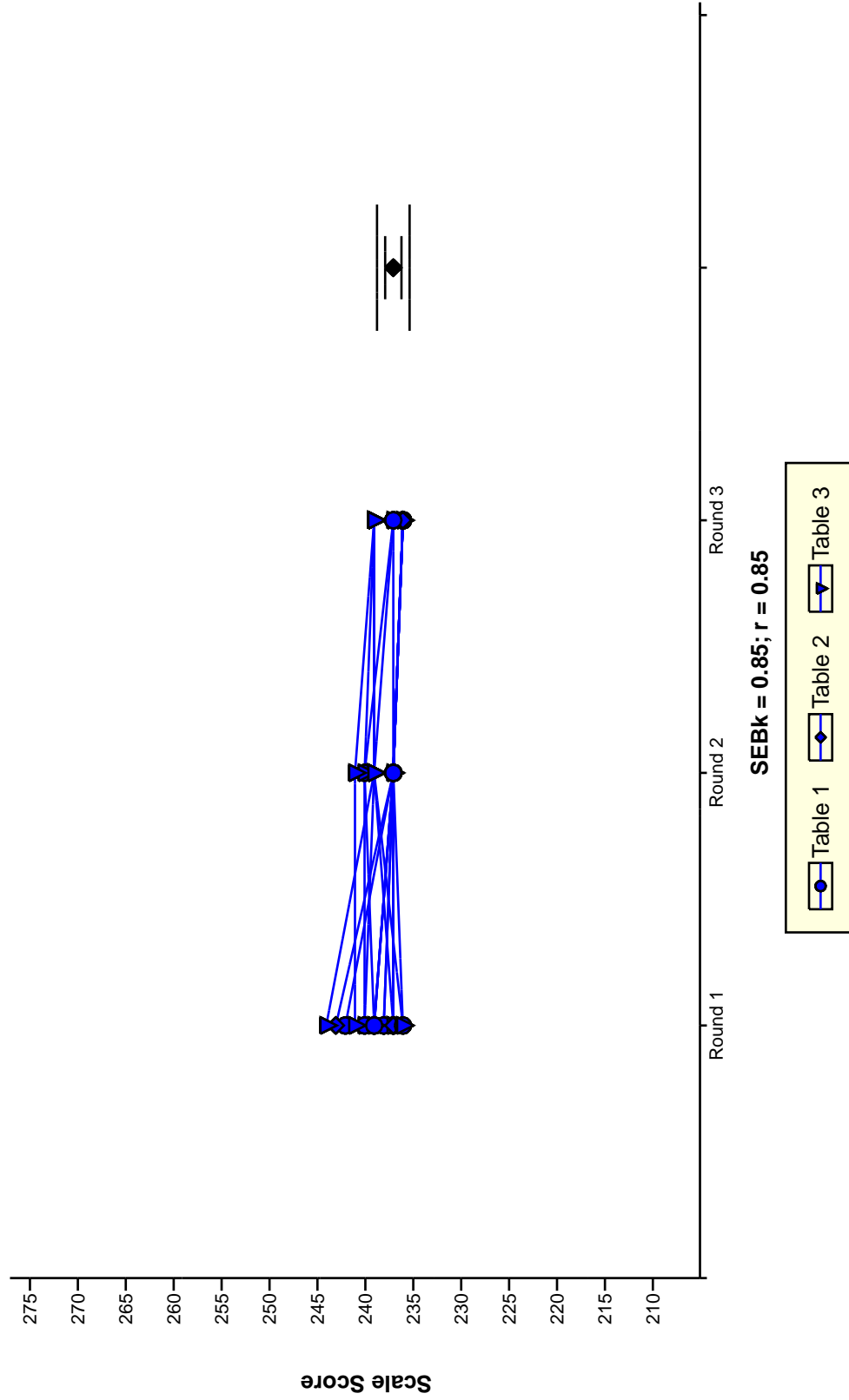


Table 3

Oregon Standard Setting Grade 10 Mathematics Meets Cut Point



Oregon Standard Setting Grade 10 Mathematics Meets Cut Point

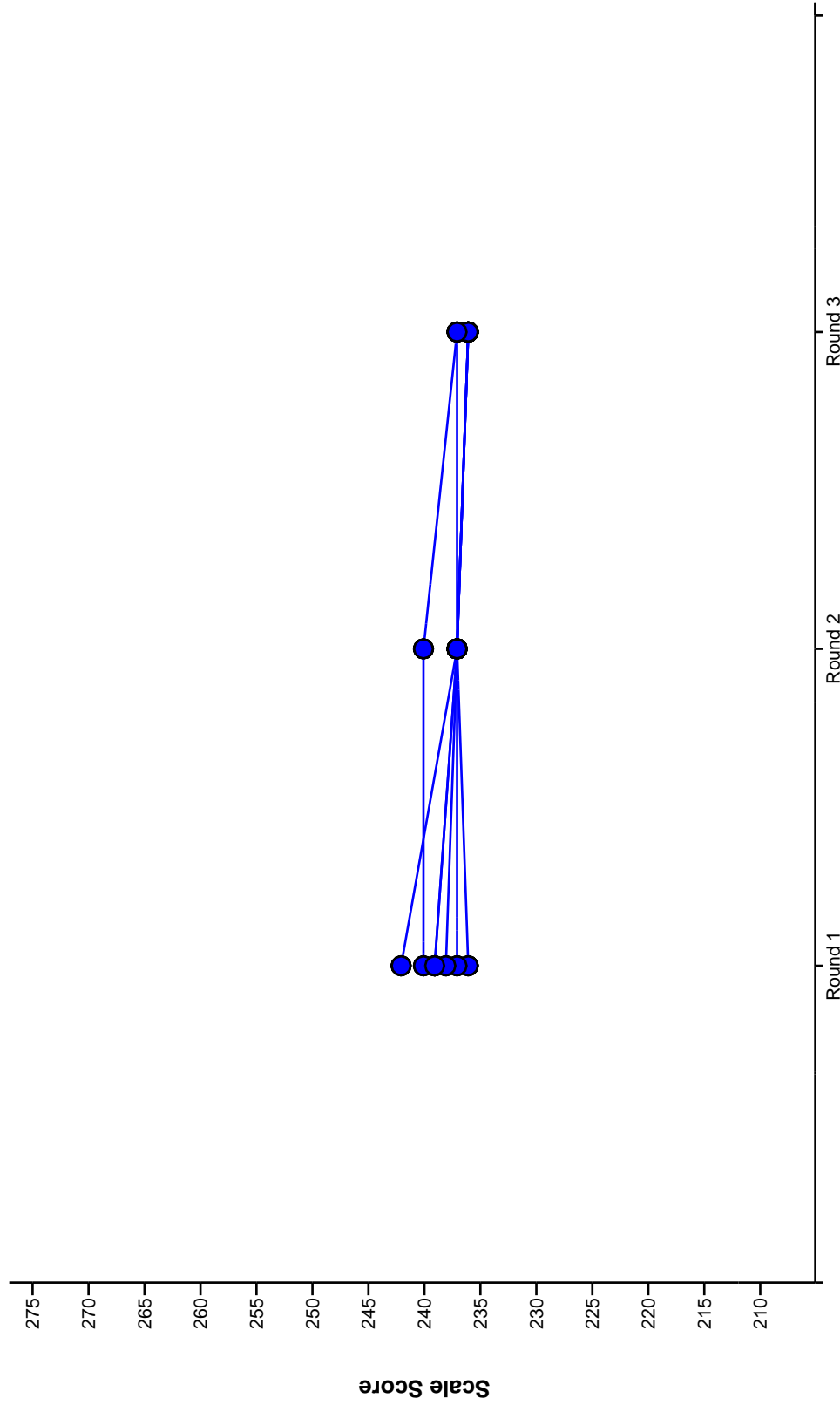


Table 1

Oregon Standard Setting Grade 10 Mathematics Meets Cut Point

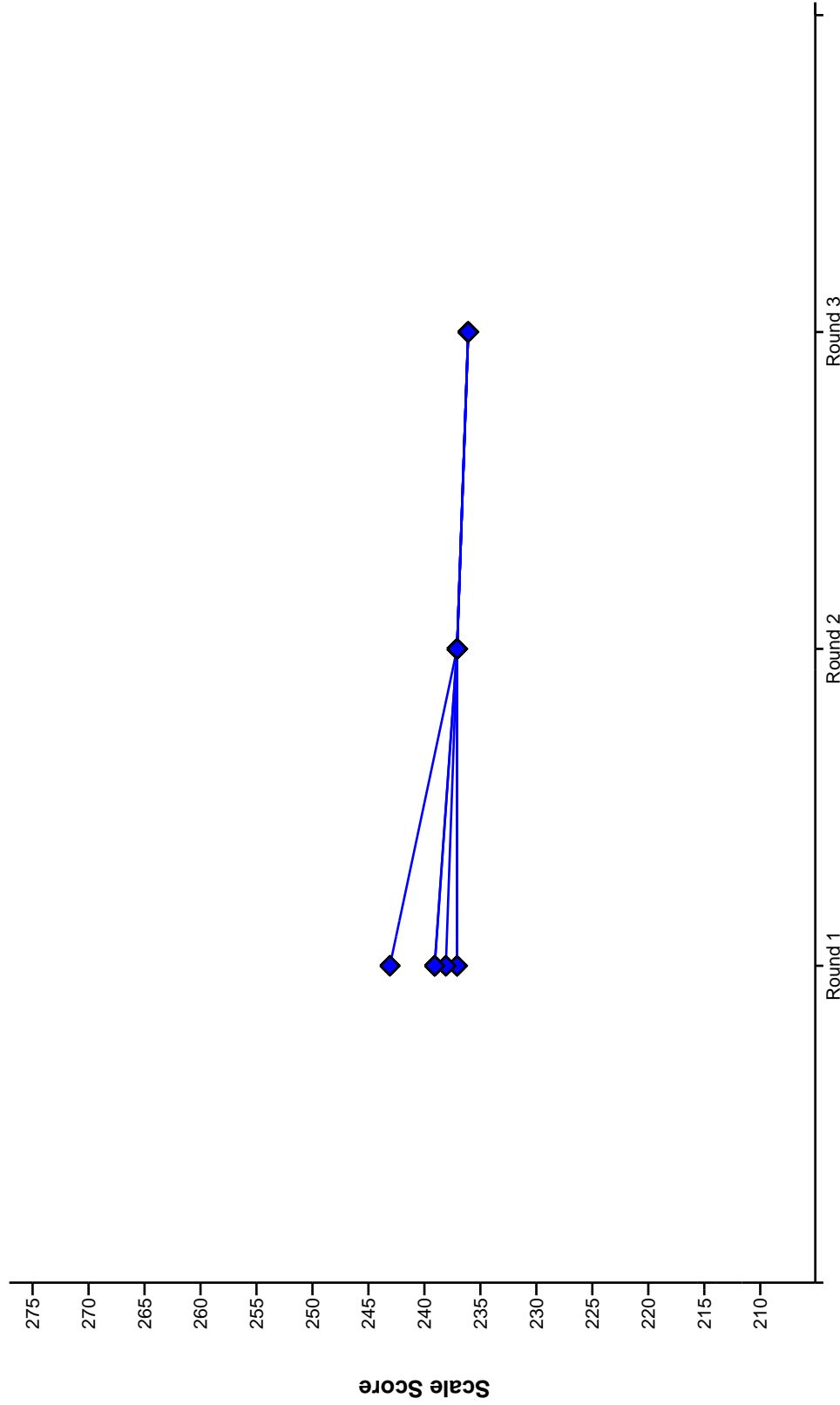


Table 2

Oregon Standard Setting Grade 10 Mathematics Meets Cut Point

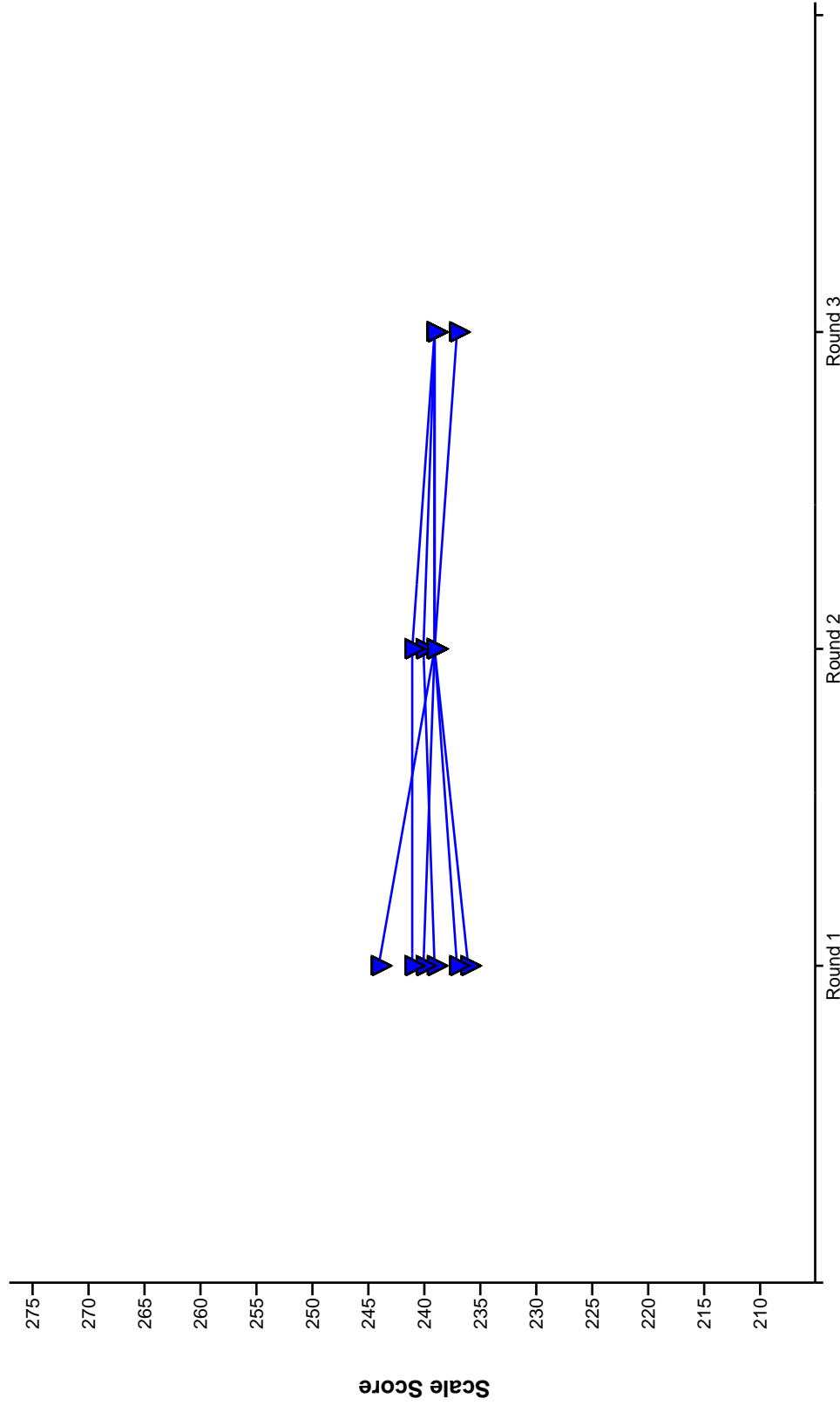
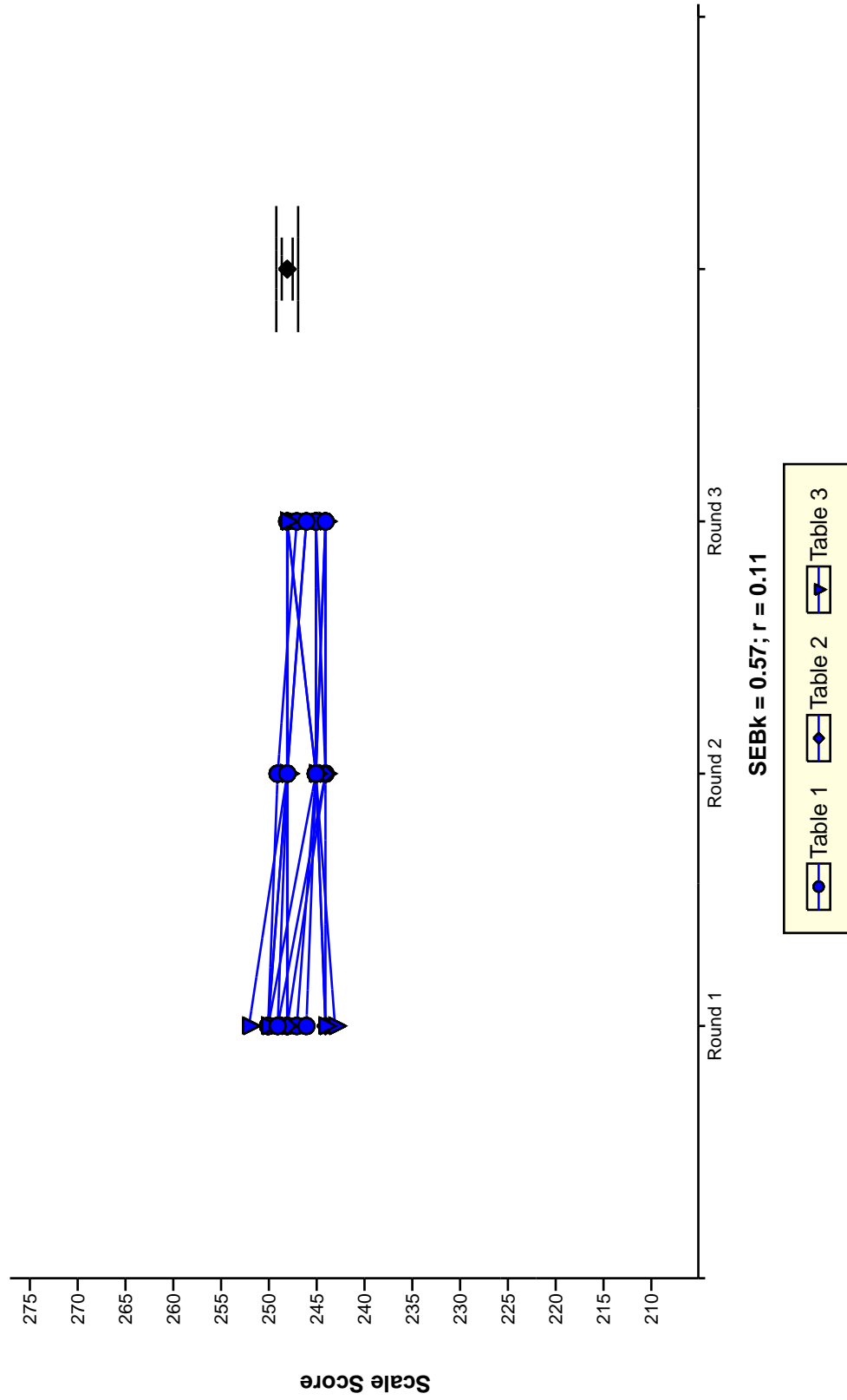


Table 3

Oregon Standard Setting Grade 10 Mathematics Exceeds Cut Point



Oregon Standard Setting Grade 10 Mathematics Exceeds Cut Point

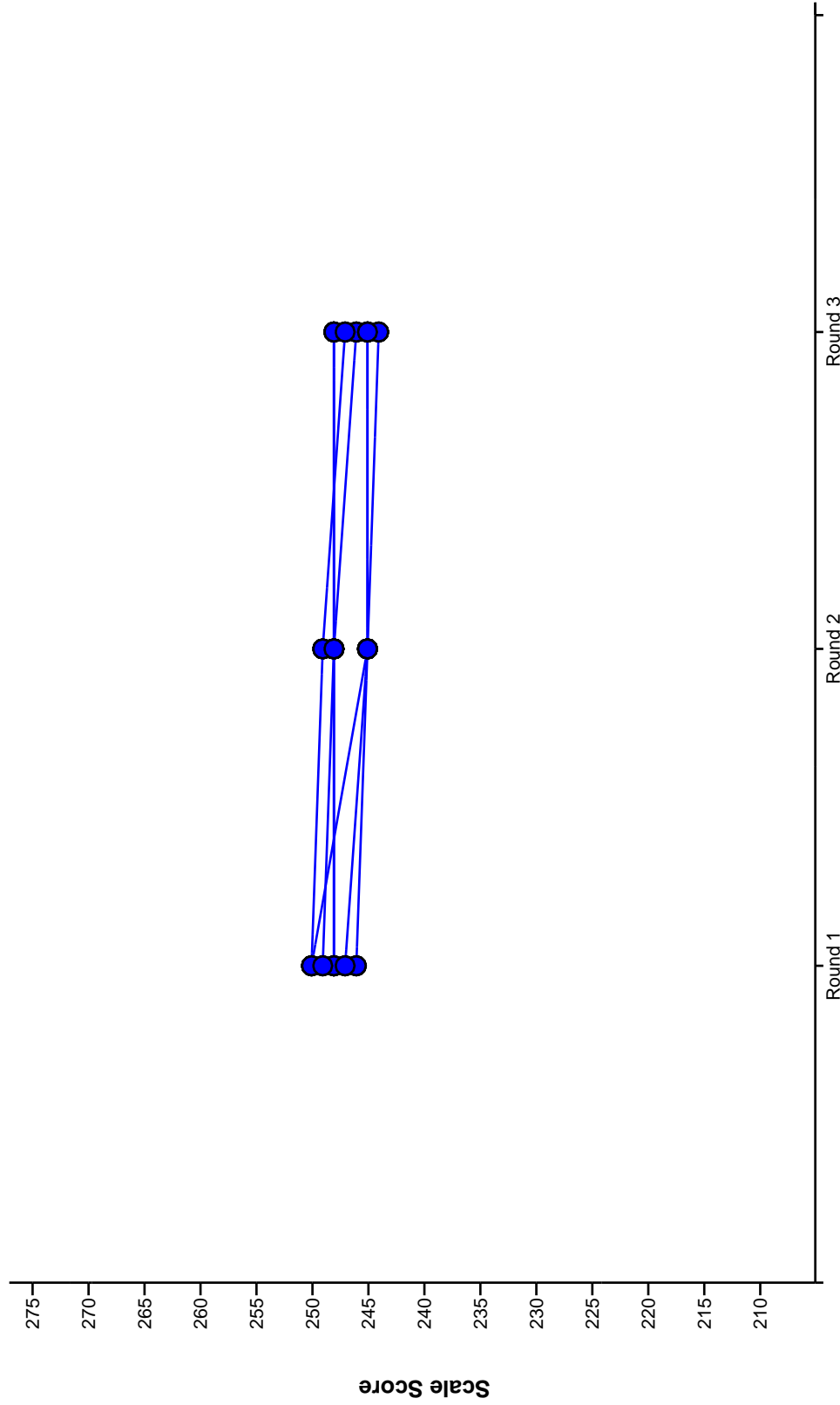


Table 1

Oregon Standard Setting Grade 10 Mathematics Exceeds Cut Point

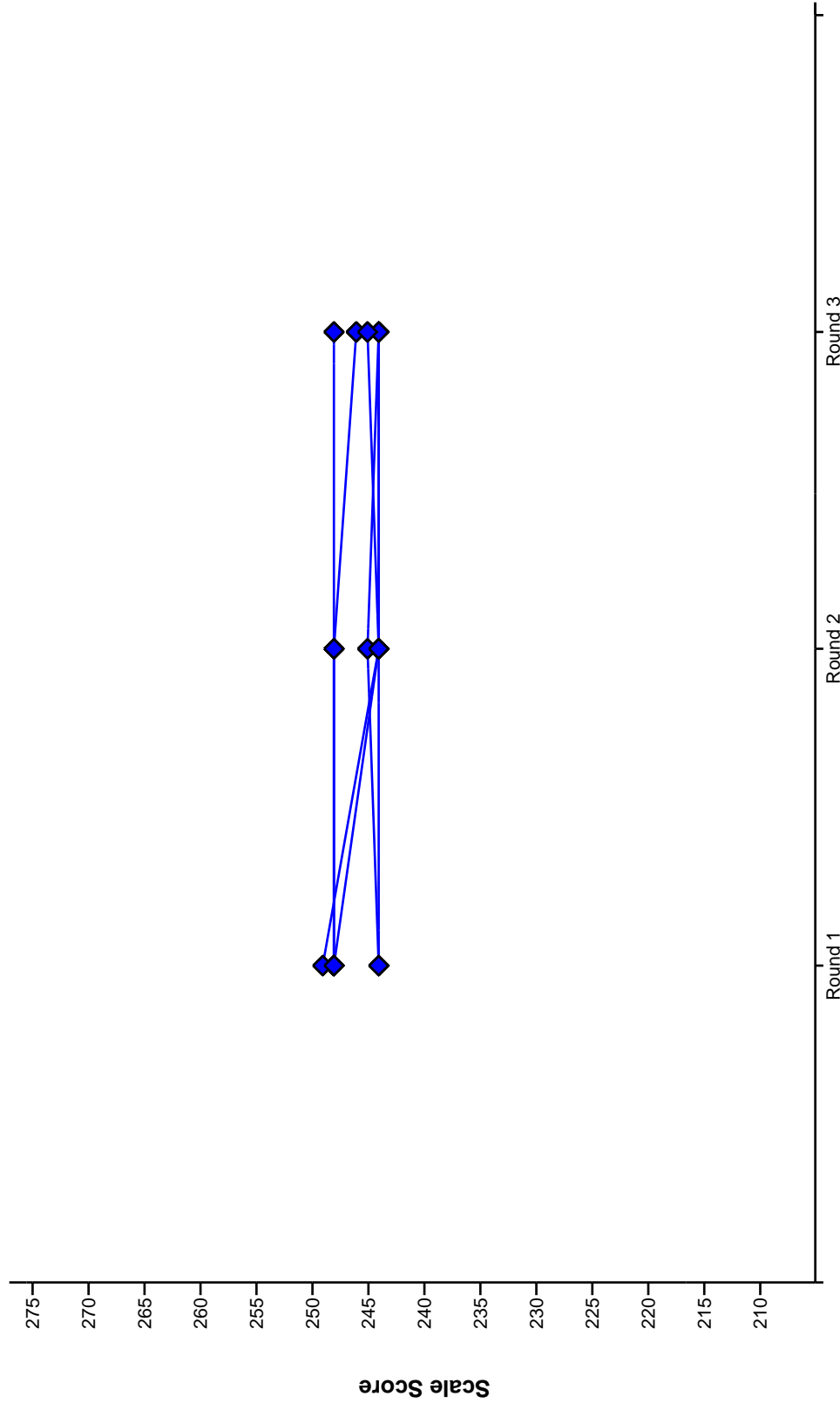


Table 2

Oregon Standard Setting Grade 10 Mathematics Exceeds Cut Point

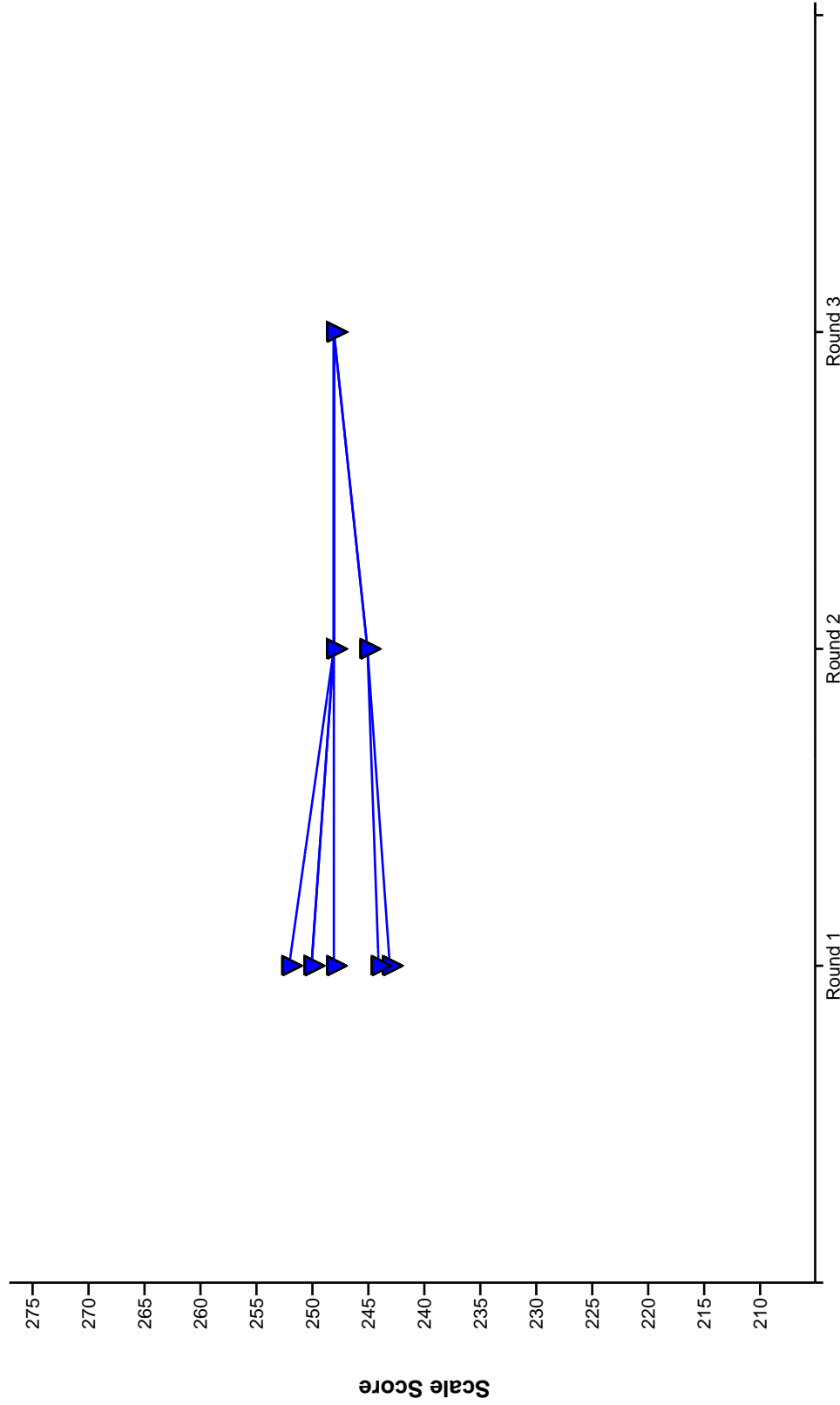
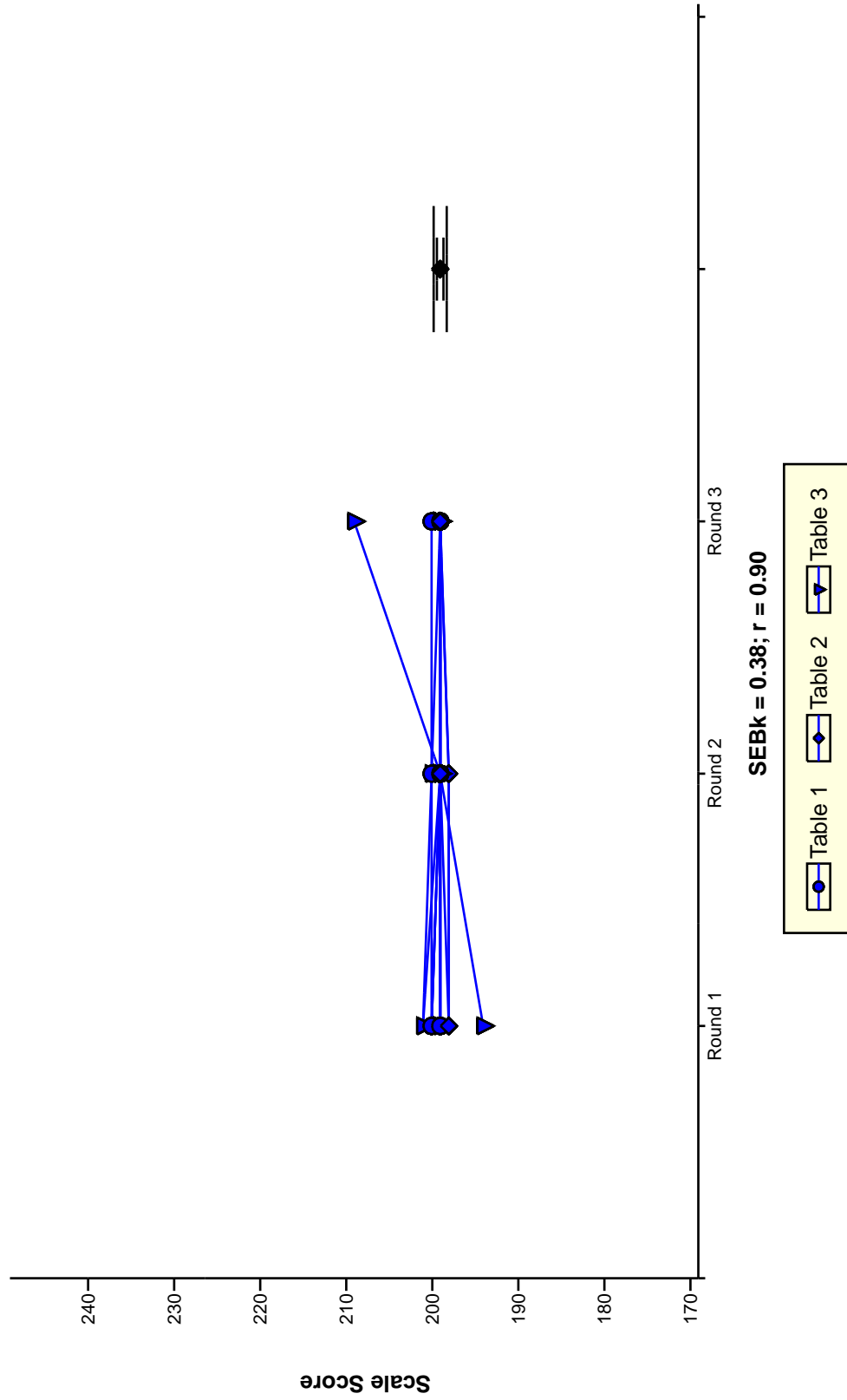


Table 3

Oregon Standard Setting Grade 3 Reading/Literature Nearly Meets Cut Point



Oregon Standard Setting Grade 3 Reading/Literature Nearly Meets Cut Point

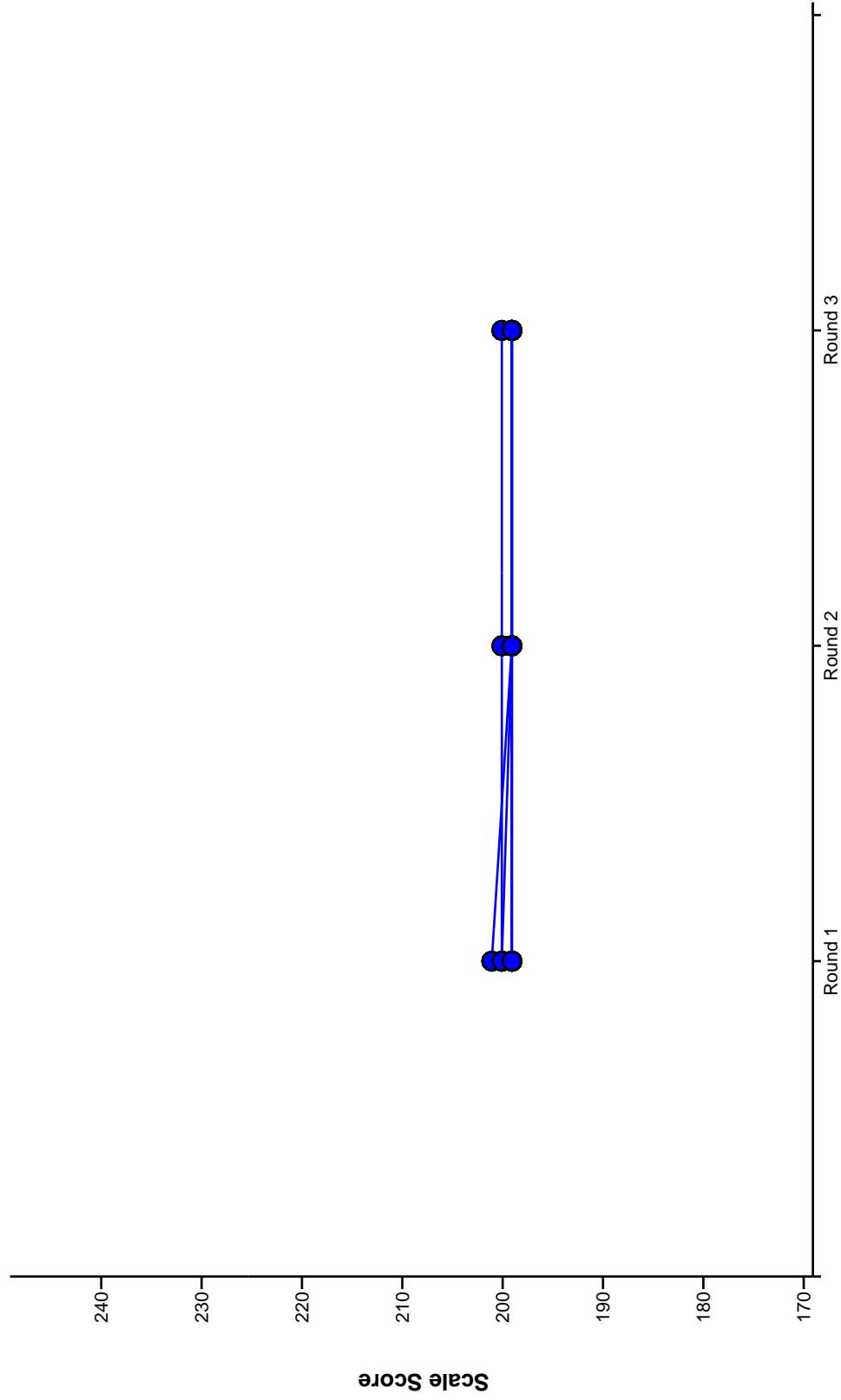


Table 1

Oregon Standard Setting Grade 3 Reading/Literature Nearly Meets Cut Point

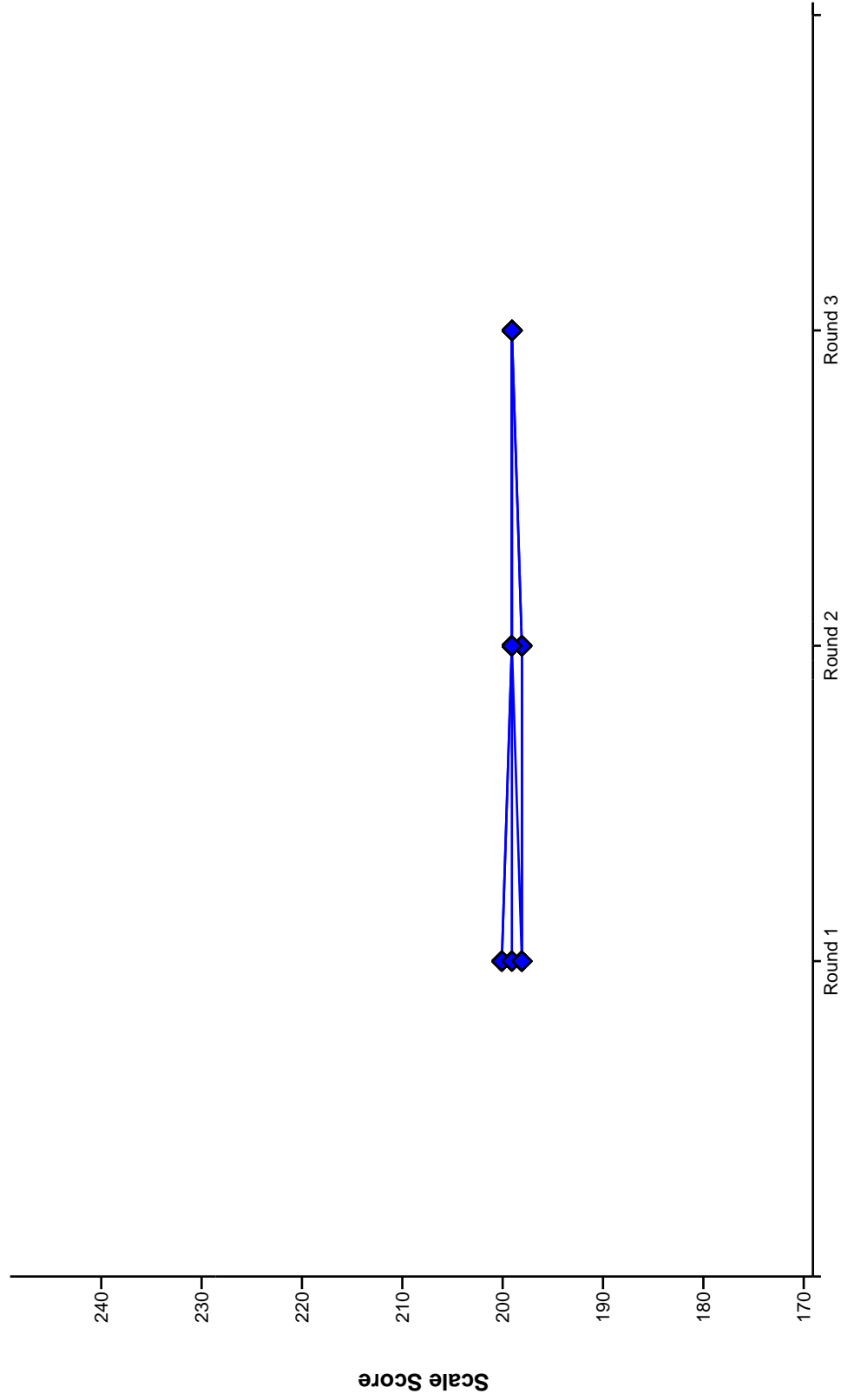


Table 2

Oregon Standard Setting Grade 3 Reading/Literature Nearly Meets Cut Point

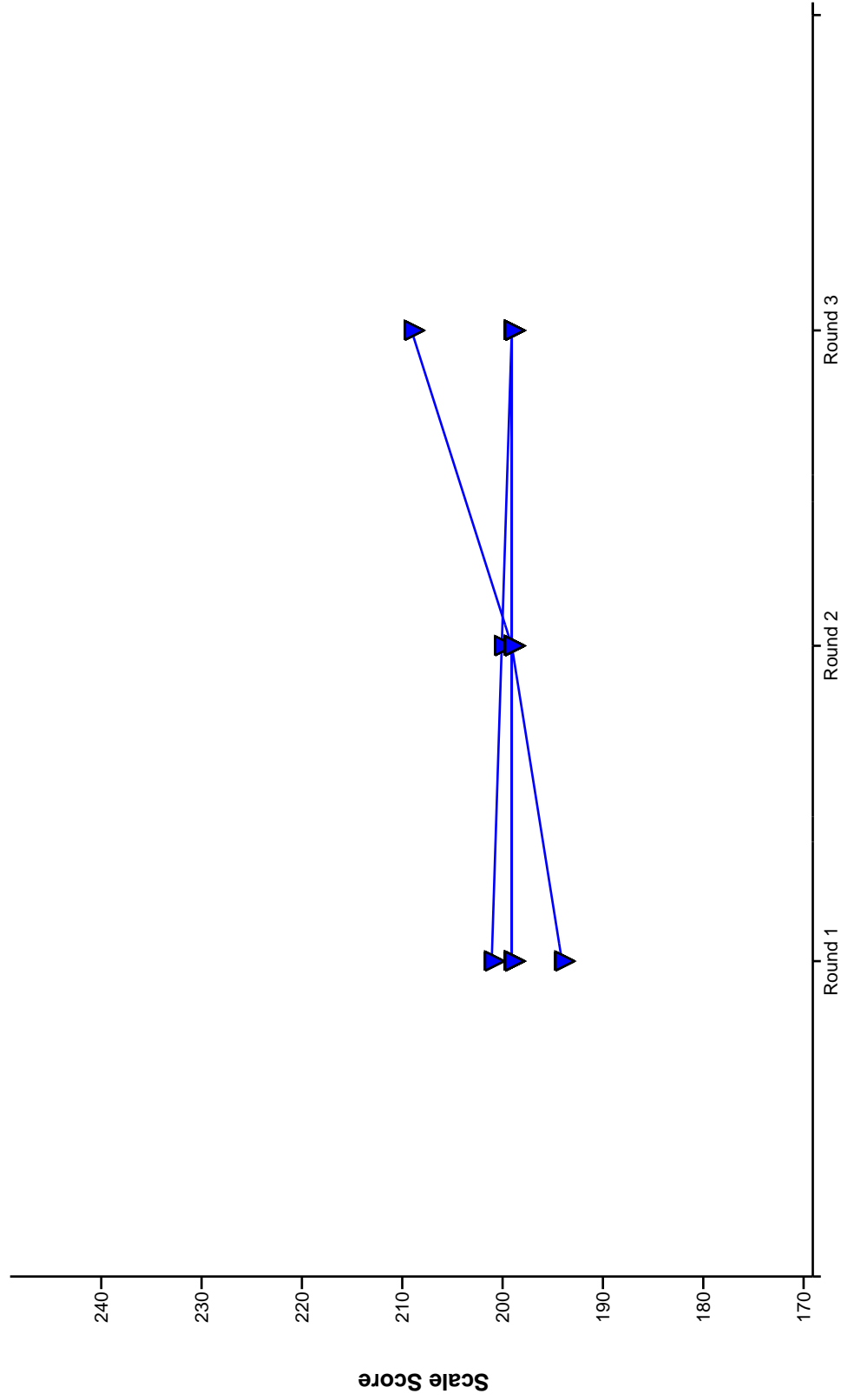
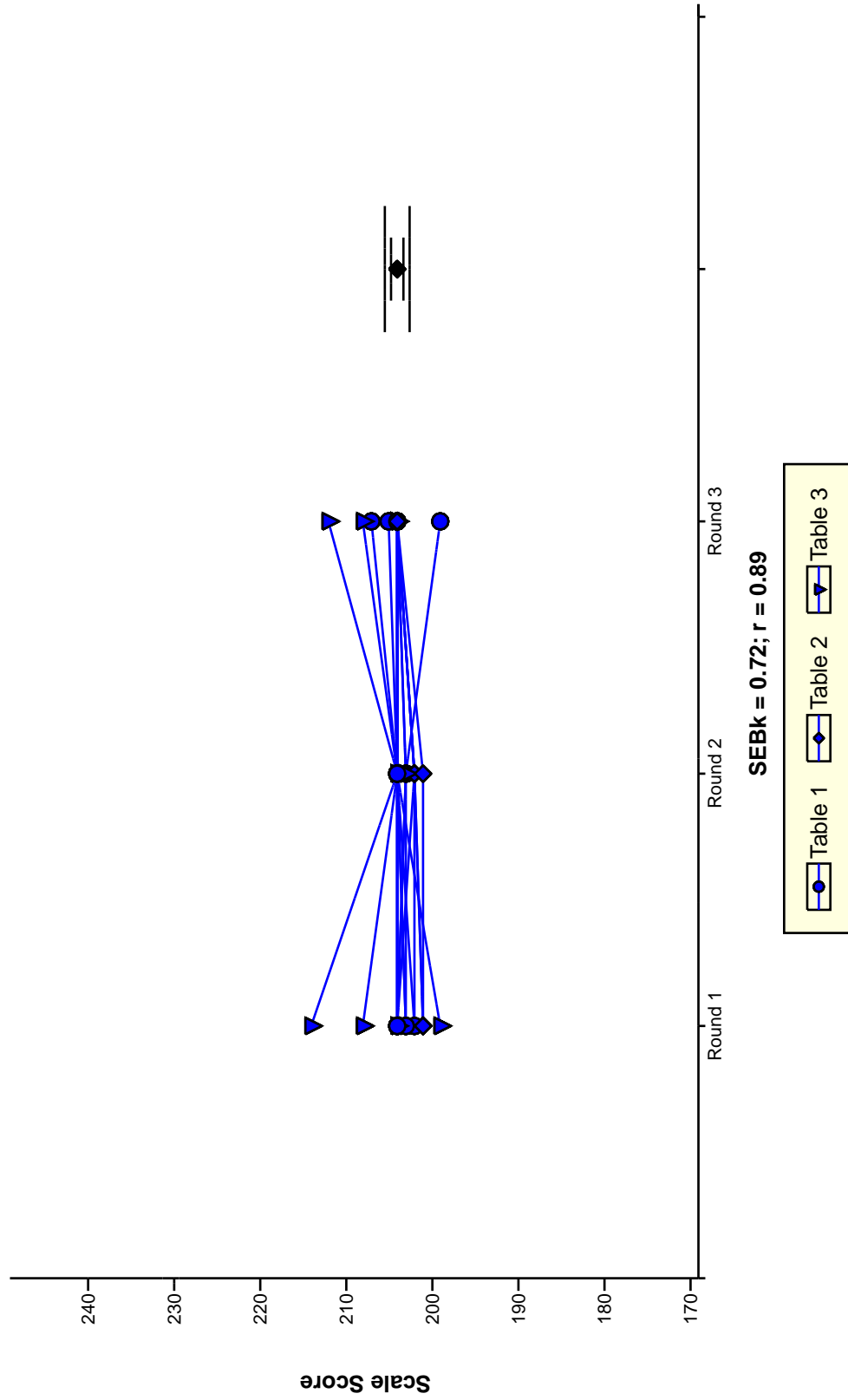


Table 3

Oregon Standard Setting Grade 3 Reading/Literature Meets Cut Point



Oregon Standard Setting Grade 3 Reading/Literature Meets Cut Point

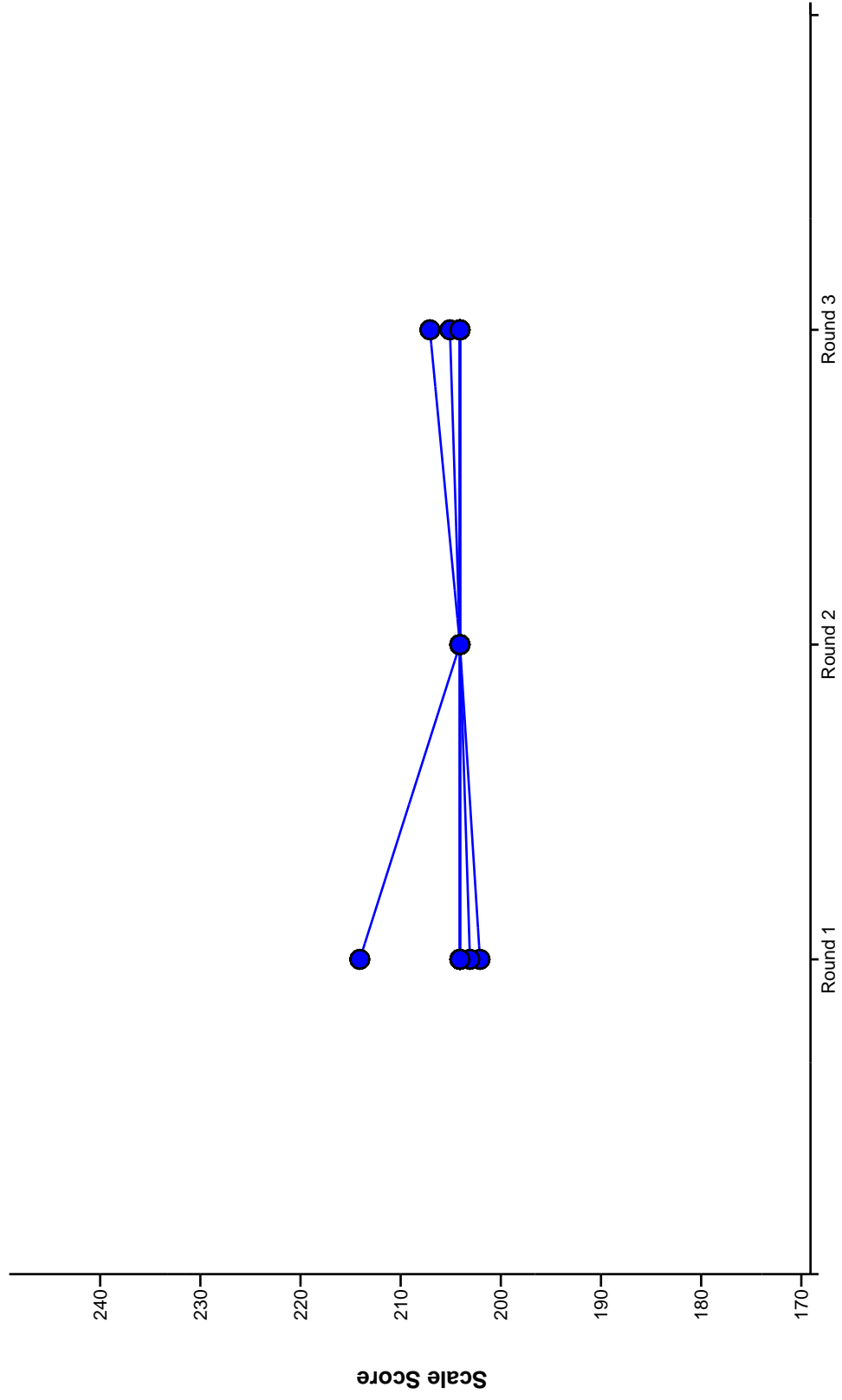


Table 1

Oregon Standard Setting Grade 3 Reading/Literature Meets Cut Point

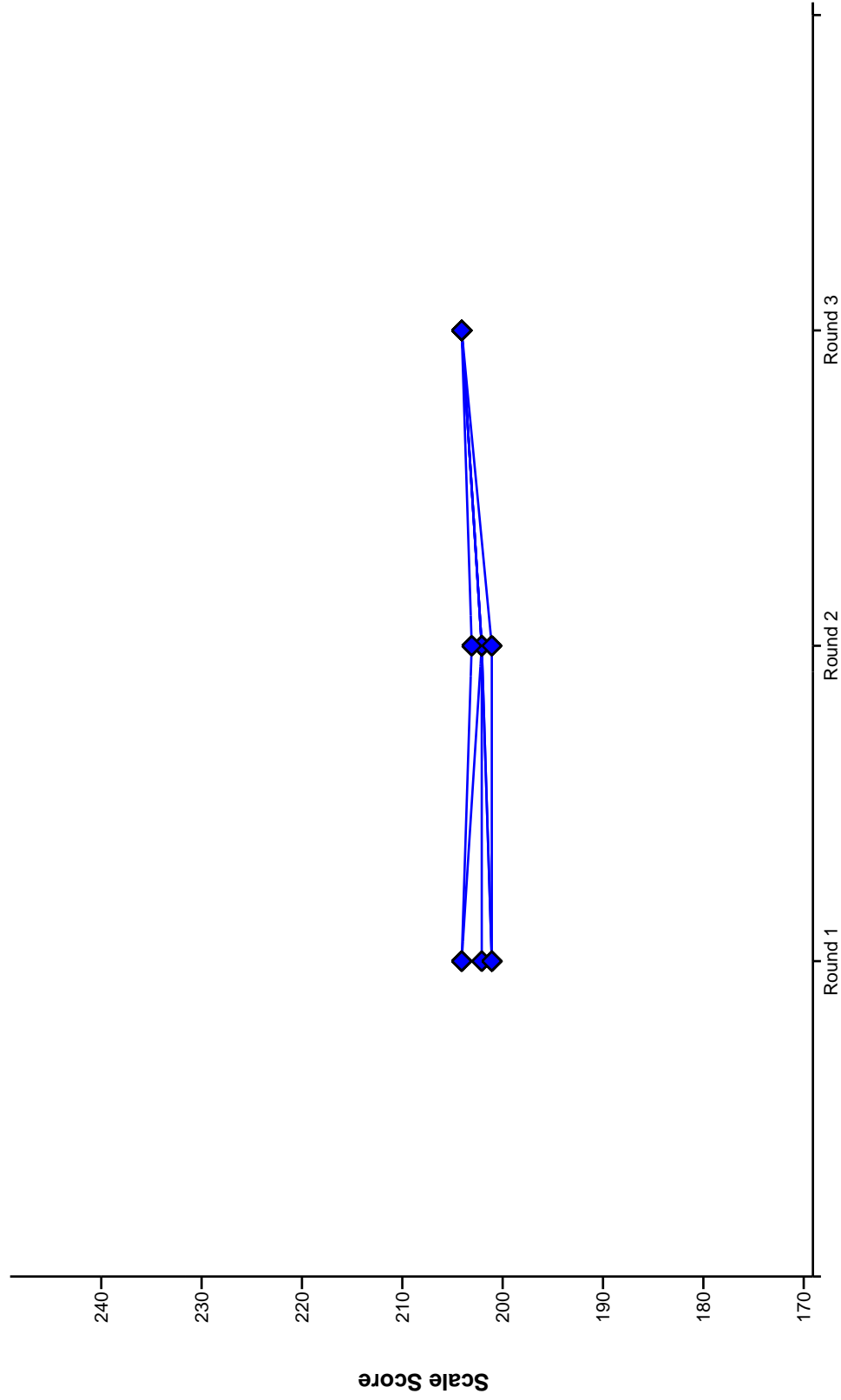


Table 2

Oregon Standard Setting Grade 3 Reading/Literature Meets Cut Point

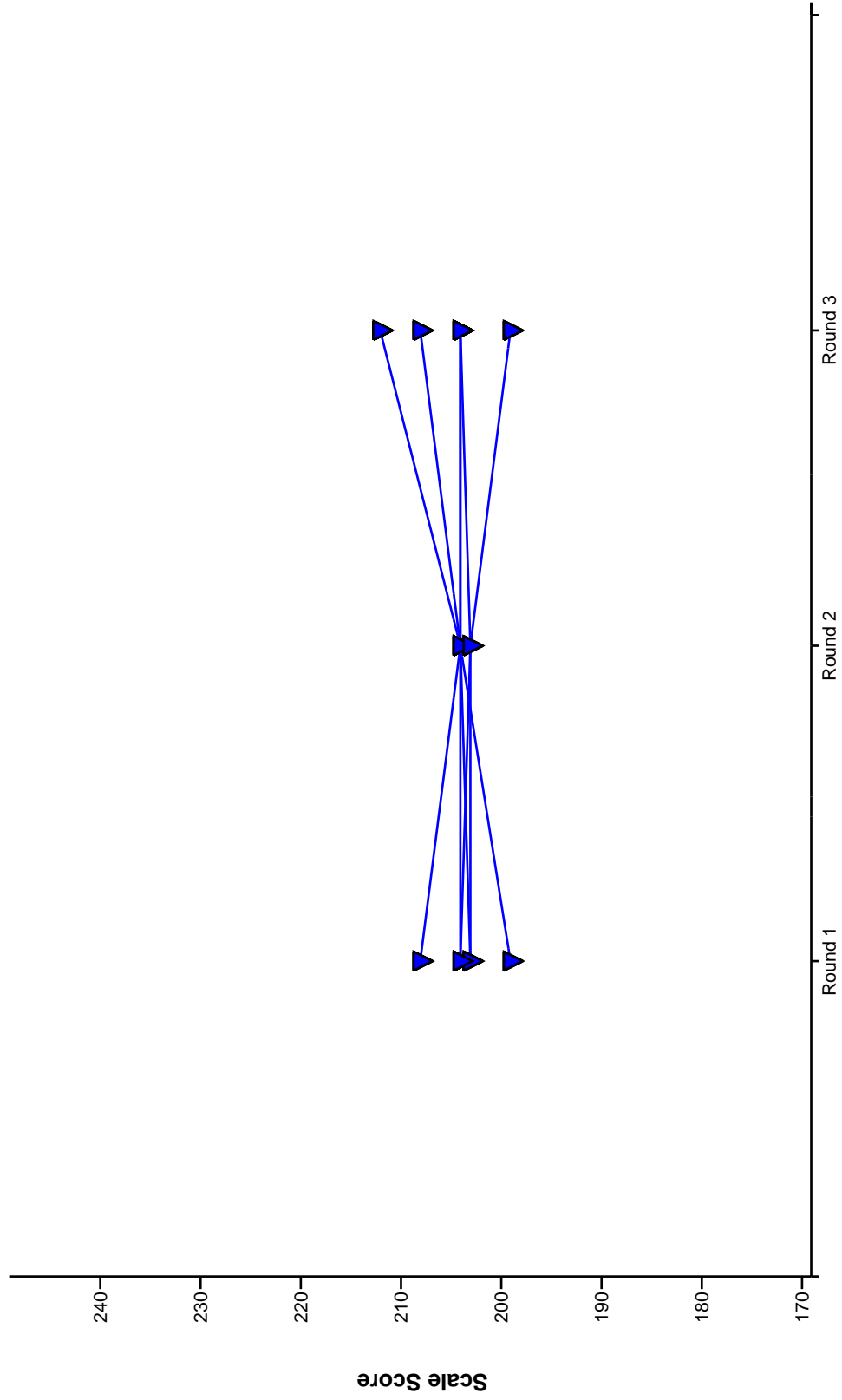
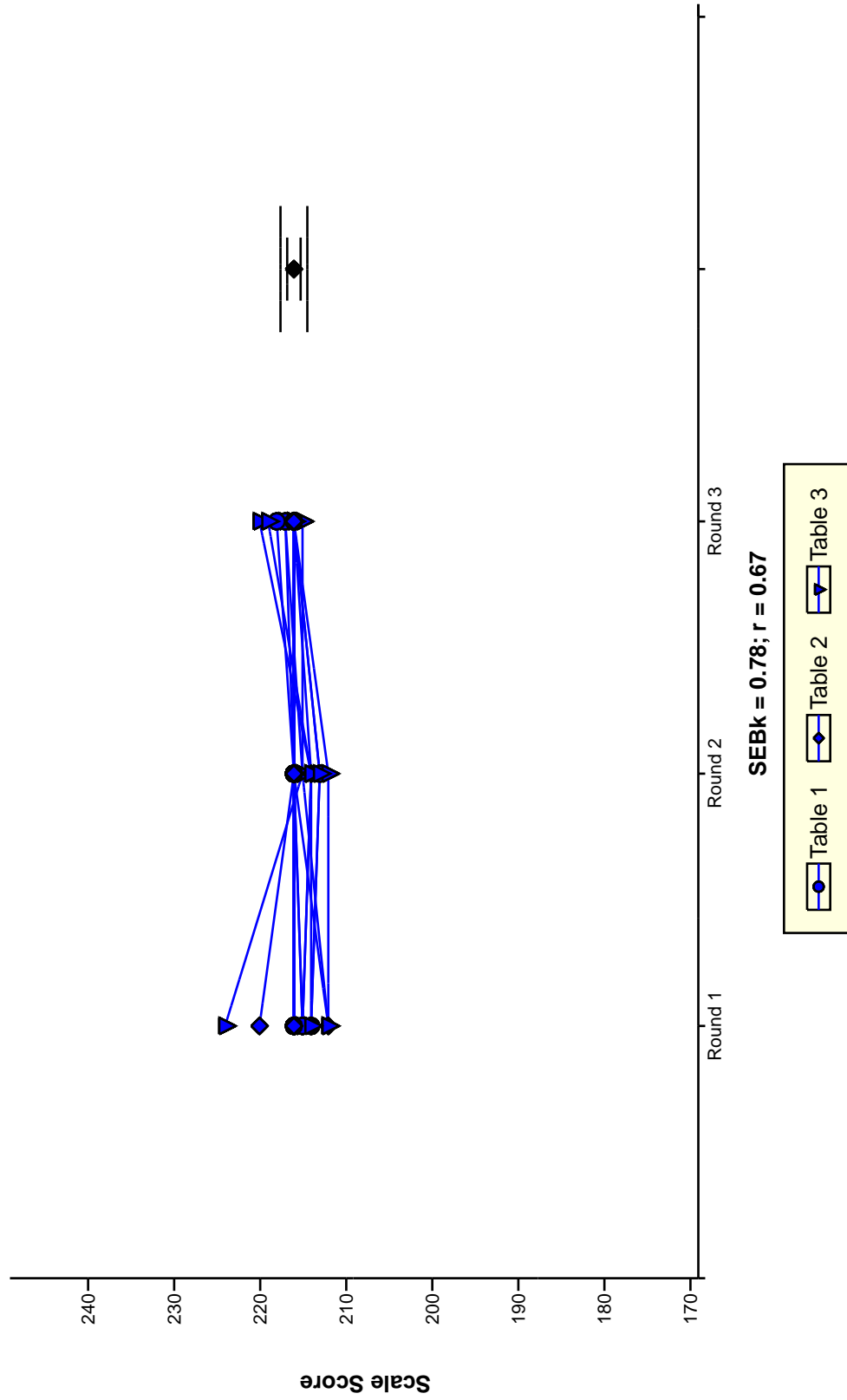


Table 3

Oregon Standard Setting Grade 3 Reading/Literature Exceeds Cut Point



Oregon Standard Setting Grade 3 Reading/Literature Exceeds Cut Point

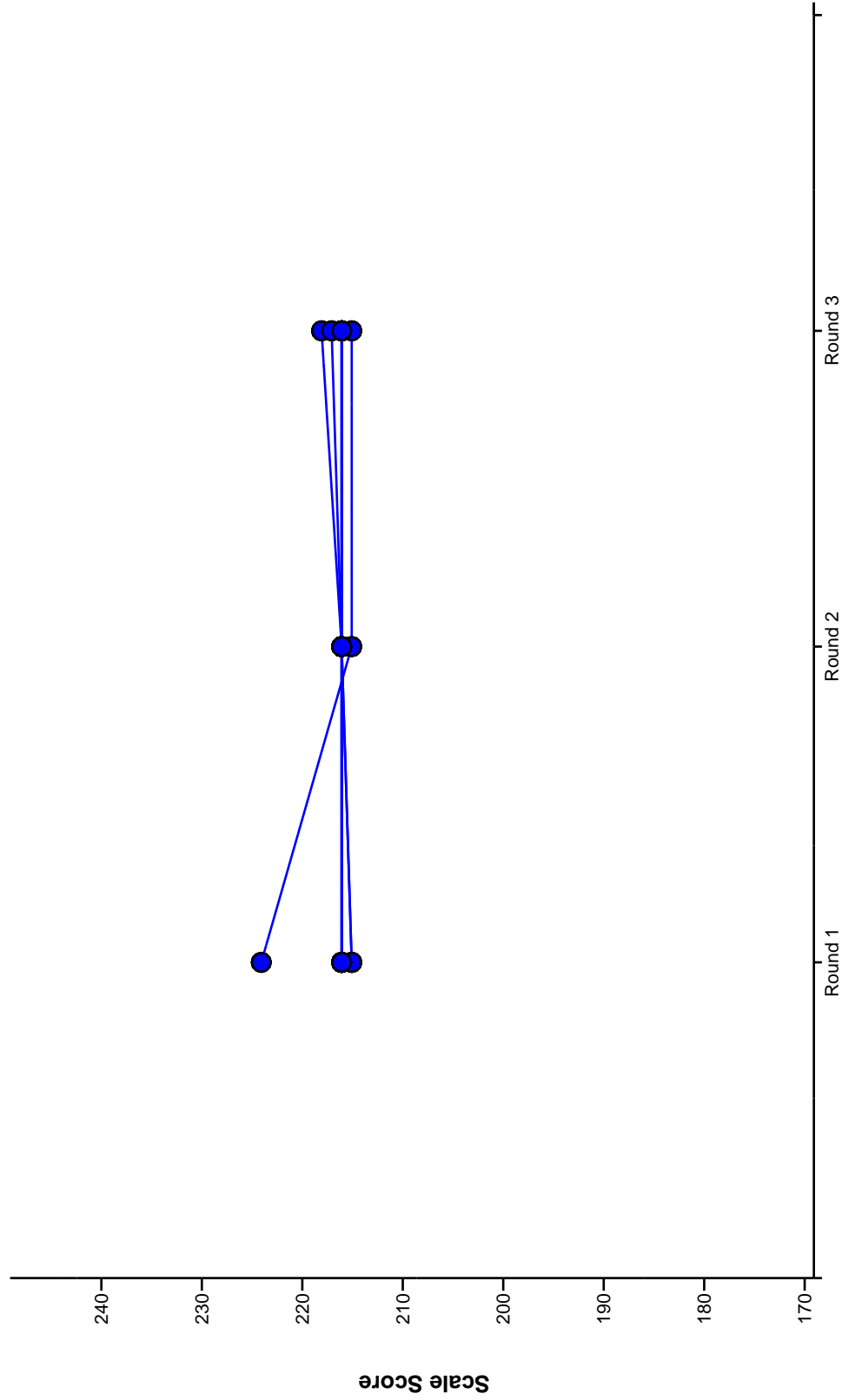


Table 1

Oregon Standard Setting Grade 3 Reading/Literature Exceeds Cut Point

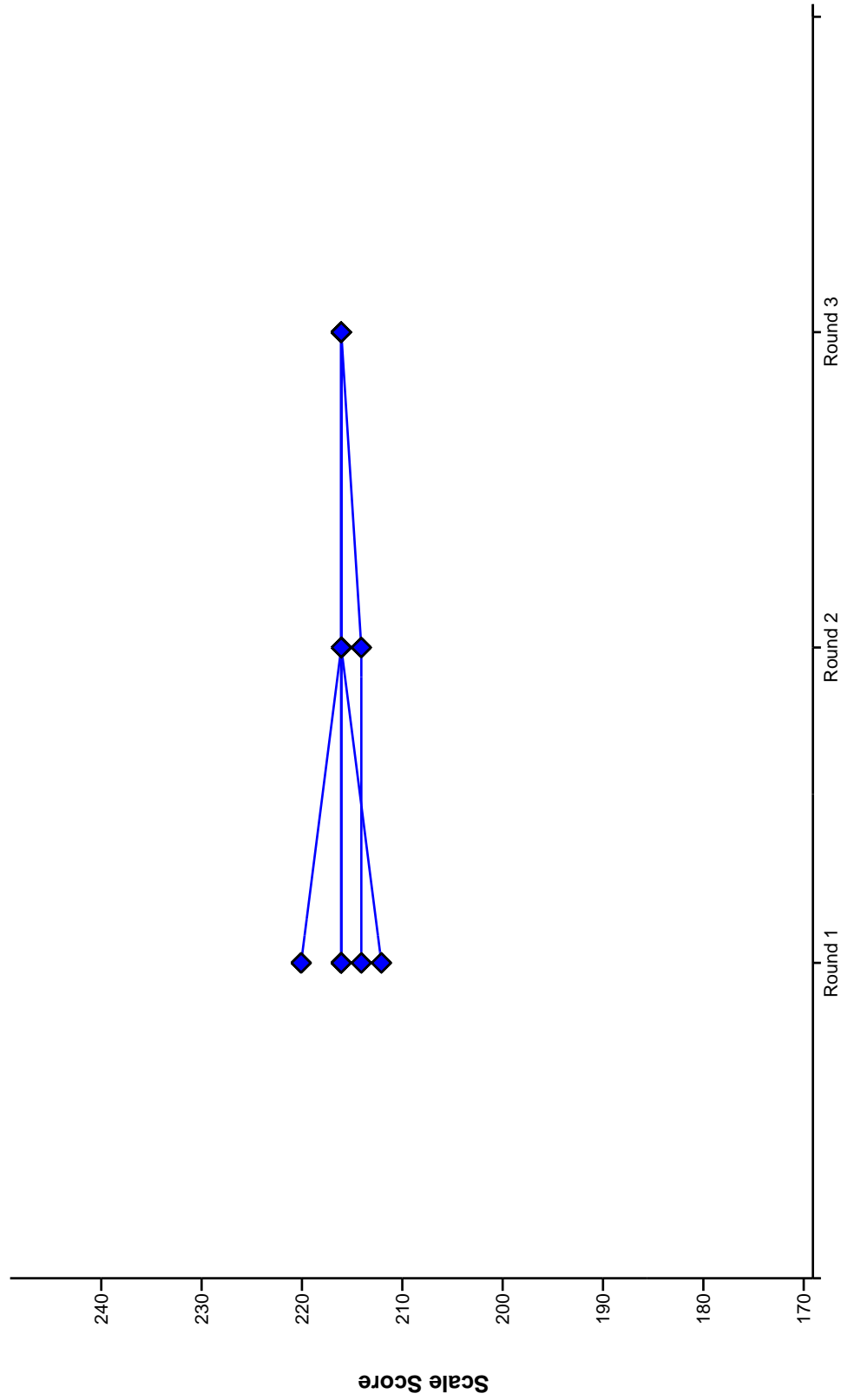


Table 2

Oregon Standard Setting Grade 3 Reading/Literature Exceeds Cut Point

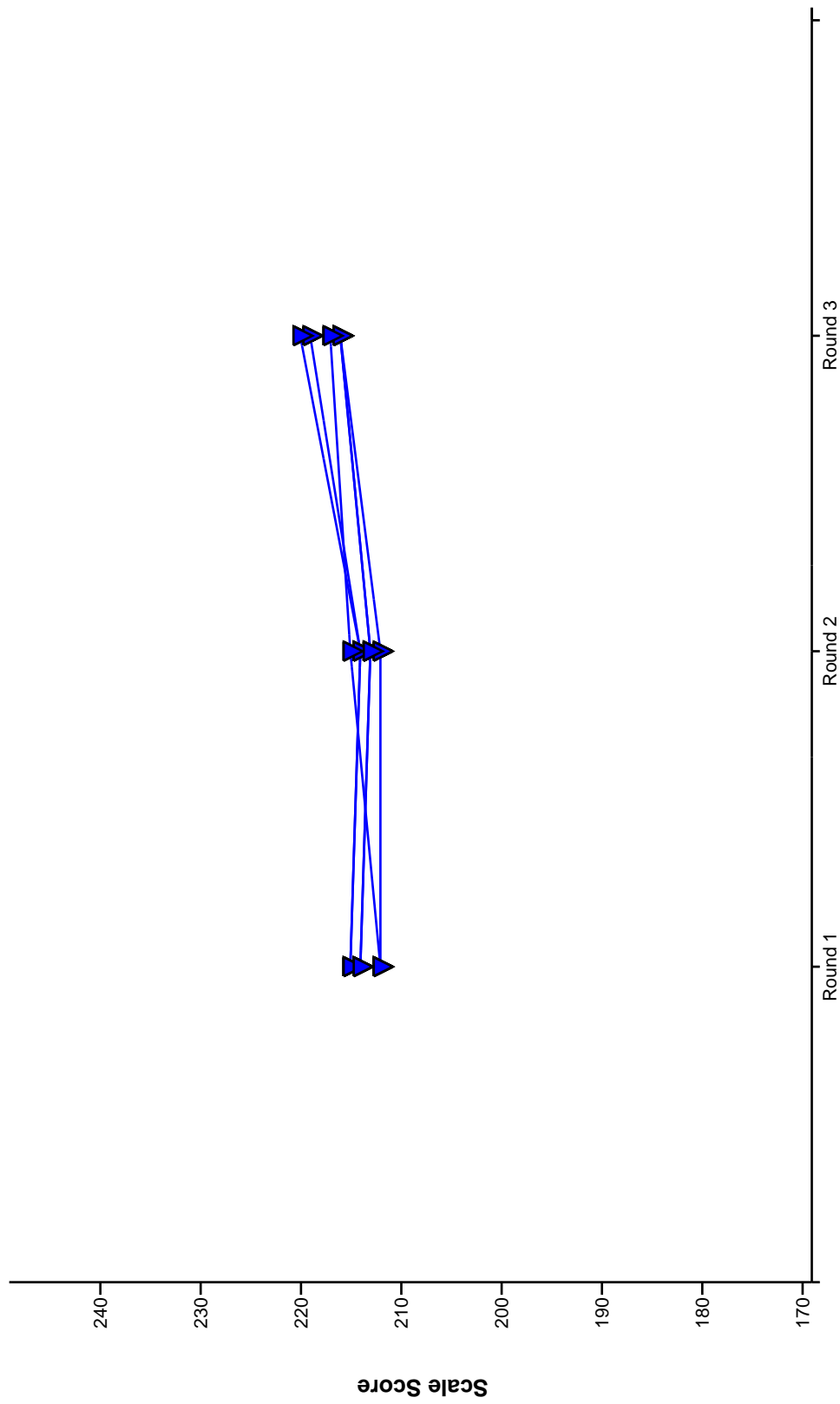
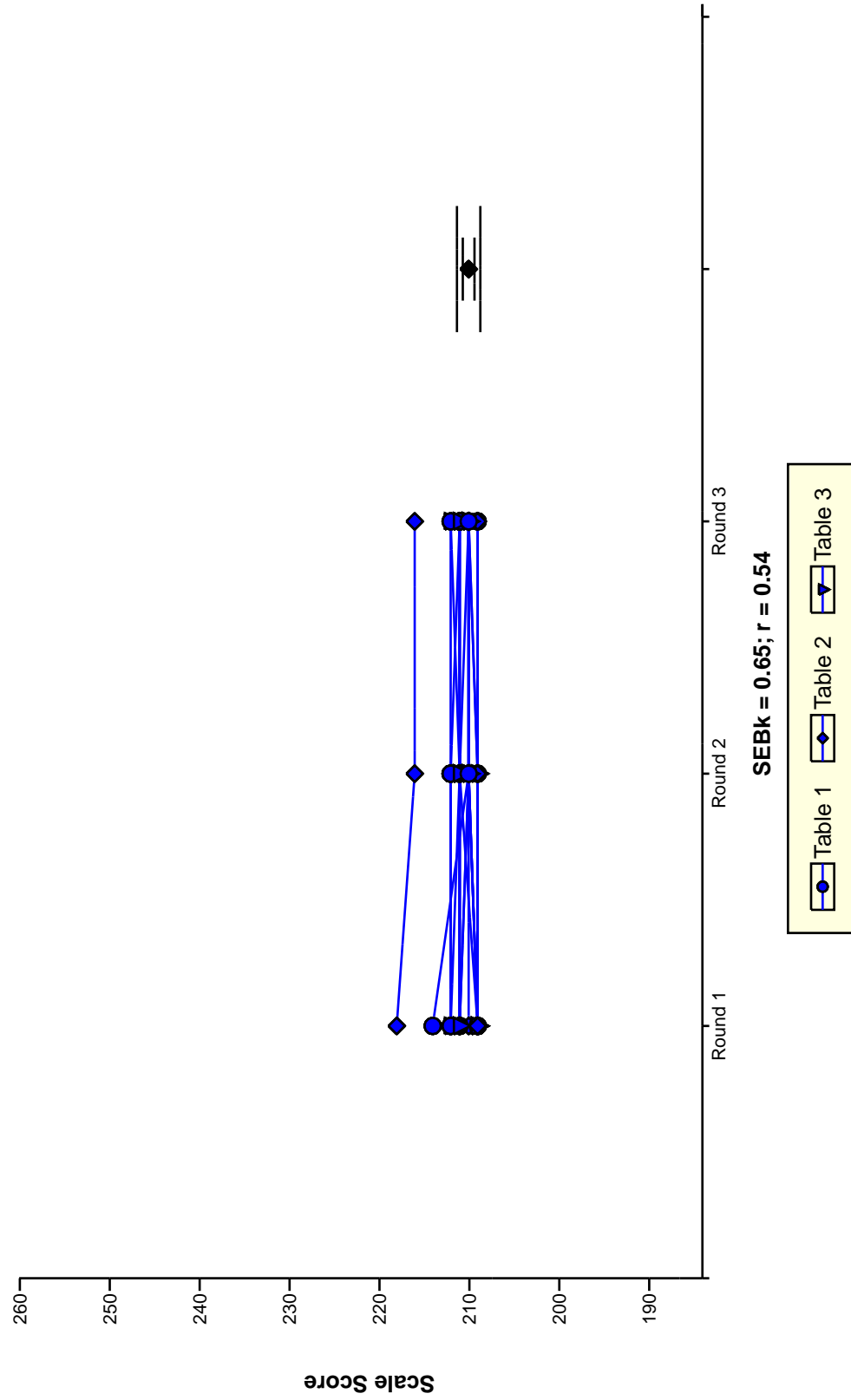


Table 3

Oregon Standard Setting Grade 5 Reading/Literature Nearly Meets Cut Point



Oregon Standard Setting Grade 5 Reading/Literature Nearly Meets Cut Point

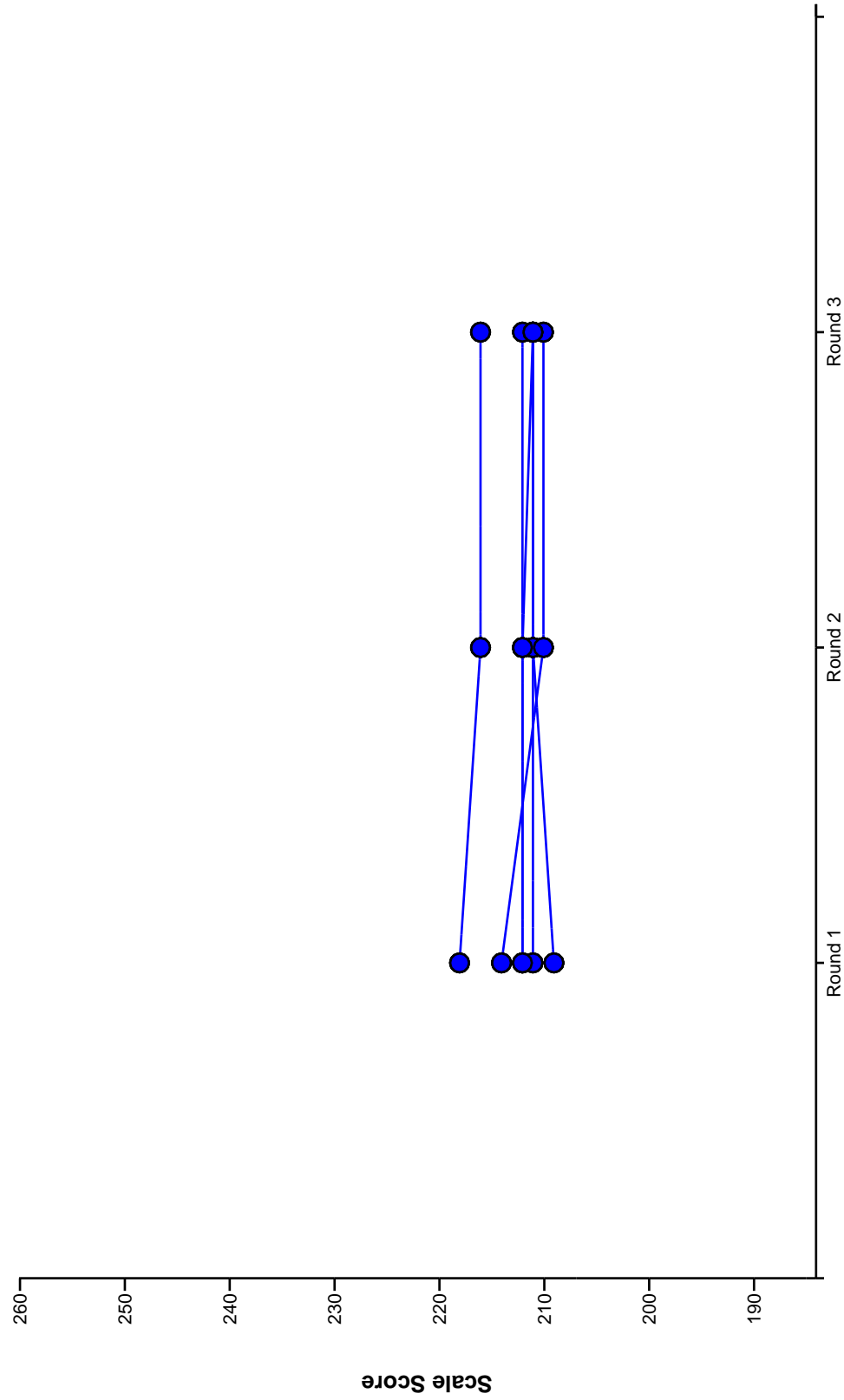


Table 1

Oregon Standard Setting Grade 5 Reading/Literature Nearly Meets Cut Point

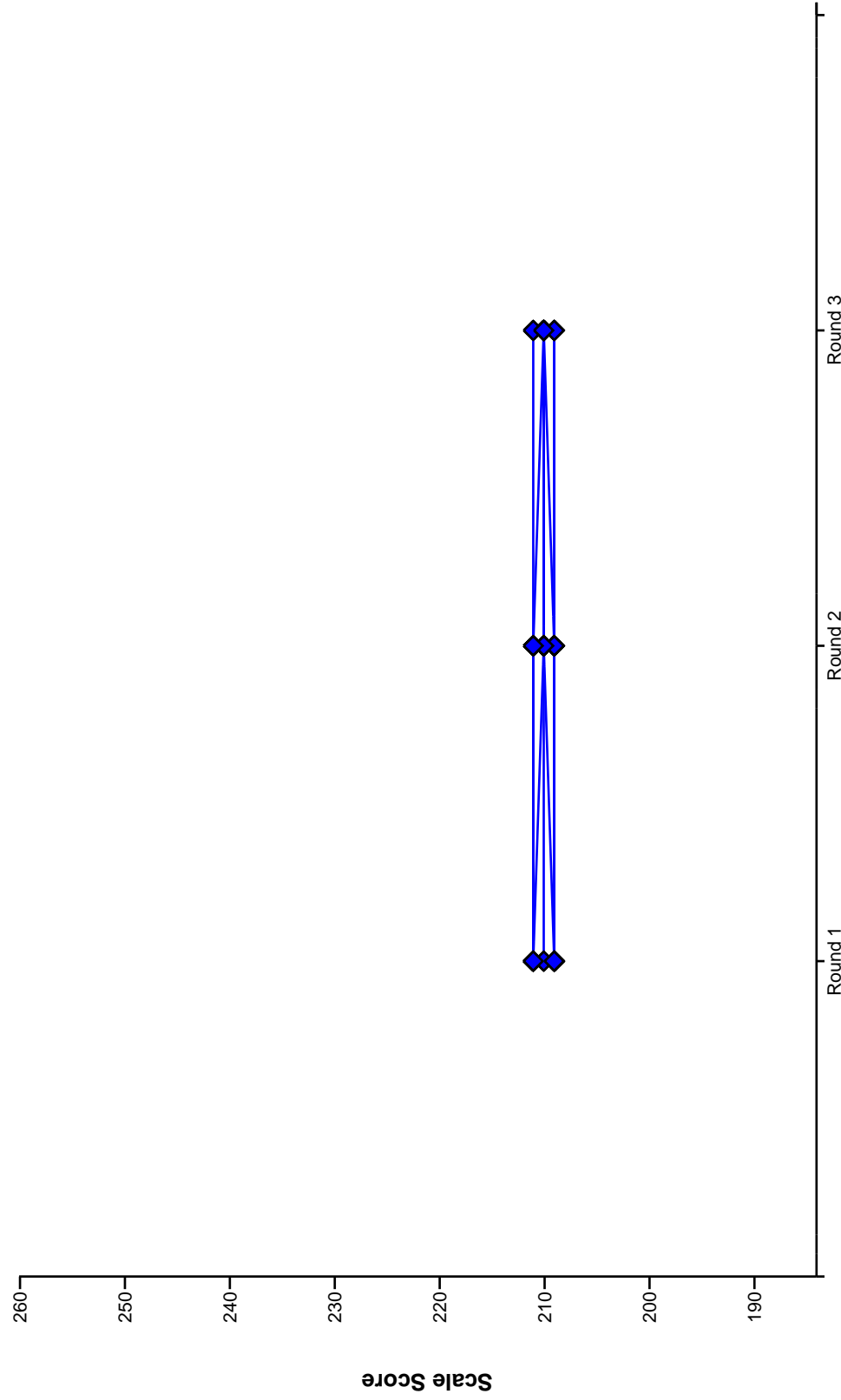


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Oregon Standard Setting Grade 5 Reading/Literature Nearly Meets Cut Point

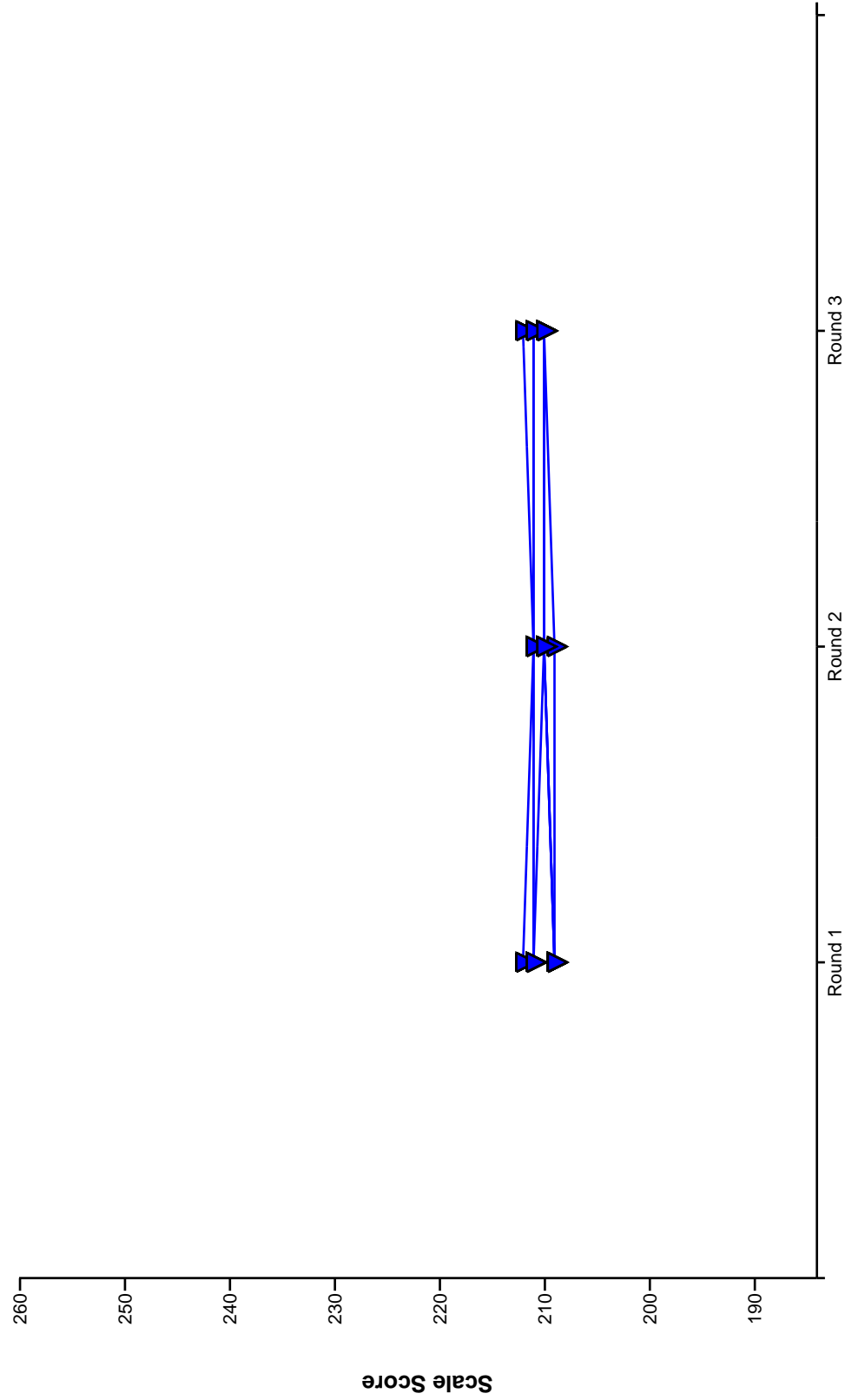
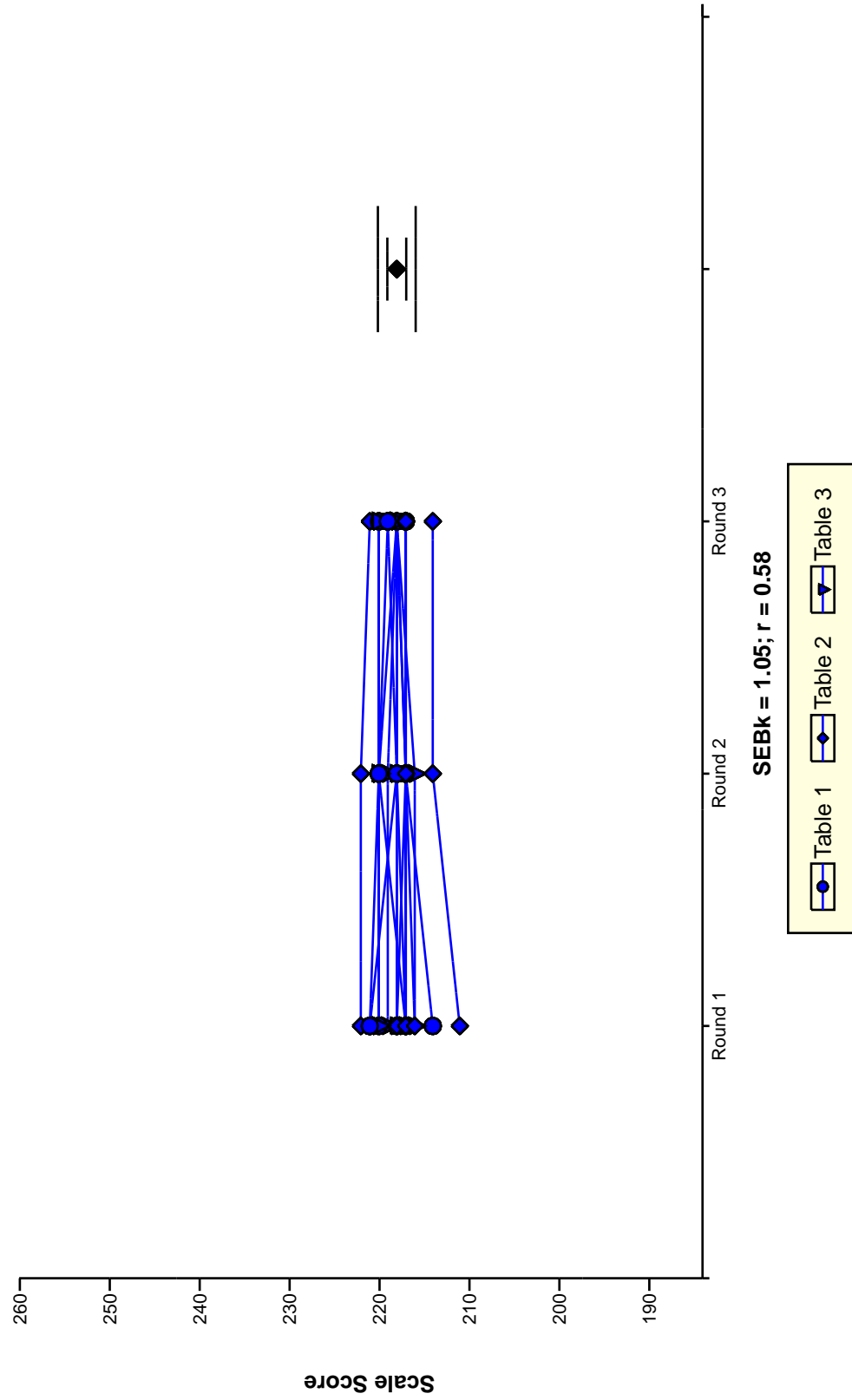


Table 3

Oregon Standard Setting Grade 5 Reading/Literature Meets Cut Point



Oregon Standard Setting Grade 5 Reading/Literature Meets Cut Point

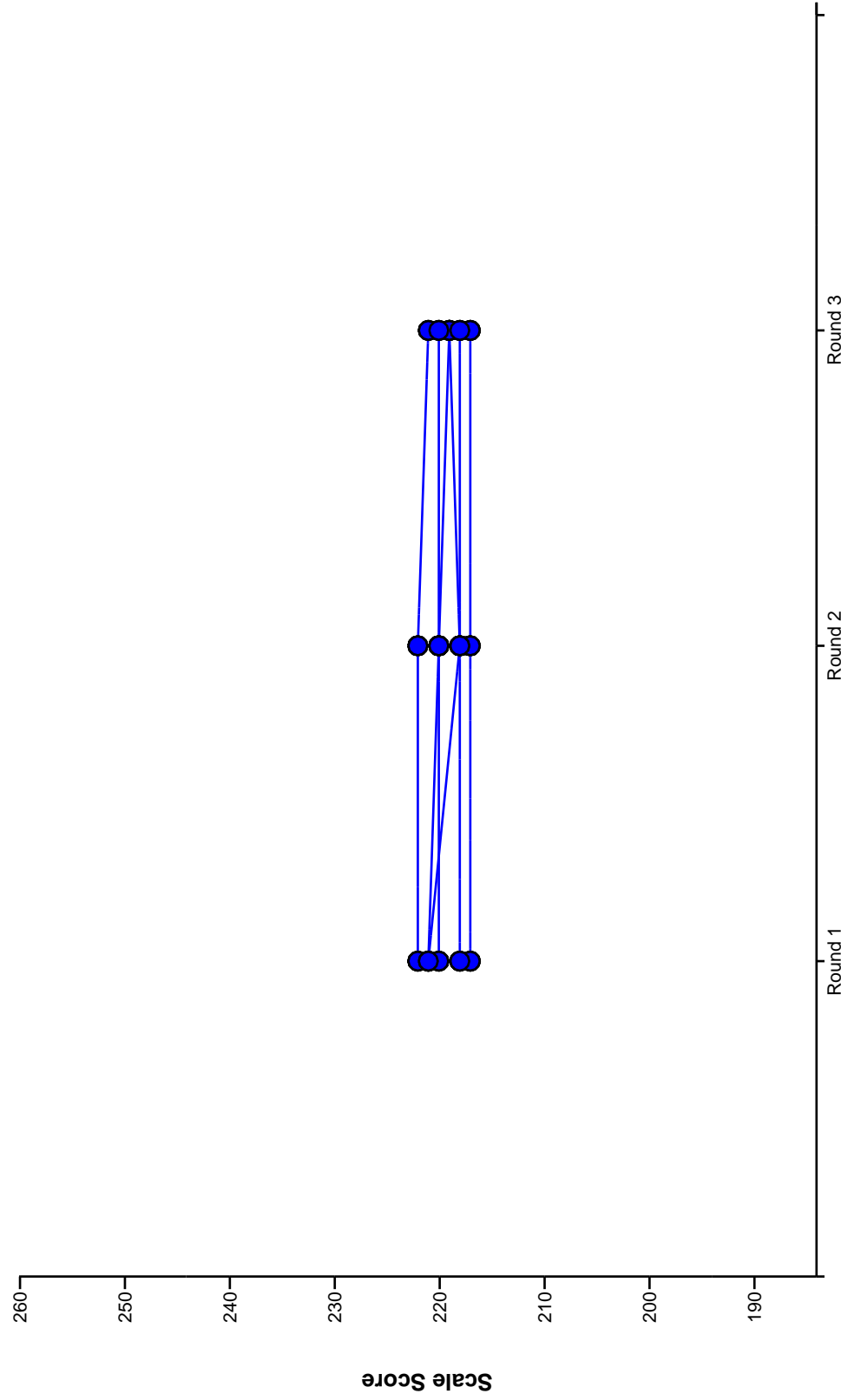


Table 1

Oregon Standard Setting Grade 5 Reading/Literature Meets Cut Point

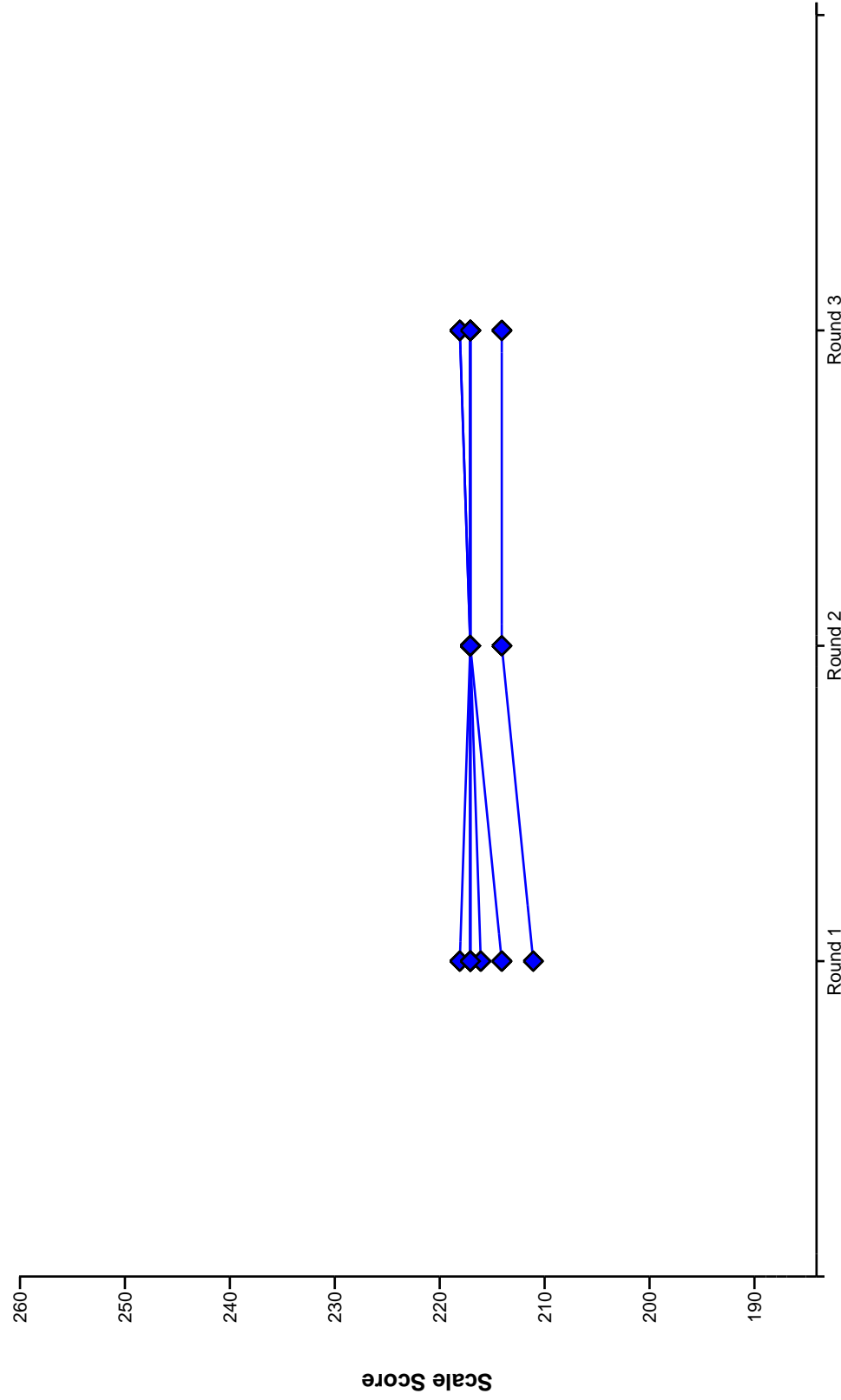


Table 2

Oregon Standard Setting Grade 5 Reading/Literature Meets Cut Point

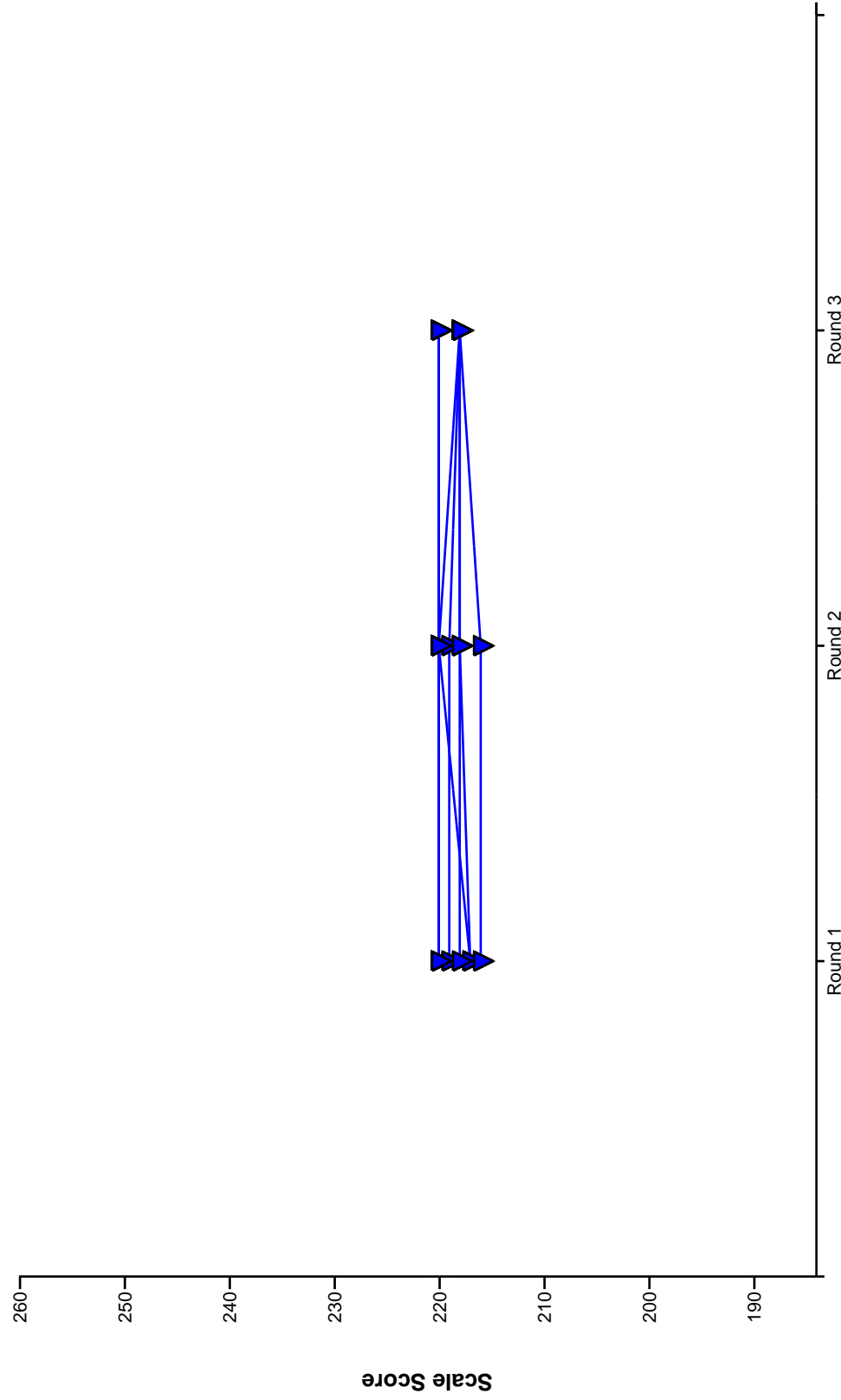
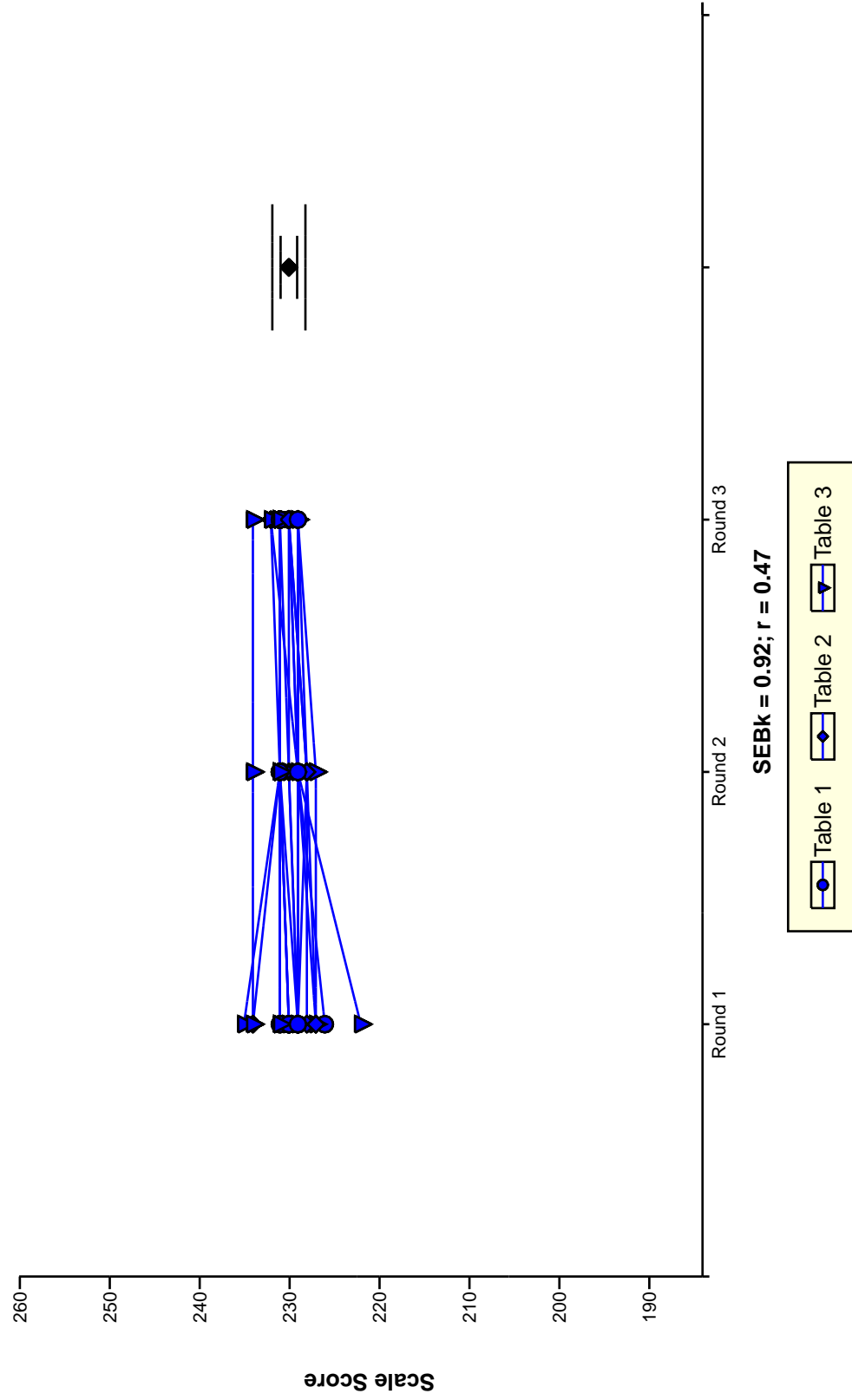


Table 3

Oregon Standard Setting Grade 5 Reading/Literature Exceeds Cut Point



Oregon Standard Setting Grade 5 Reading/Literature Exceeds Cut Point

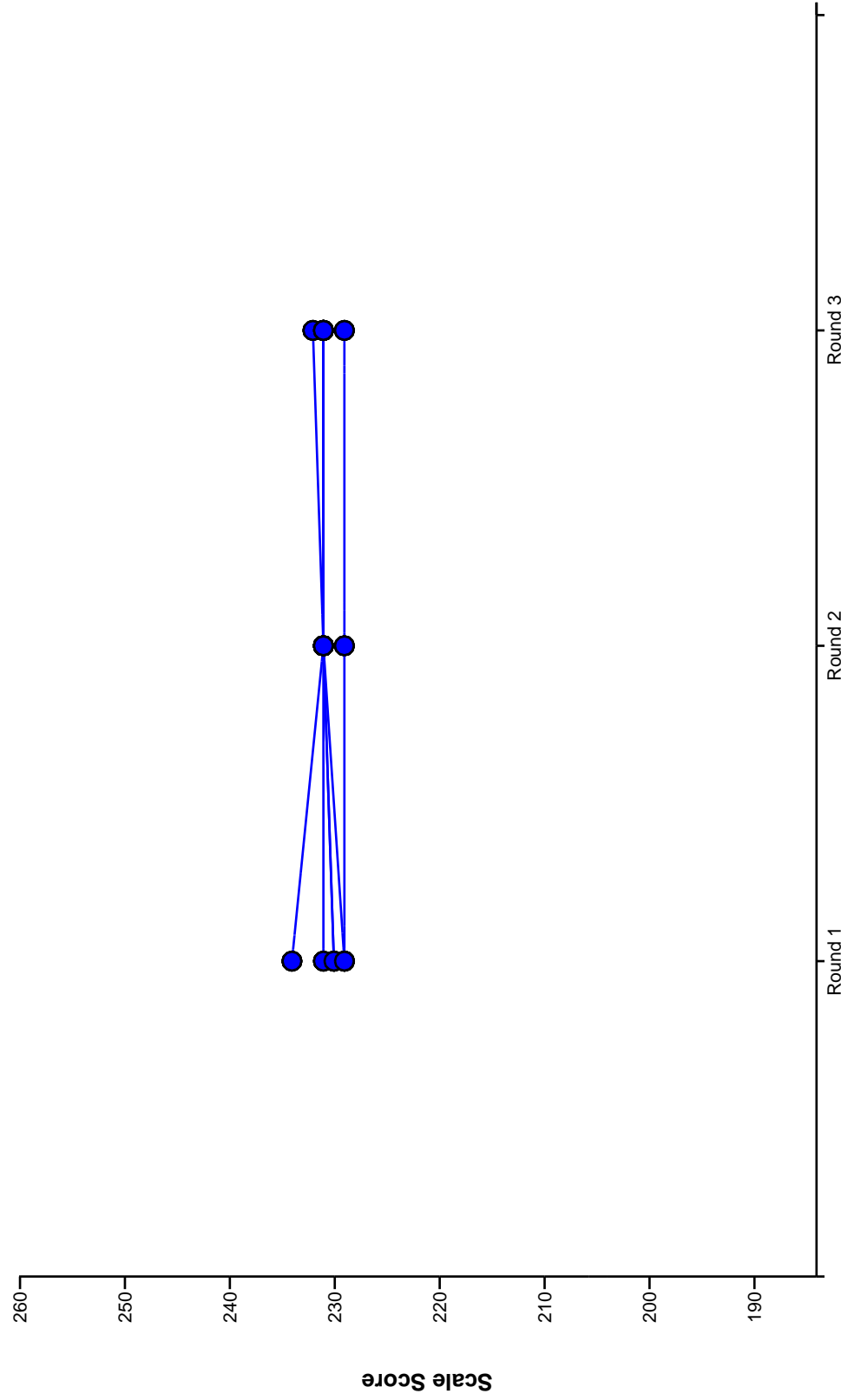


Table 1

Oregon Standard Setting Grade 5 Reading/Literature Exceeds Cut Point

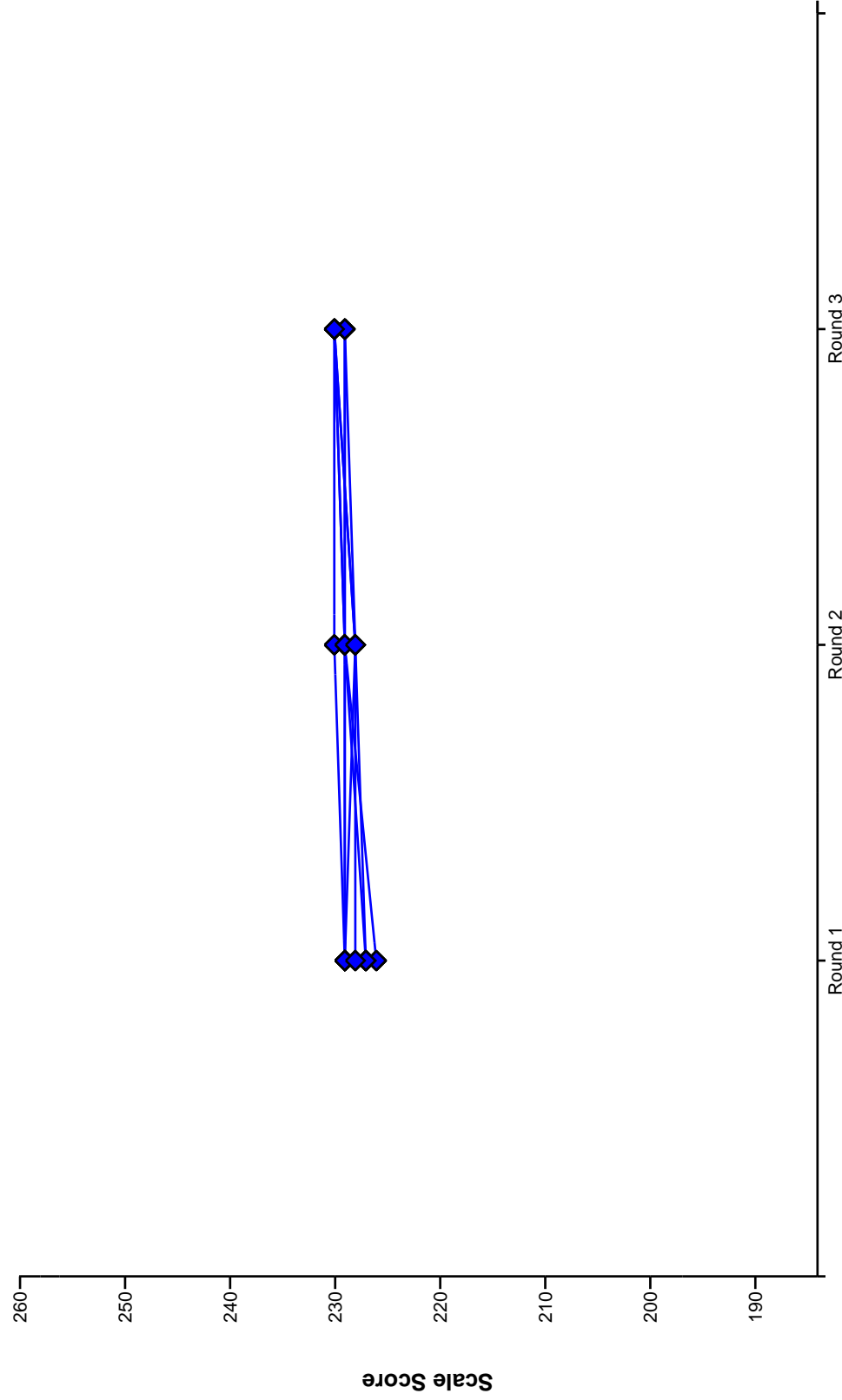


Table 2

Oregon Standard Setting Grade 5 Reading/Literature Exceeds Cut Point

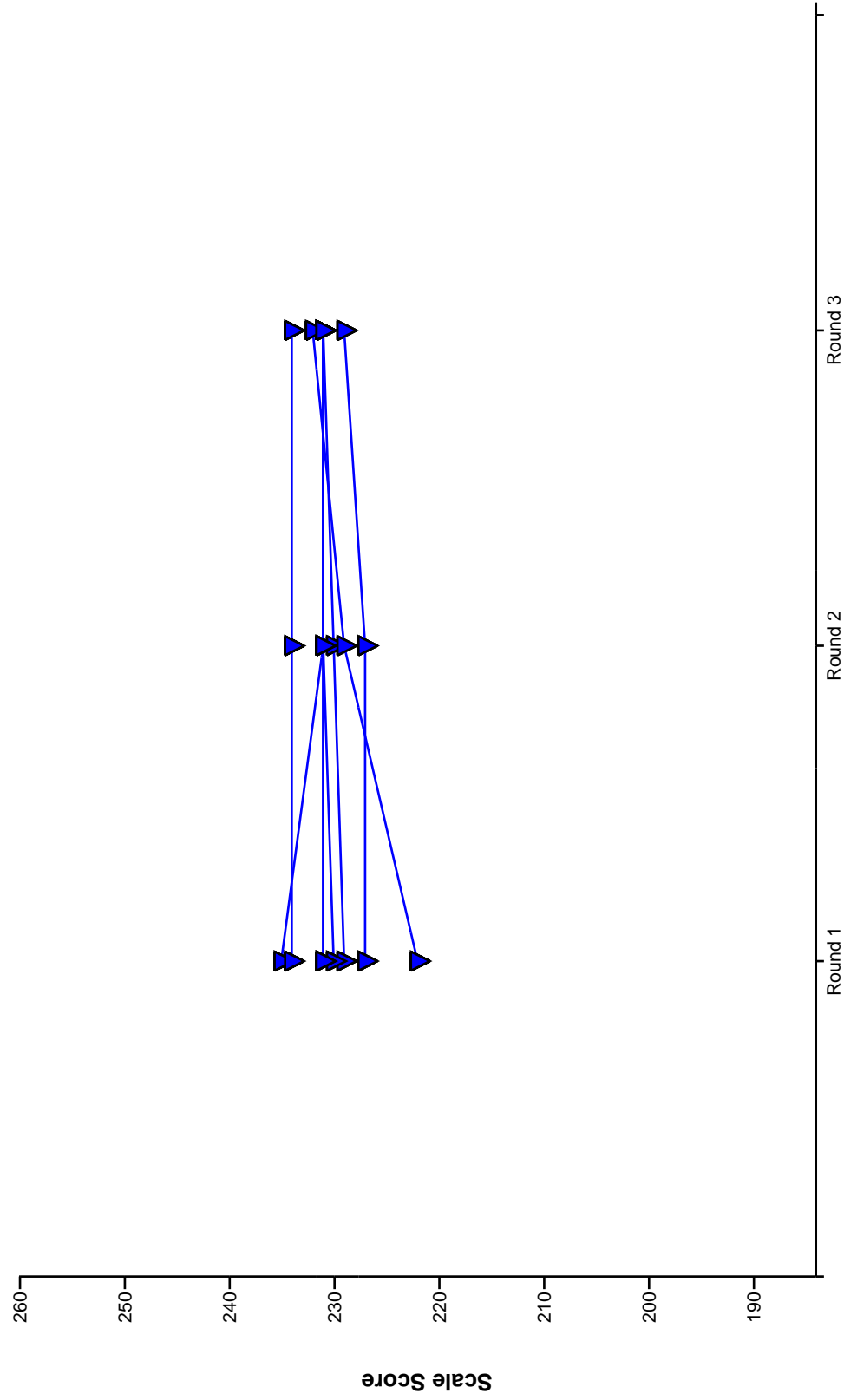
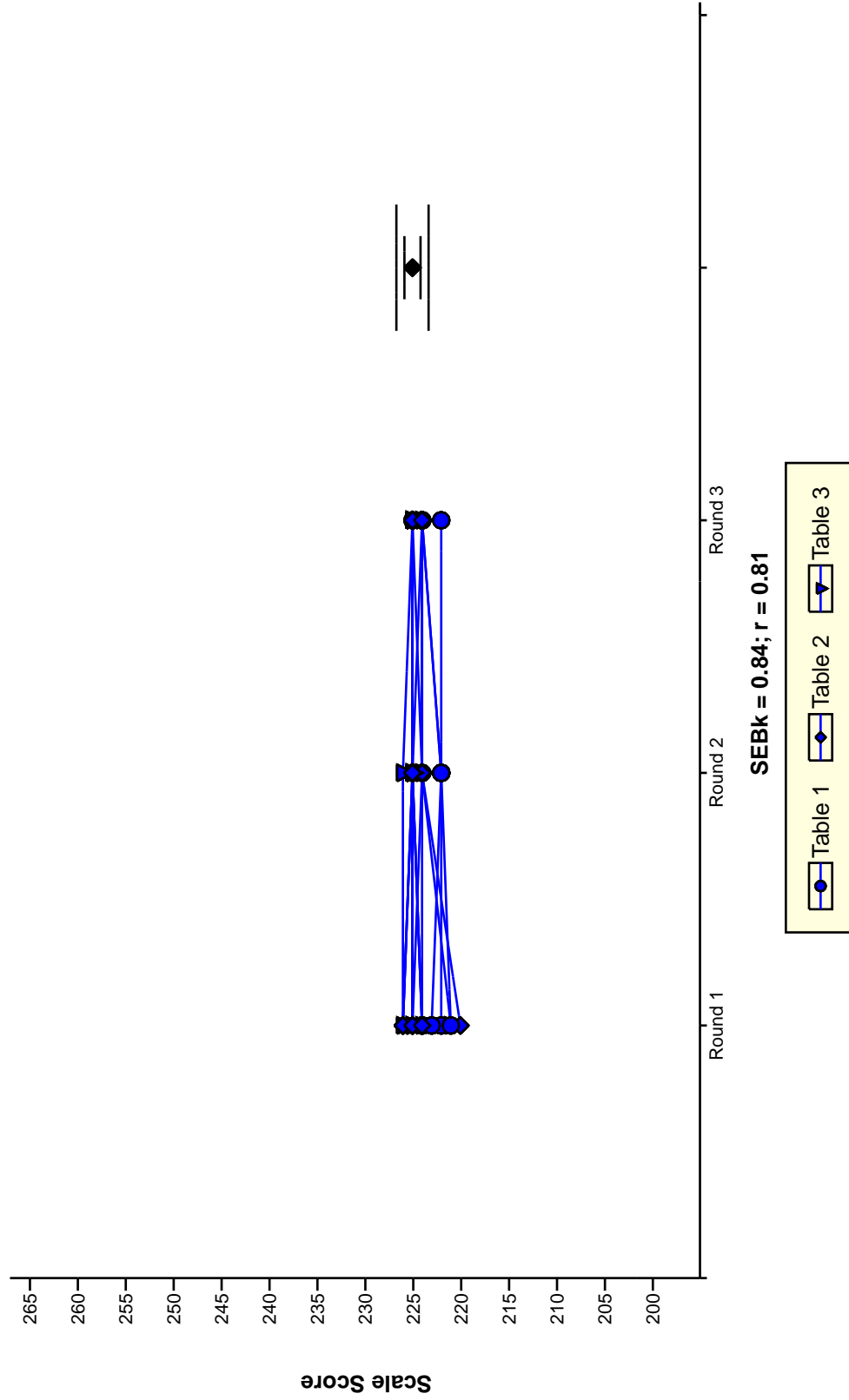


Table 3

Oregon Standard Setting Grade 8 Reading/Literature Nearly Meets Cut Point



Oregon Standard Setting Grade 8 Reading/Literature Nearly Meets Cut Point

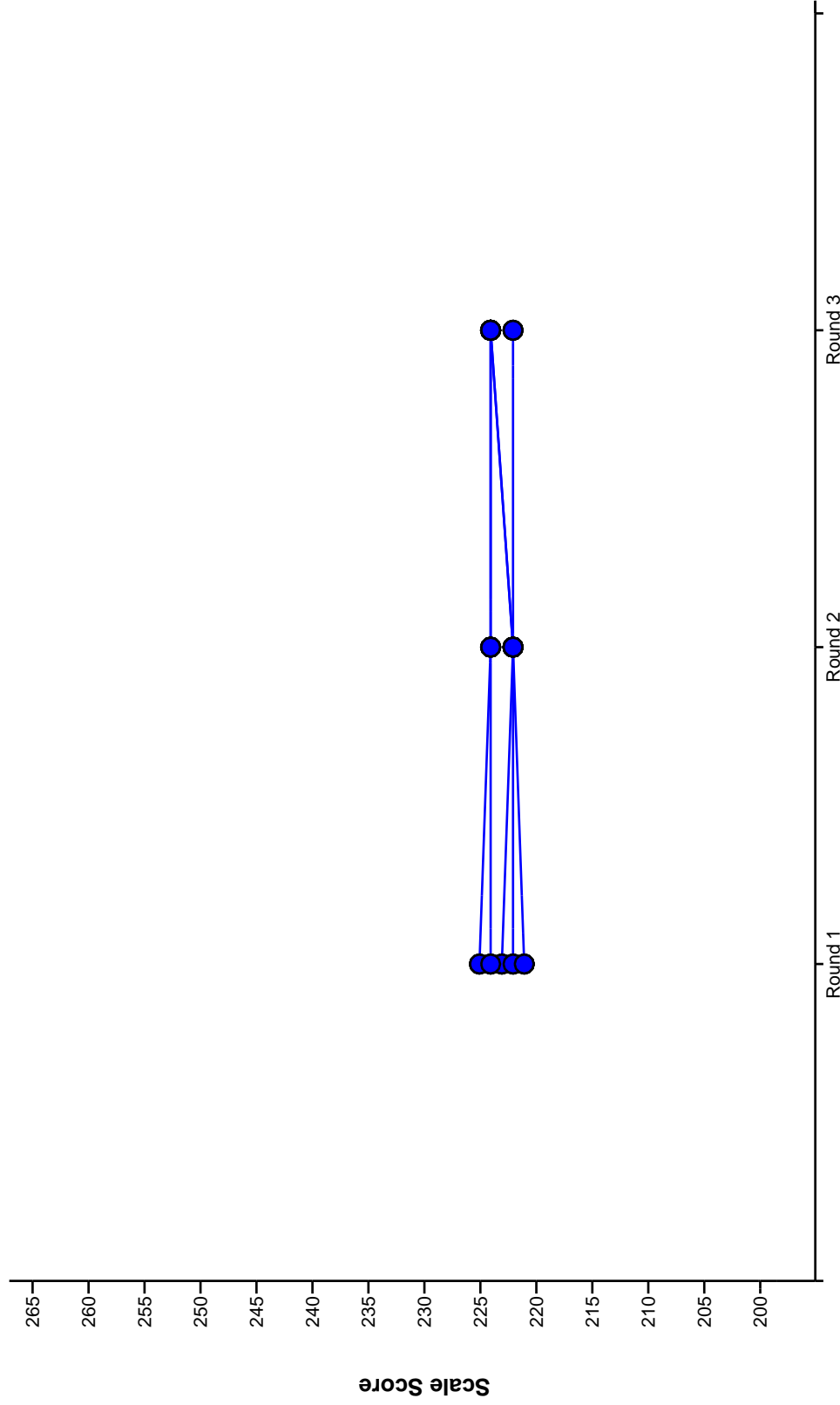


Table 1

Oregon Standard Setting Grade 8 Reading/Literature Nearly Meets Cut Point

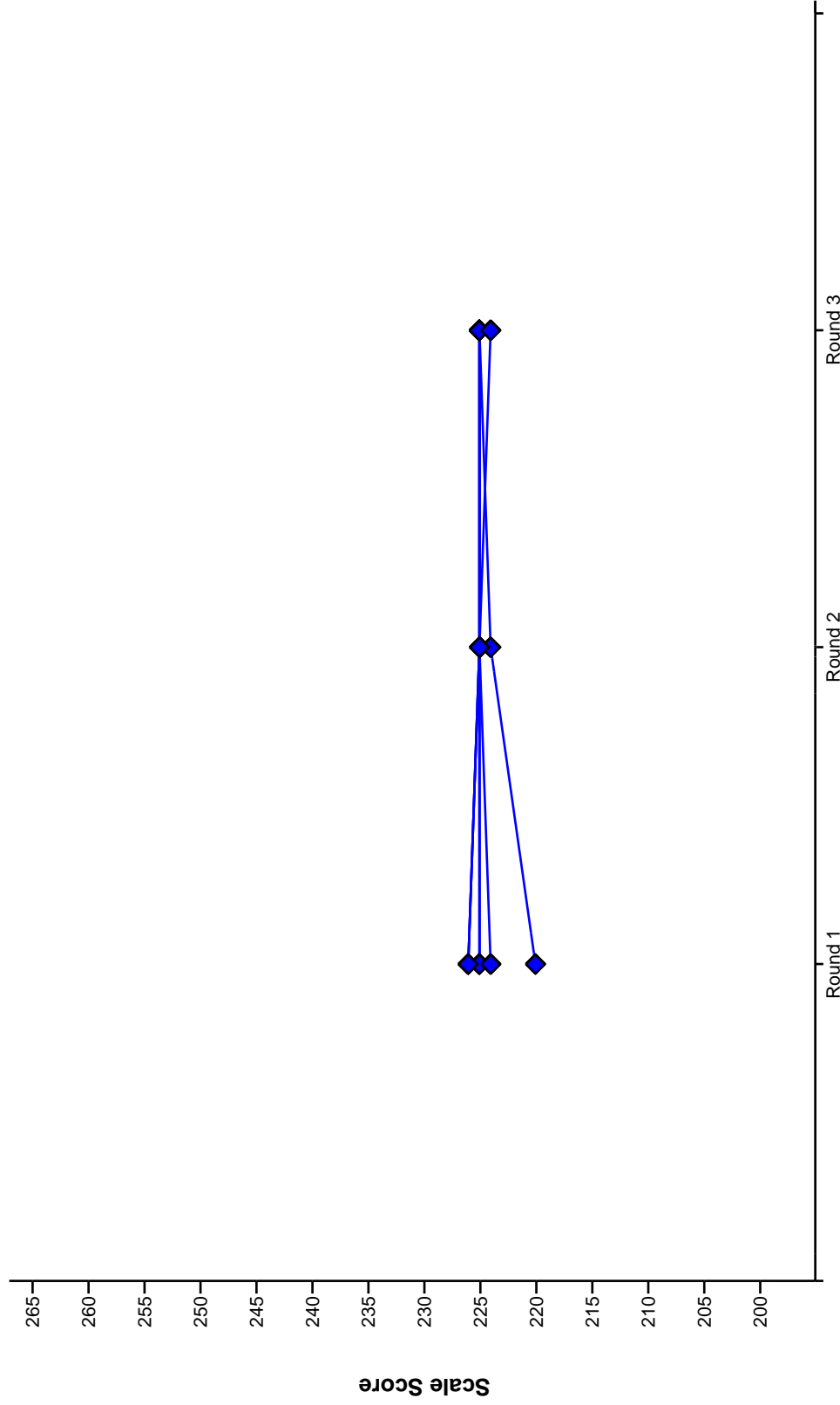


Table 2

Oregon Standard Setting Grade 8 Reading/Literature Nearly Meets Cut Point

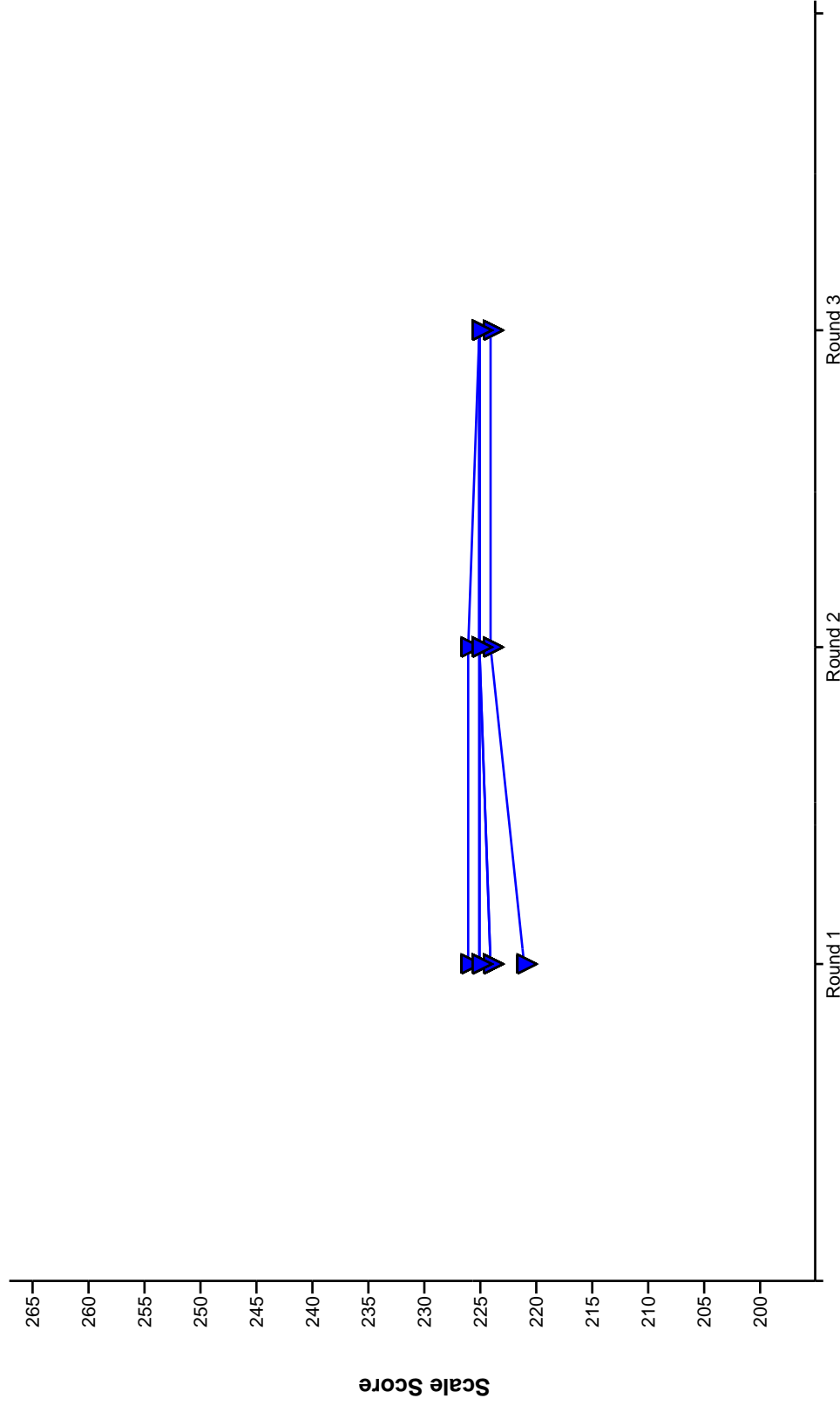
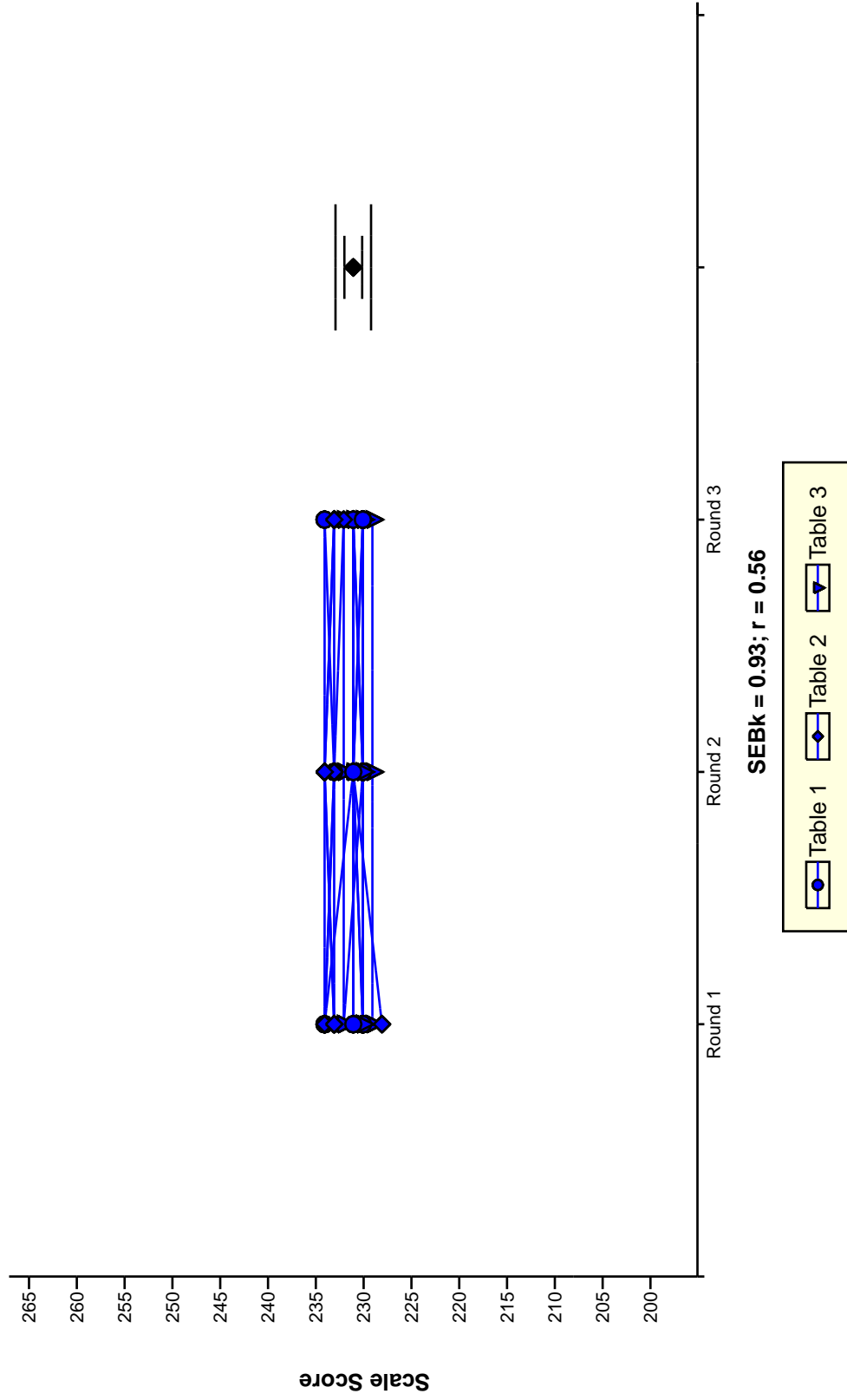


Table 3

Oregon Standard Setting Grade 8 Reading/Literature Meets Cut Point



Oregon Standard Setting Grade 8 Reading/Literature Meets Cut Point

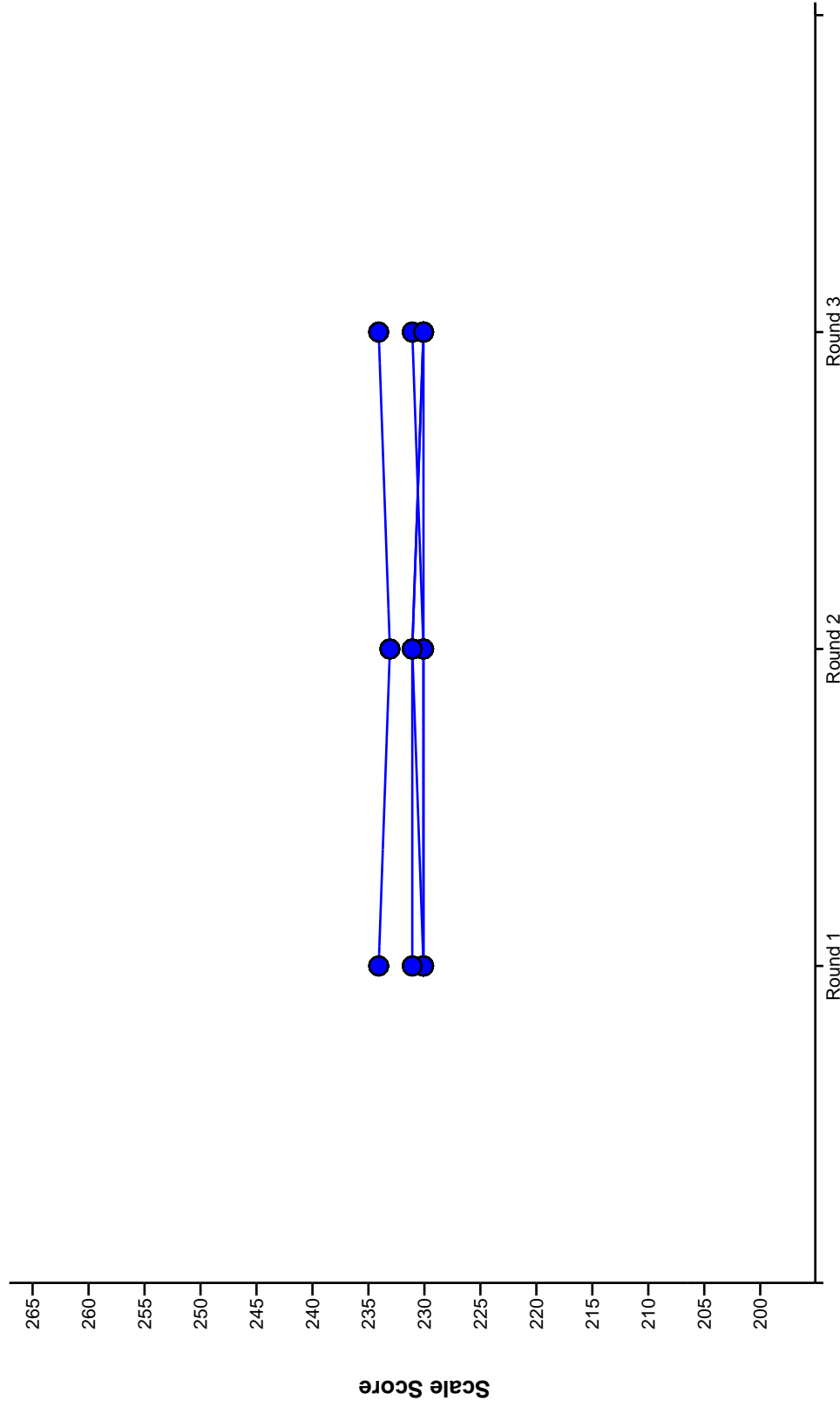


Table 1

Oregon Standard Setting Grade 8 Reading/Literature Meets Cut Point

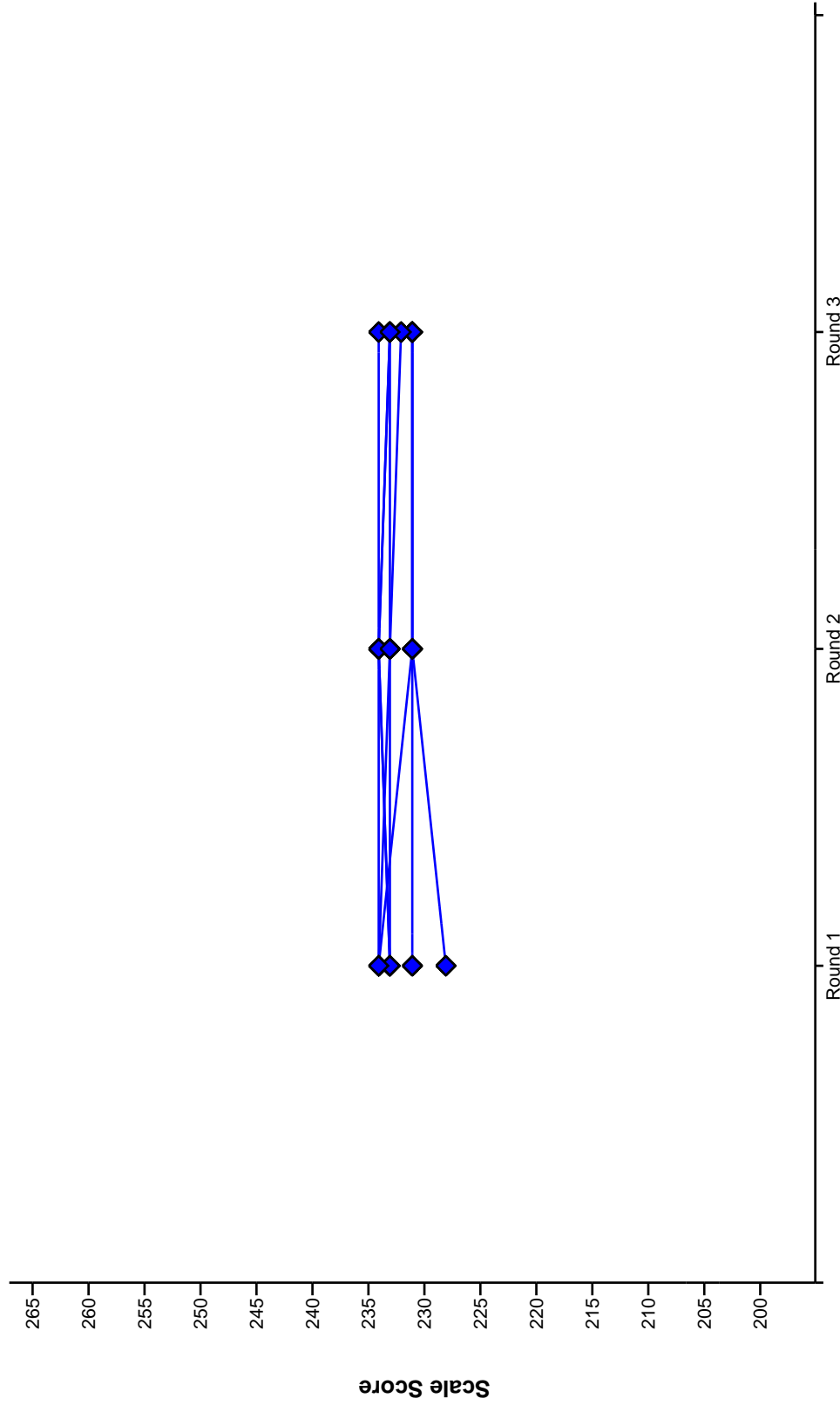


Table 2

Oregon Standard Setting Grade 8 Reading/Literature Meets Cut Point

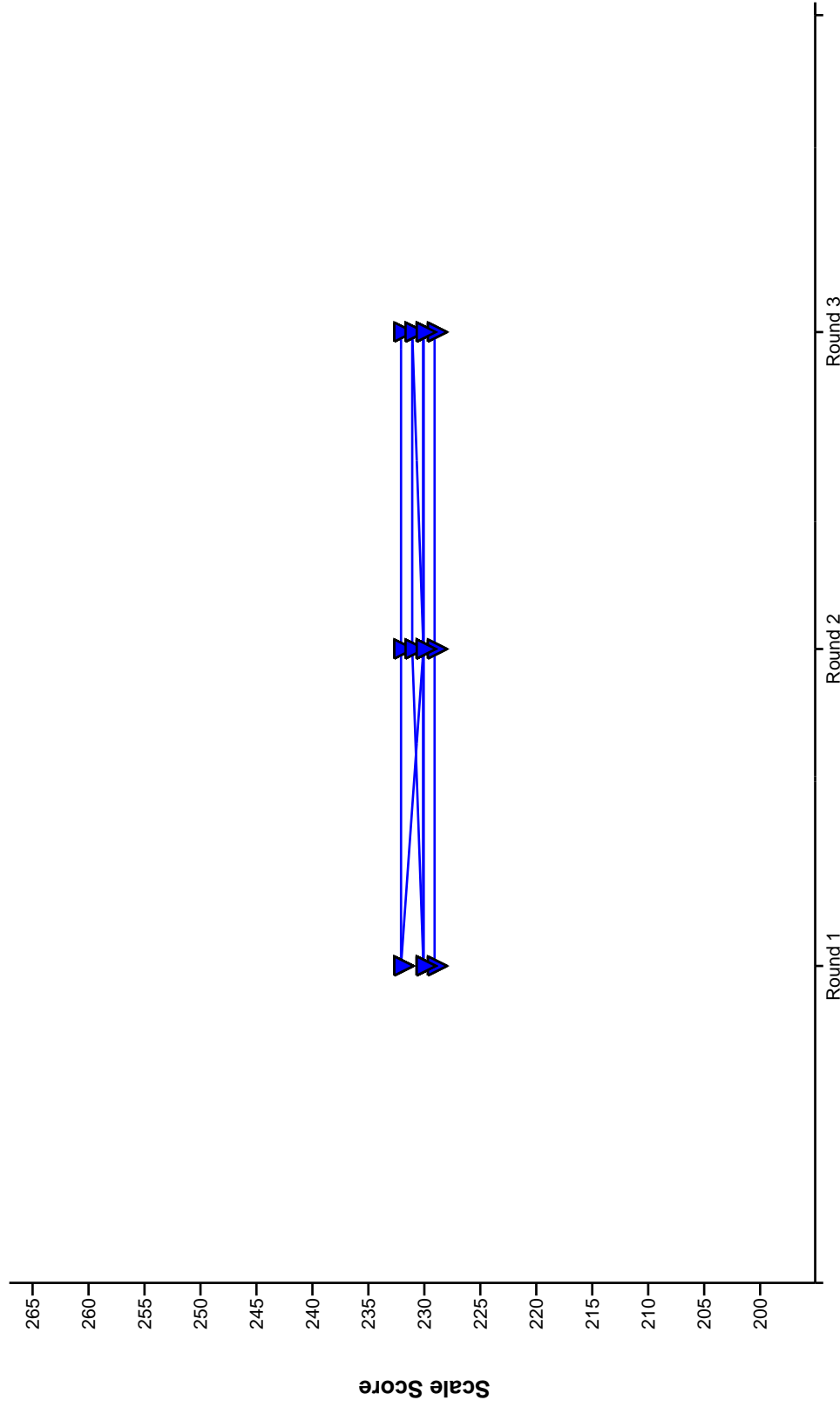
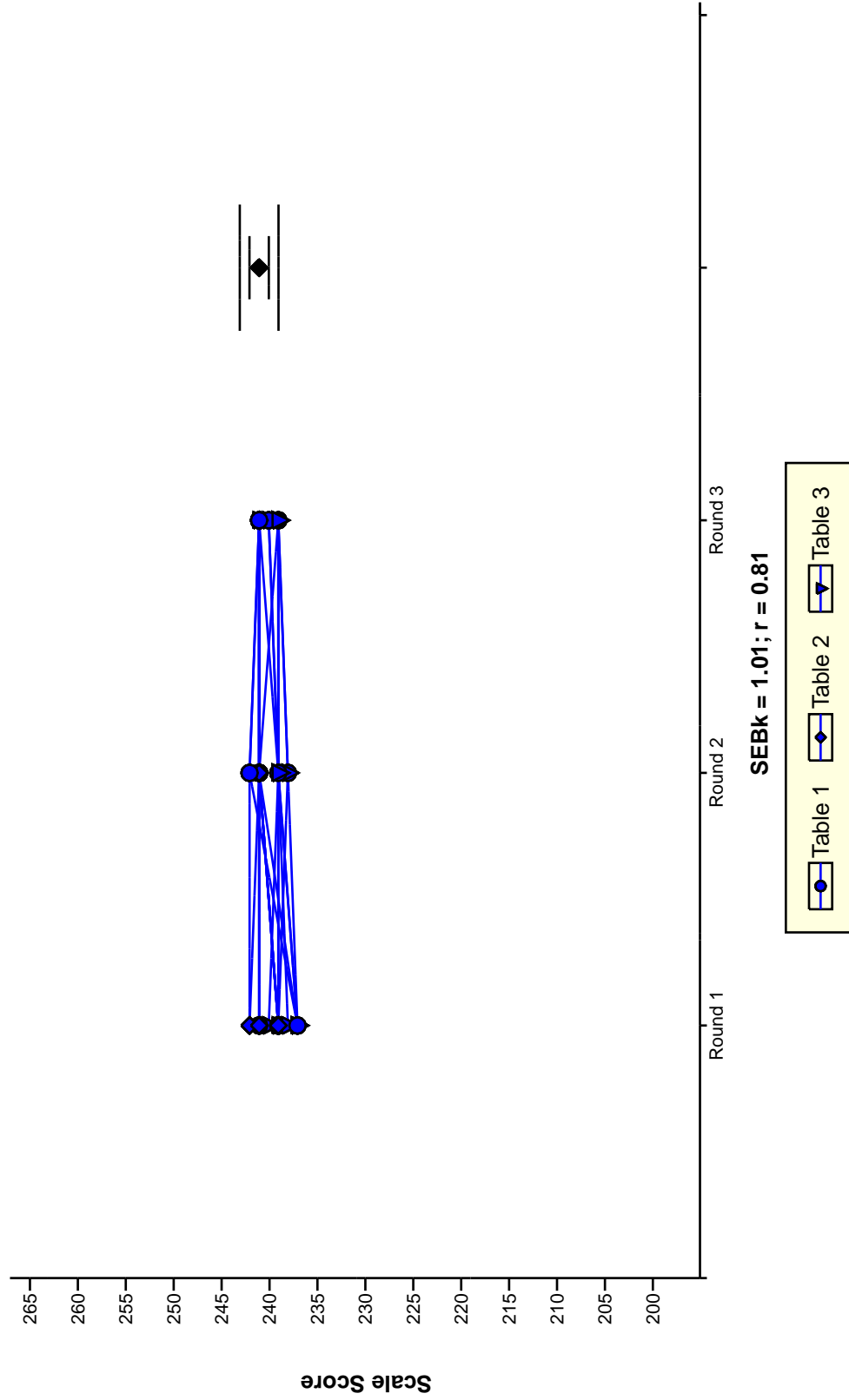


Table 3

Oregon Standard Setting Grade 8 Reading/Literature Exceeds Cut Point



Oregon Standard Setting Grade 8 Reading/Literature Exceeds Cut Point

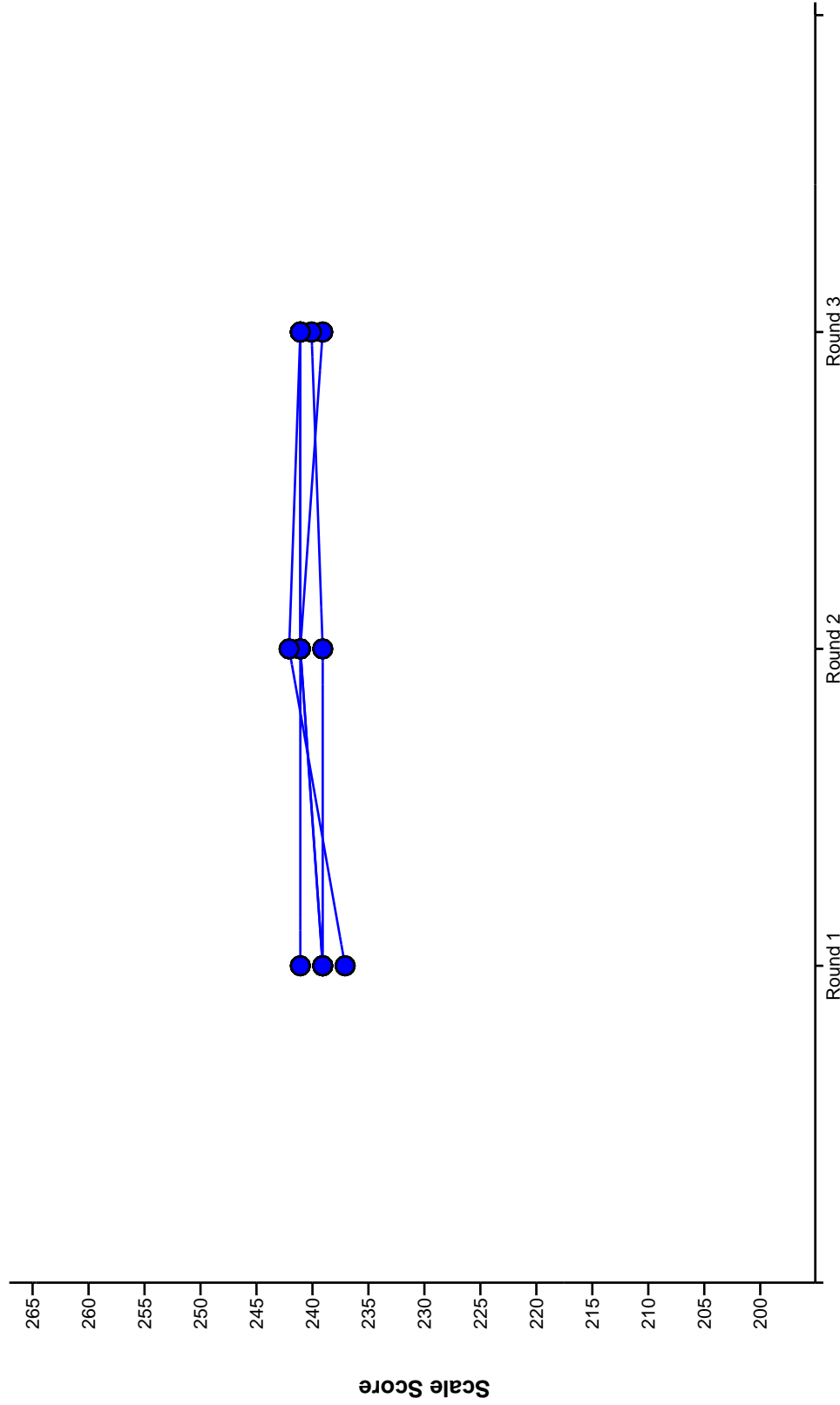


Table 1

Oregon Standard Setting Grade 8 Reading/Literature Exceeds Cut Point

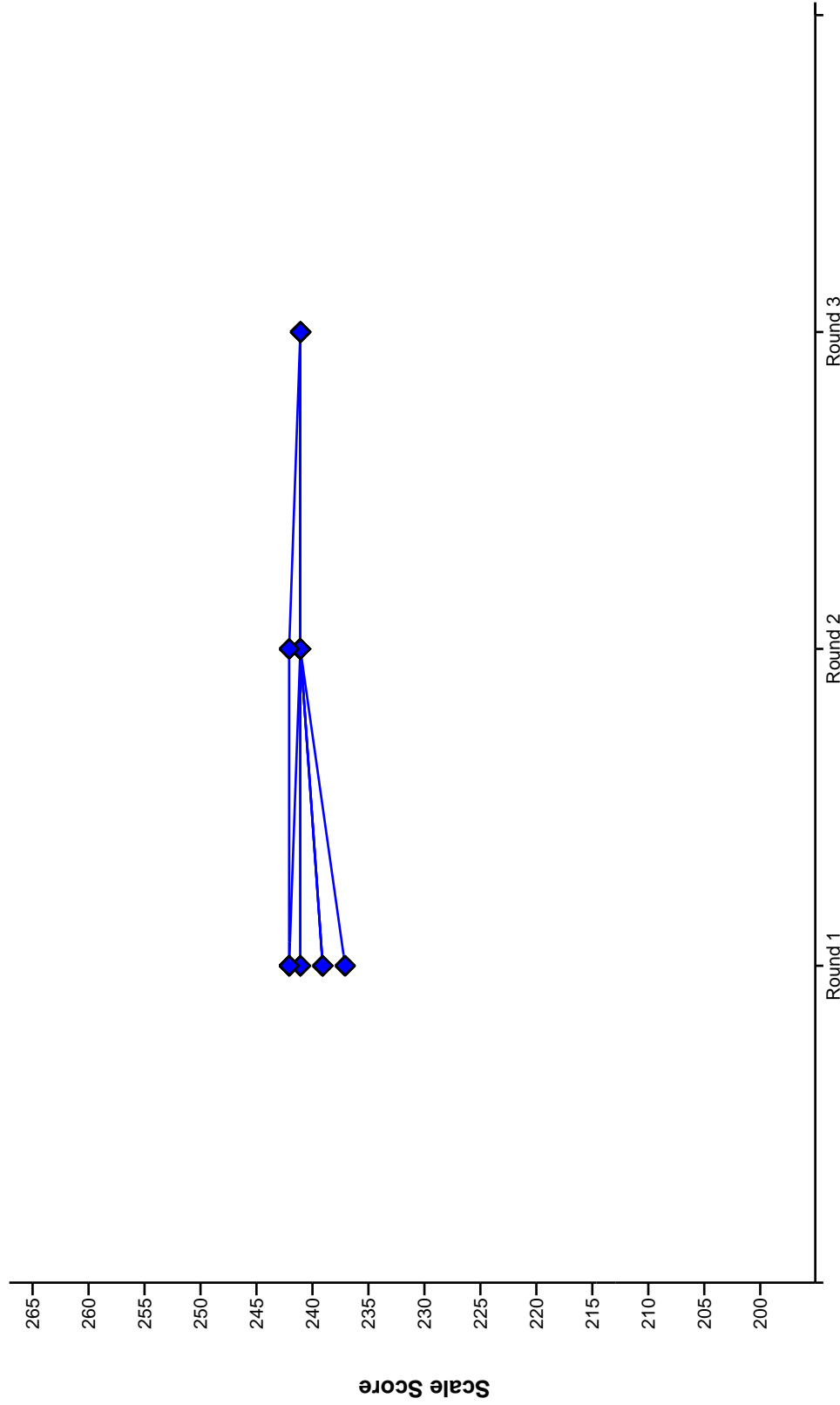


Table 2

Oregon Standard Setting Grade 8 Reading/Literature Exceeds Cut Point

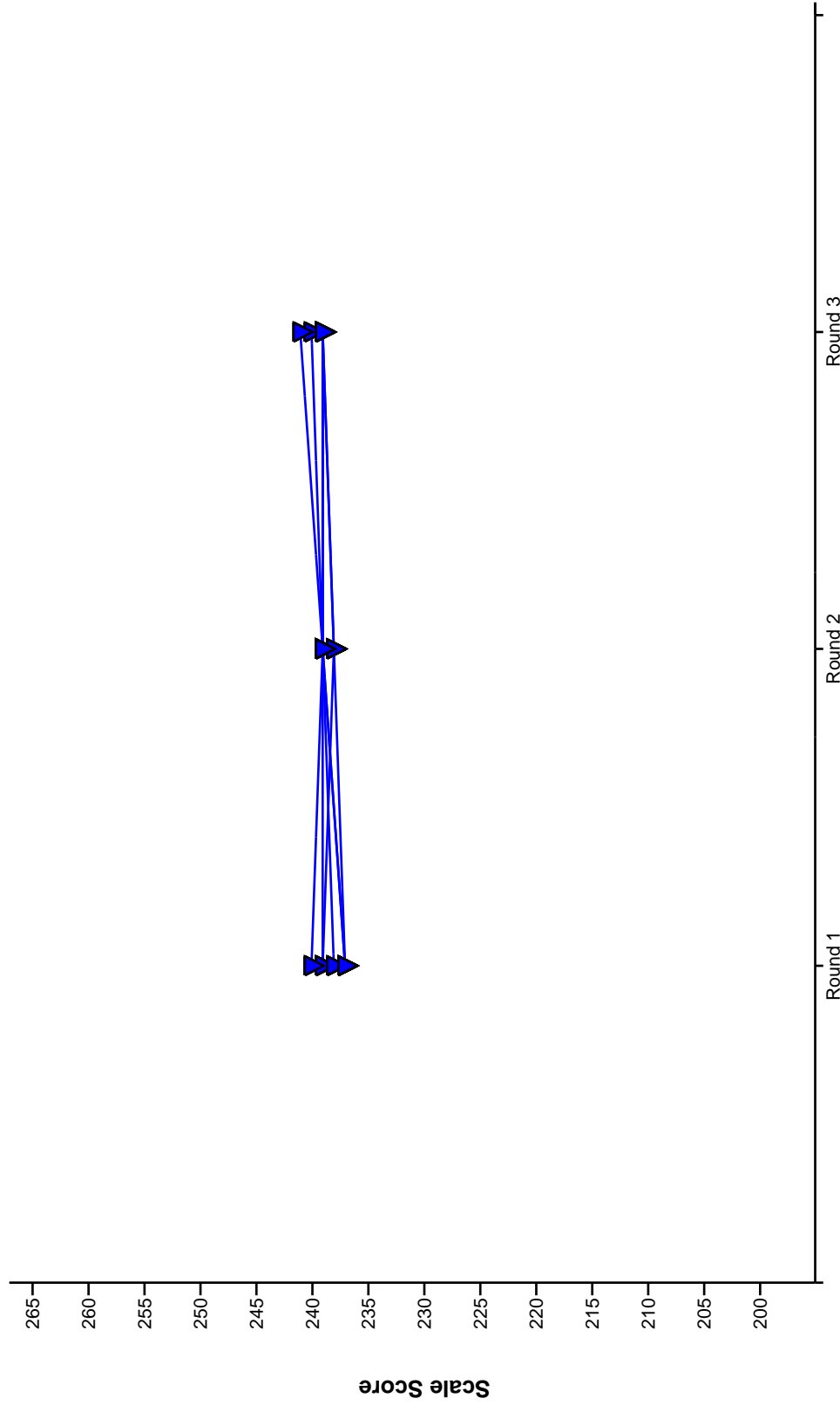
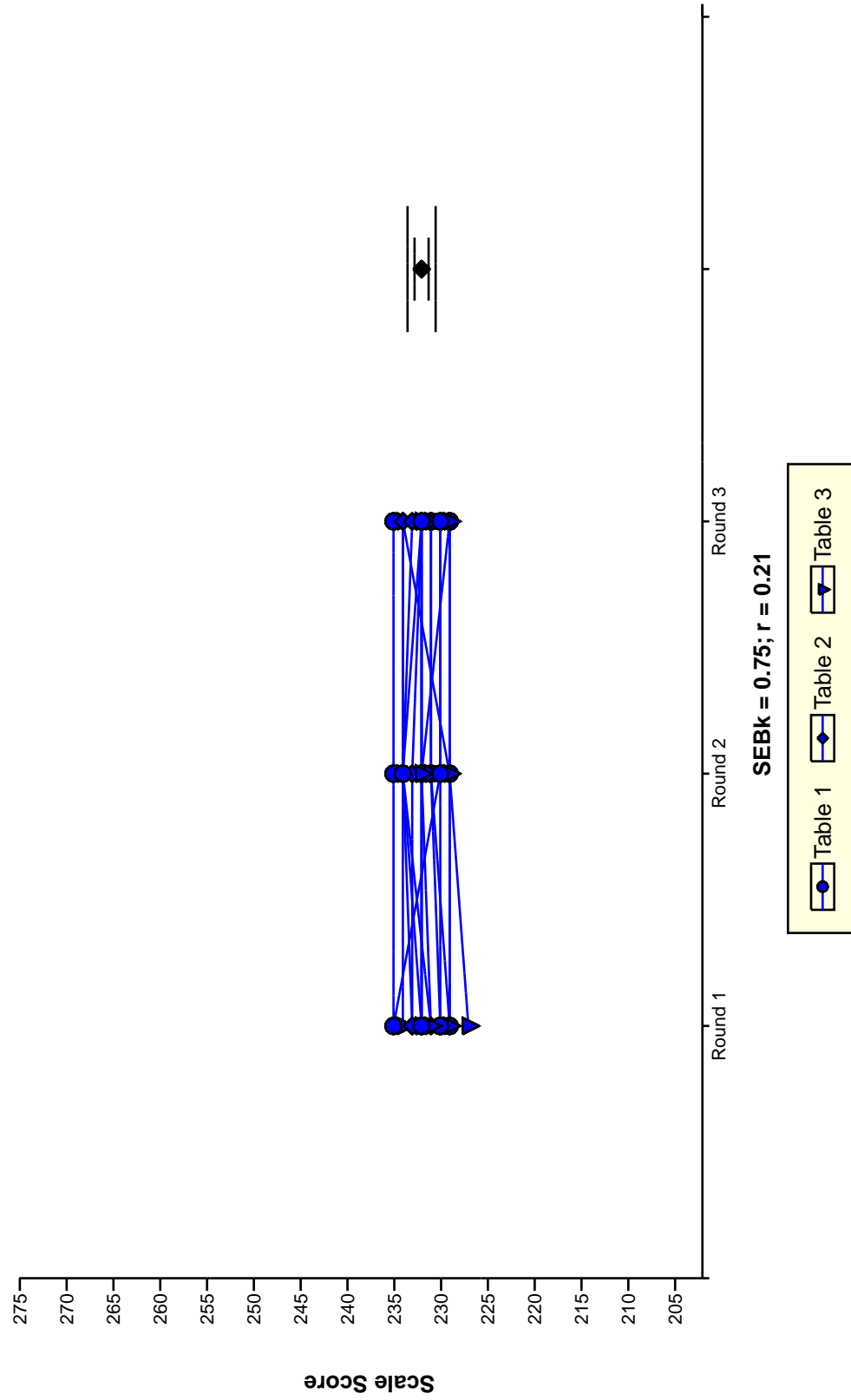


Table 3

Oregon Standard Setting Grade 10 Reading/Literature Nearly Meets Cut Point



Oregon Standard Setting Grade 10 Reading/Literature Nearly Meets Cut Point

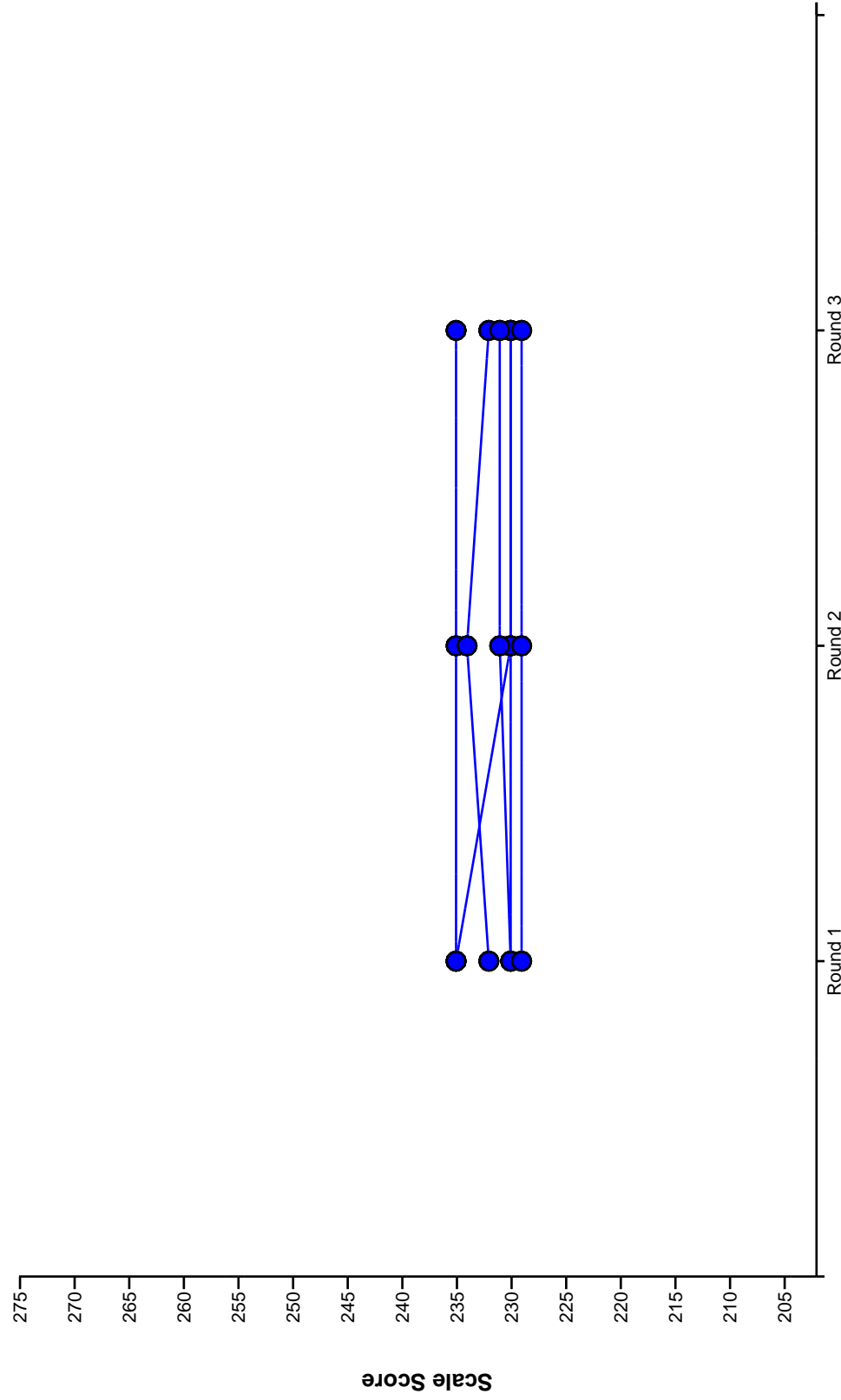


Table 1

Oregon Standard Setting Grade 10 Reading/Literature Nearly Meets Cut Point

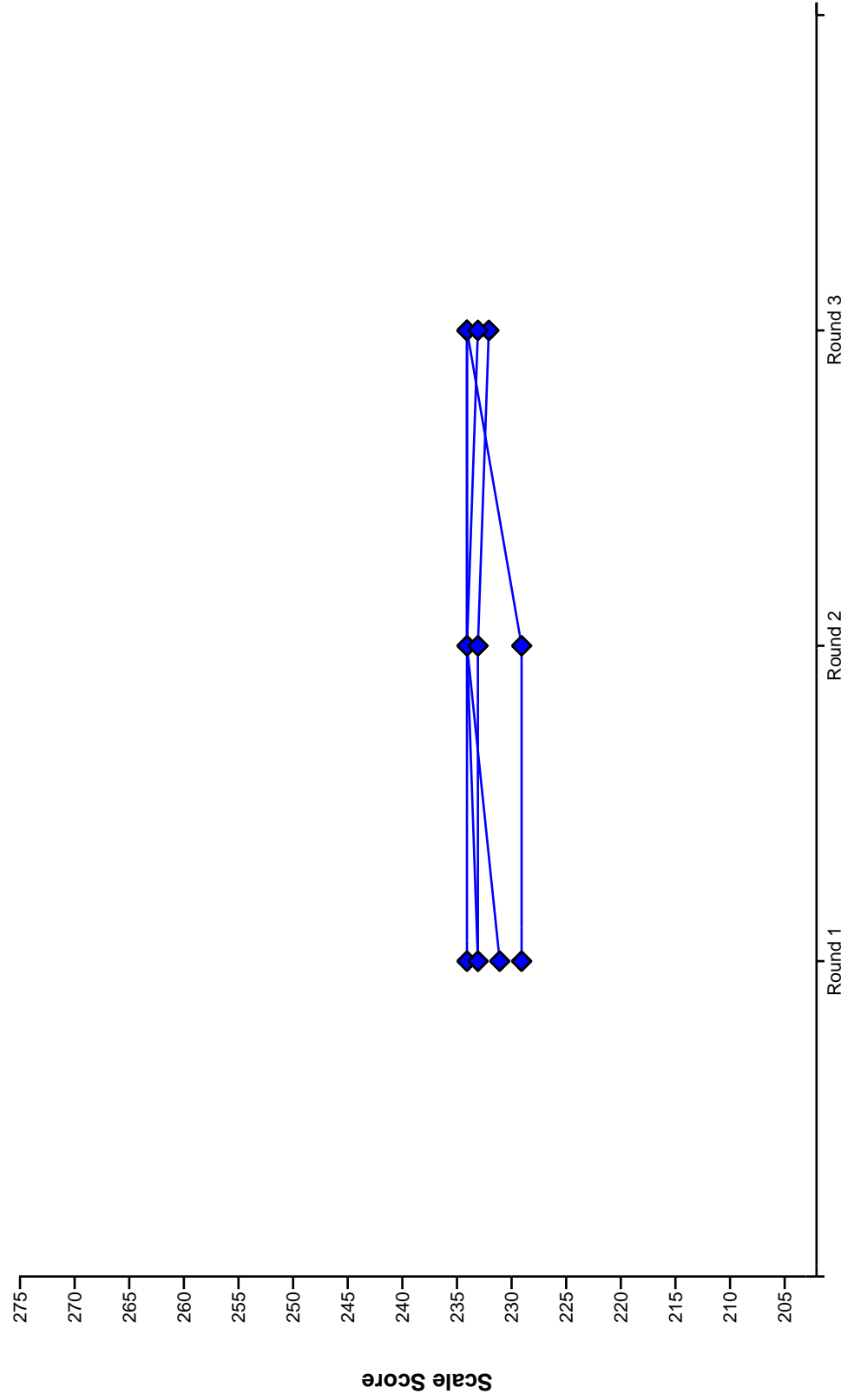


Table 2

Oregon Standard Setting Grade 10 Reading/Literature Nearly Meets Cut Point

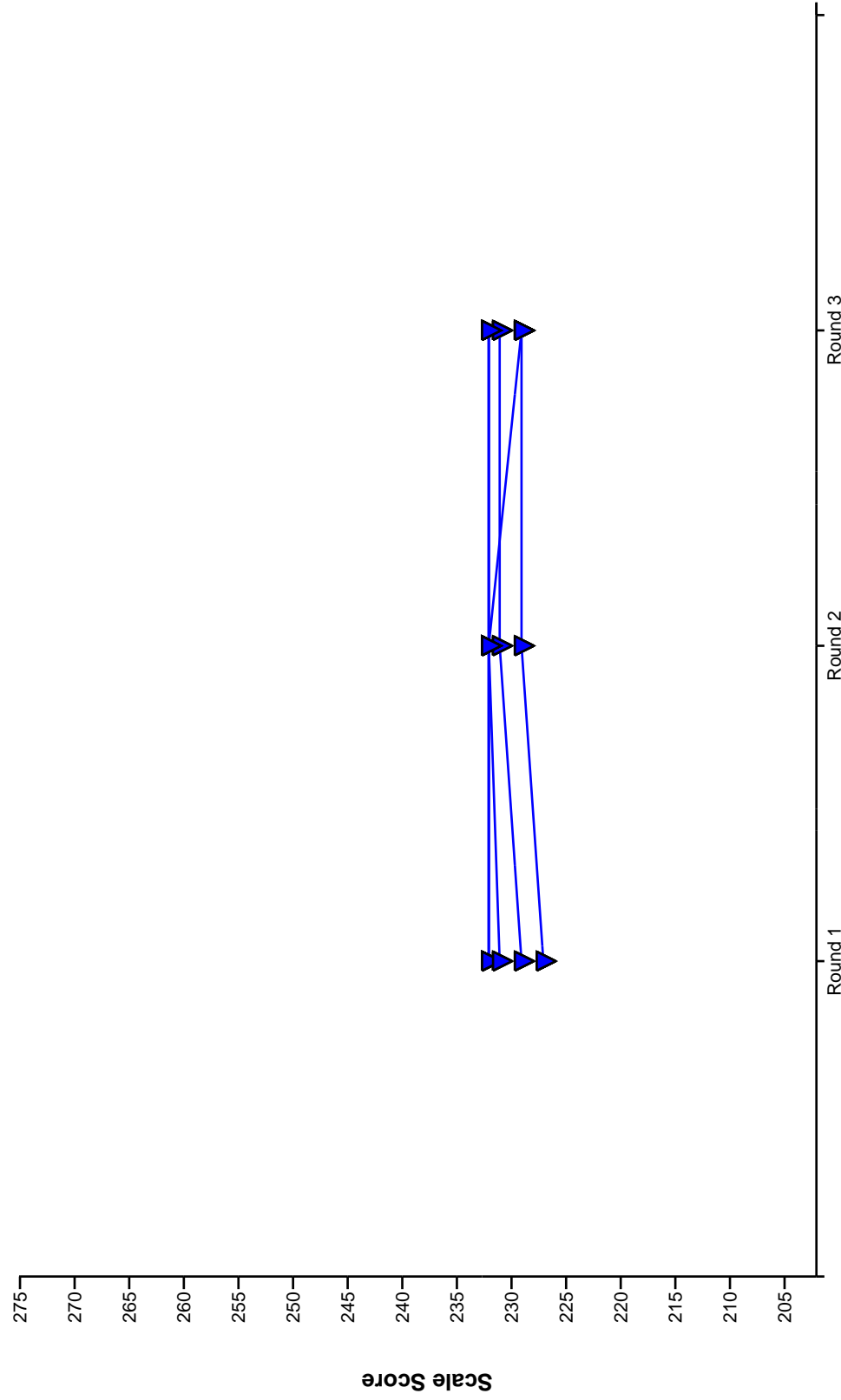
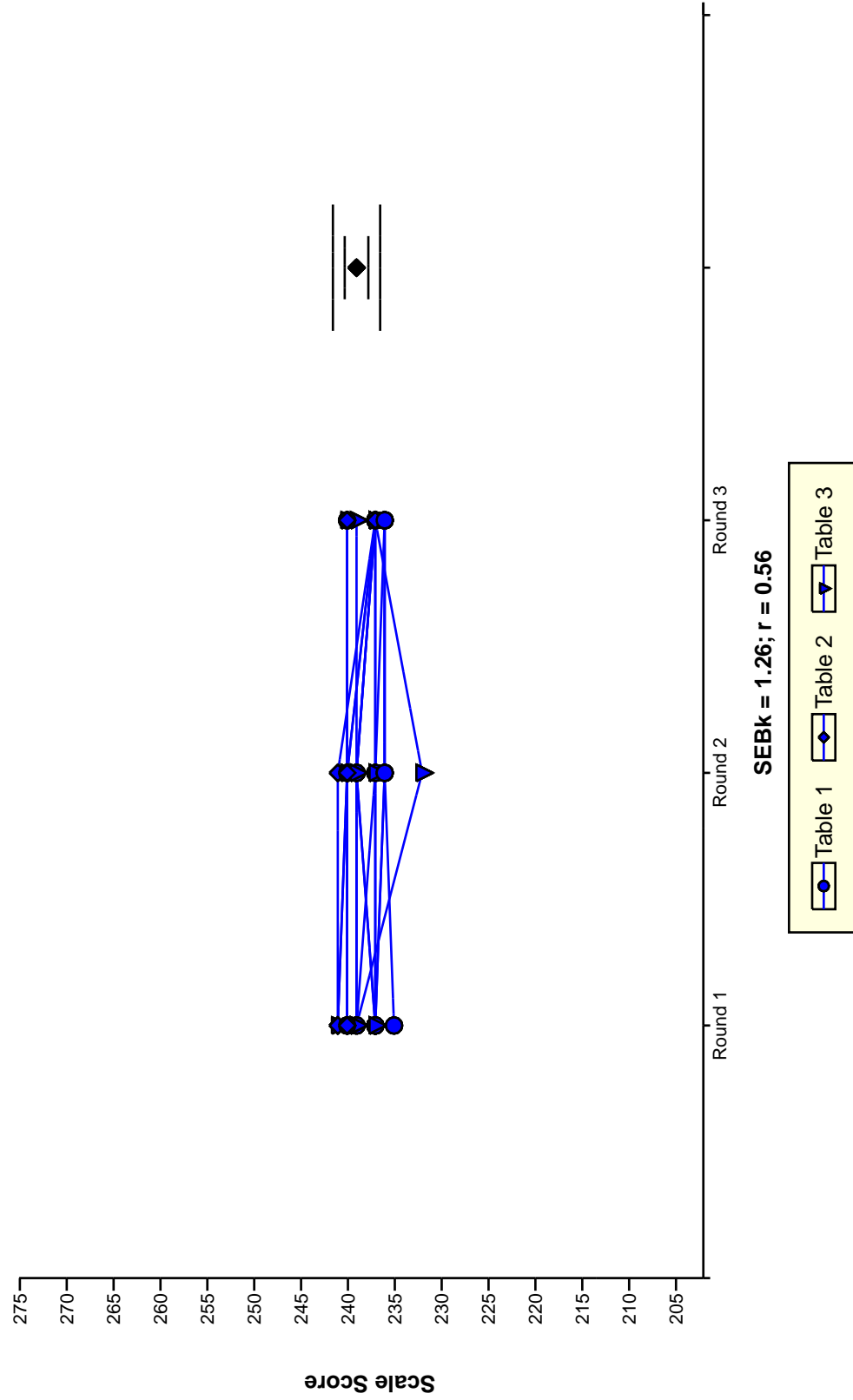


Table 3

Oregon Standard Setting Grade 10 Reading/Literature Meets Cut Point



Oregon Standard Setting Grade 10 Reading/Literature Meets Cut Point

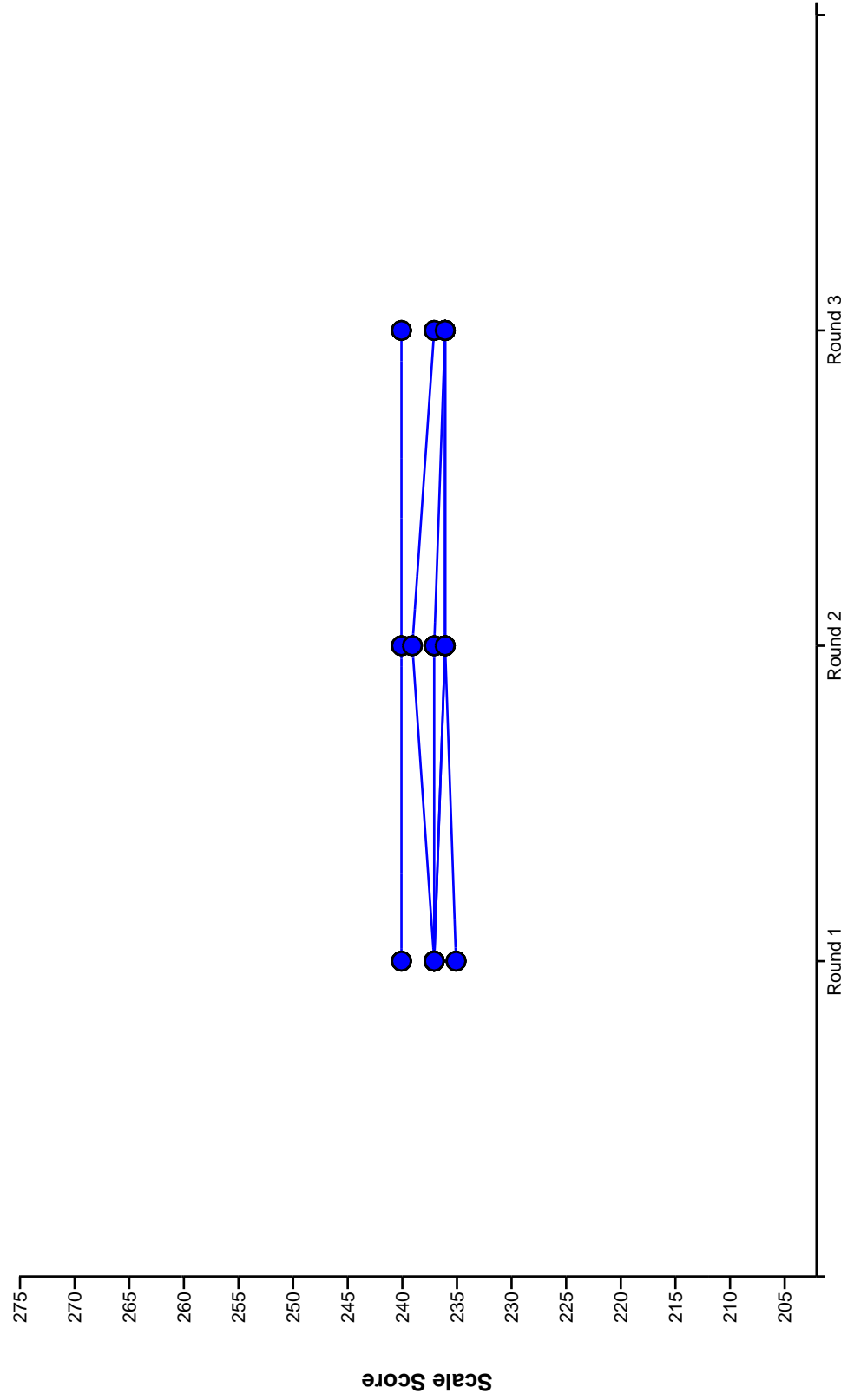


Table 1

Oregon Standard Setting Grade 10 Reading/Literature Meets Cut Point

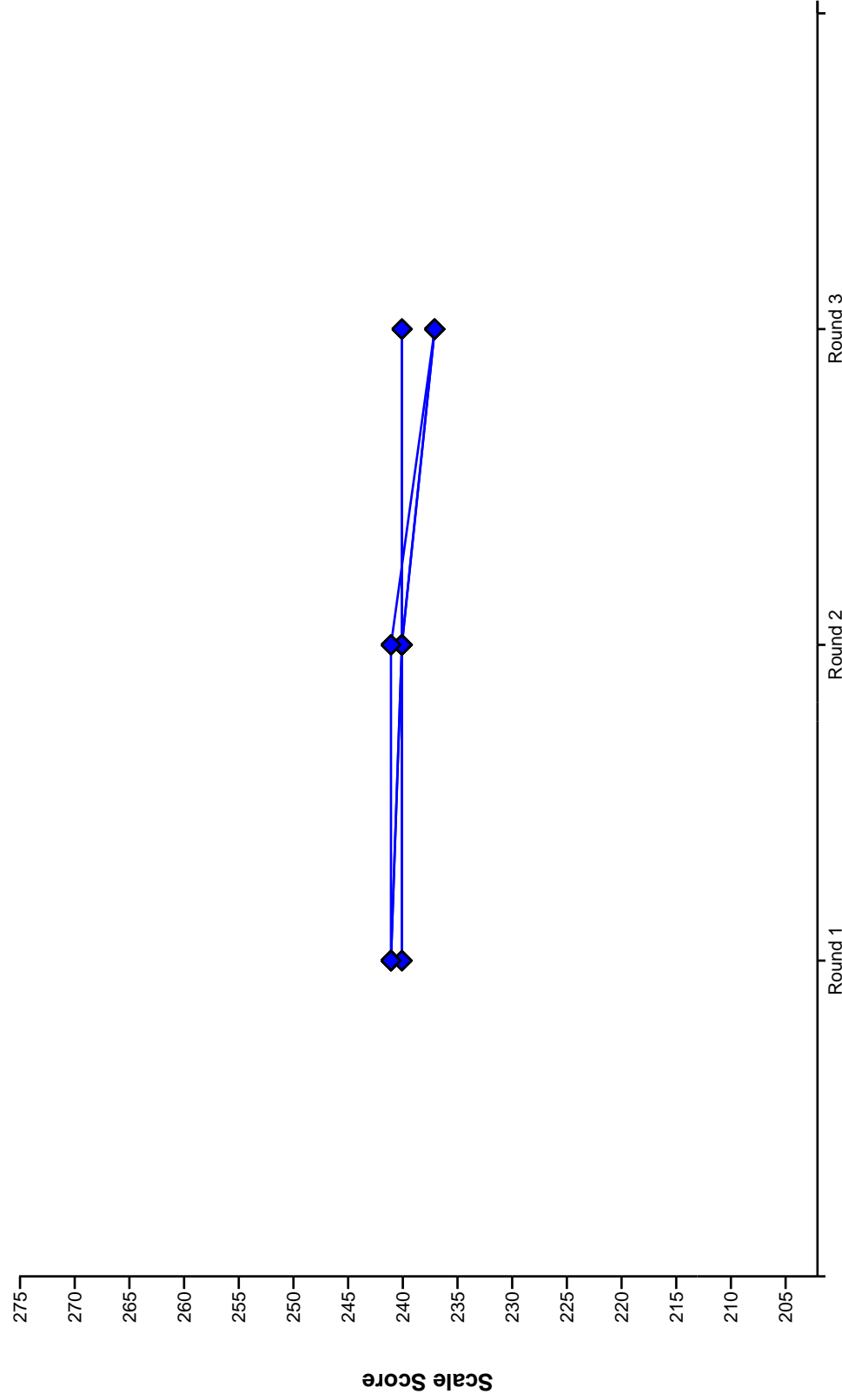


Table 2

Oregon Standard Setting Grade 10 Reading/Literature Meets Cut Point

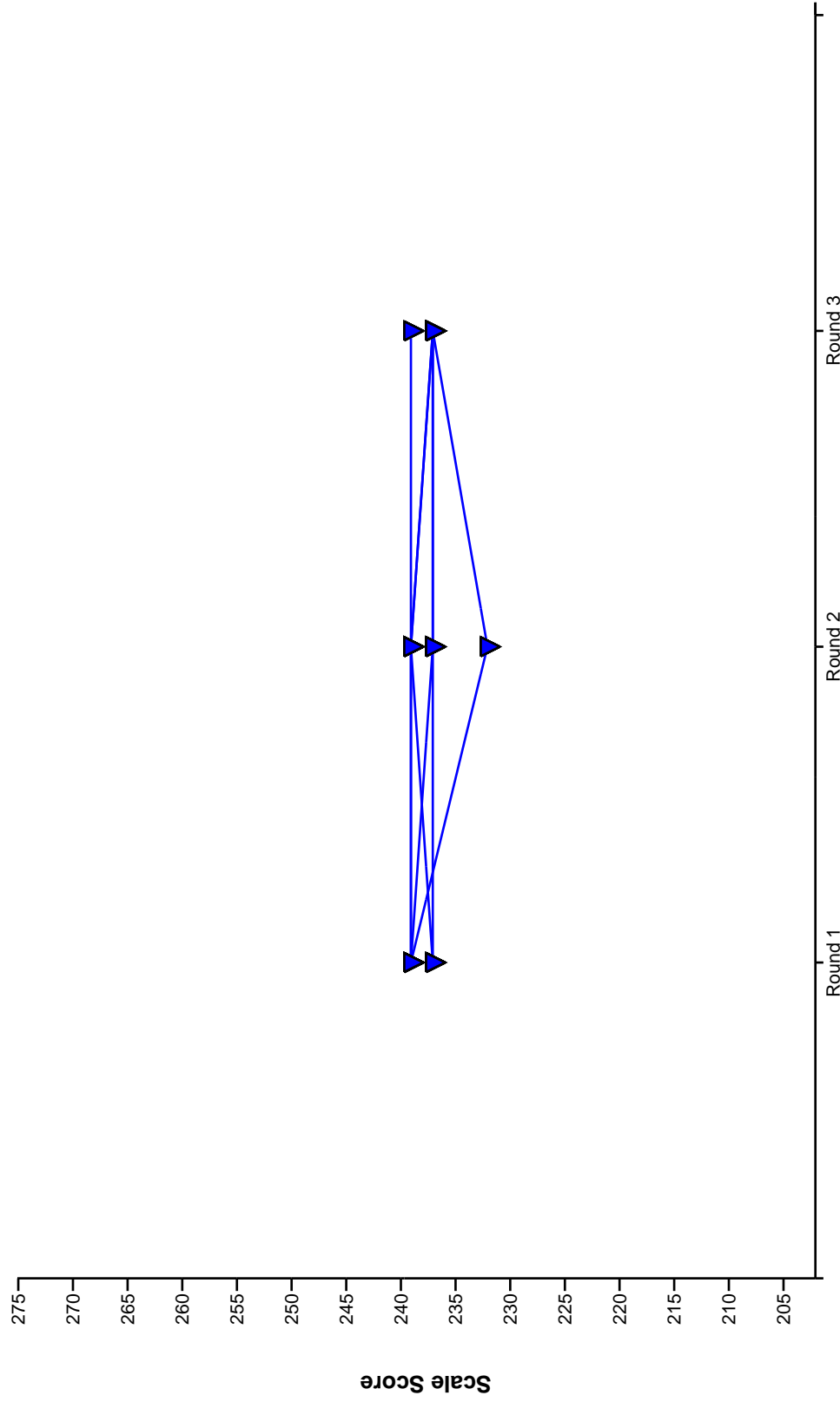
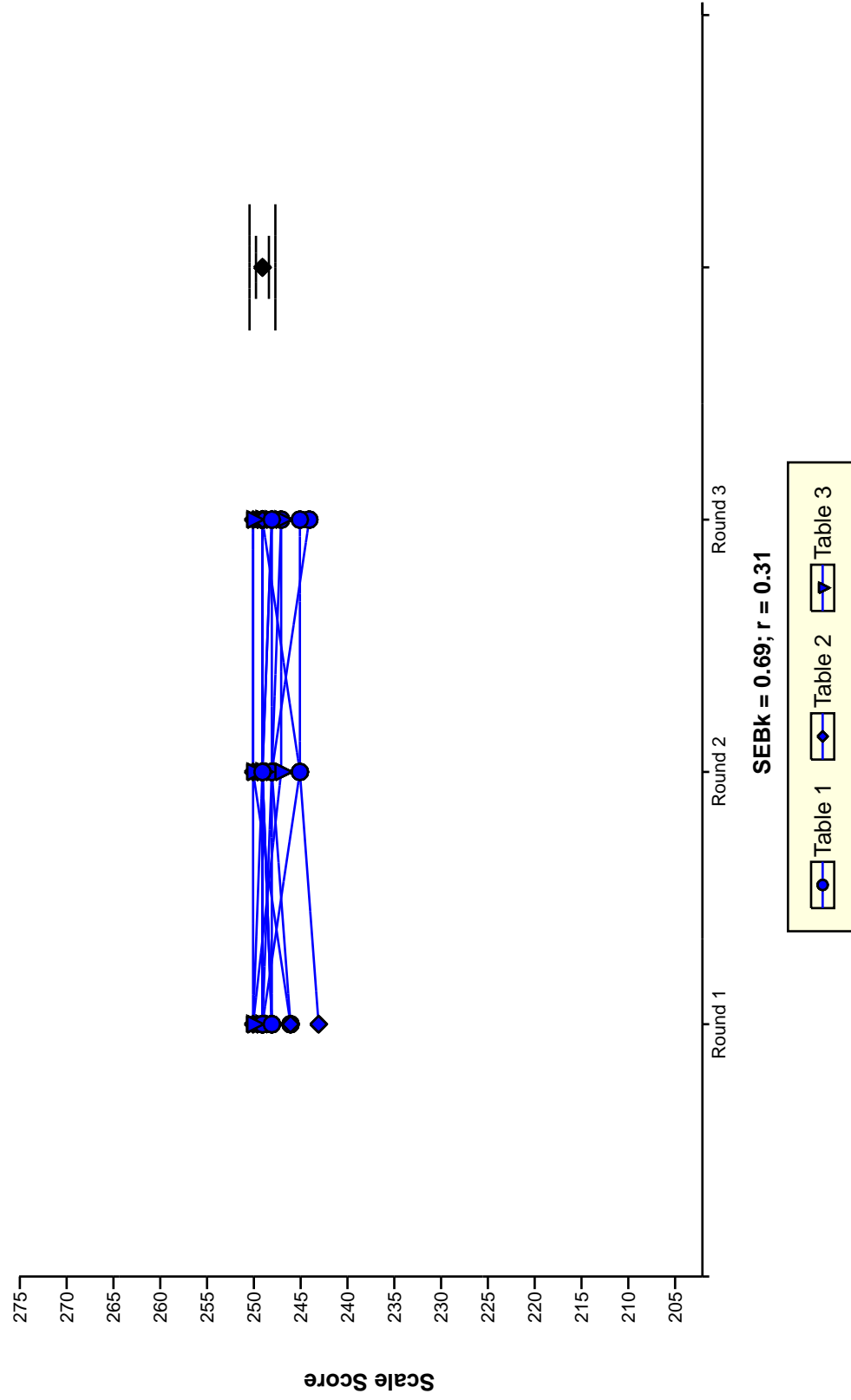


Table 3

Oregon Standard Setting Grade 10 Reading/Literature Exceeds Cut Point



Oregon Standard Setting Grade 10 Reading/Literature Exceeds Cut Point

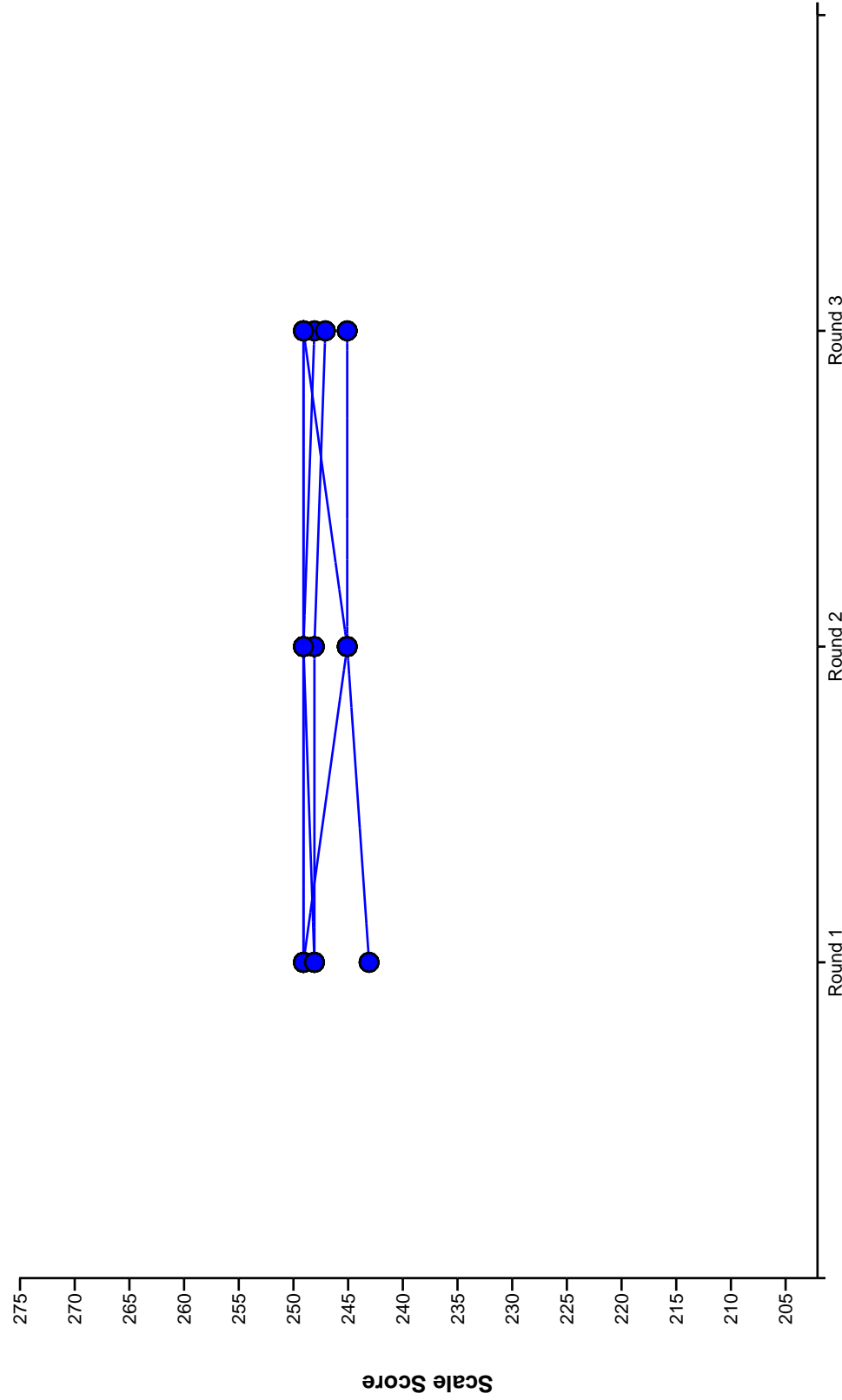


Table 1

Oregon Standard Setting Grade 10 Reading/Literature Exceeds Cut Point

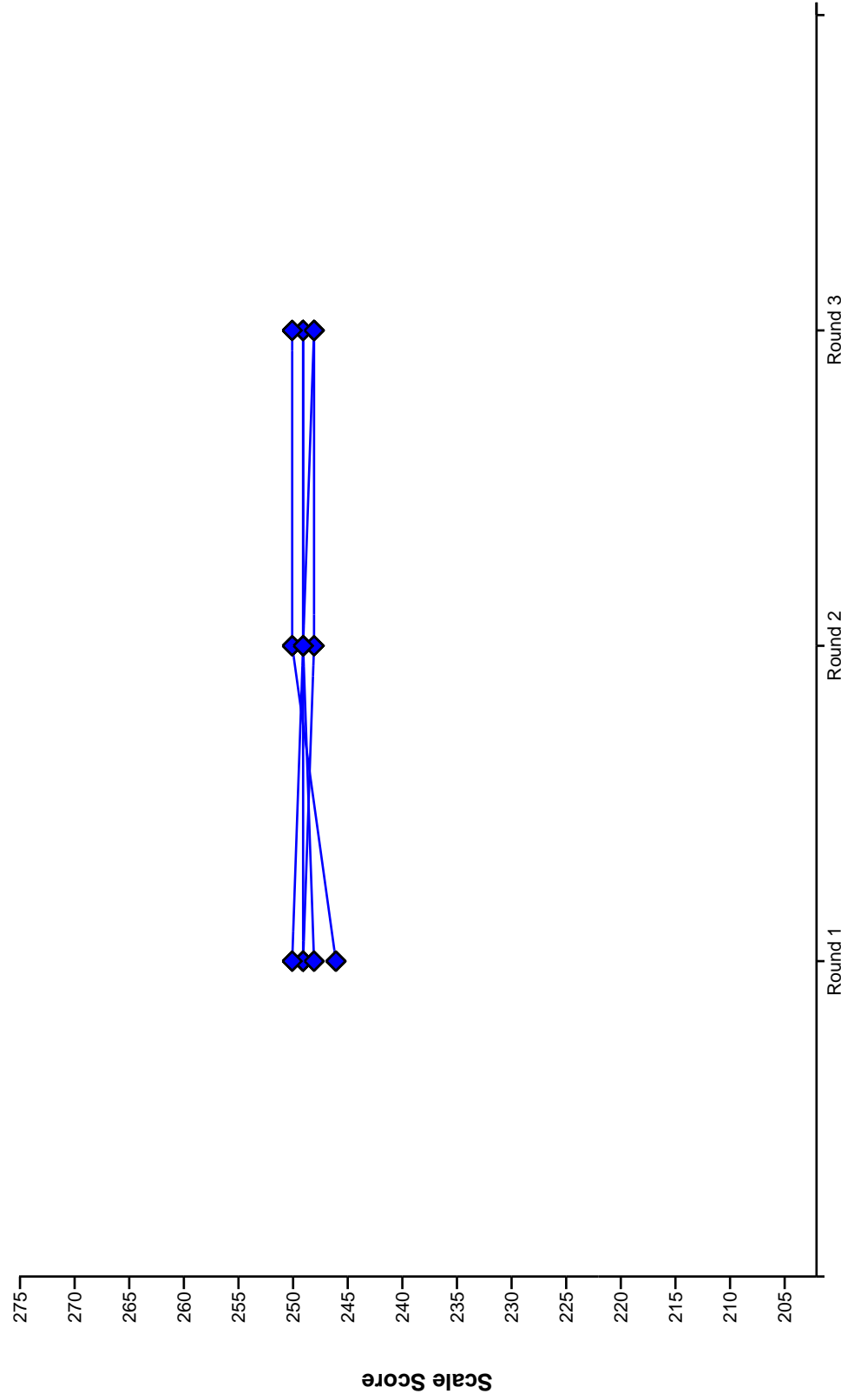


Table 2

Oregon Standard Setting Grade 10 Reading/Literature Exceeds Cut Point

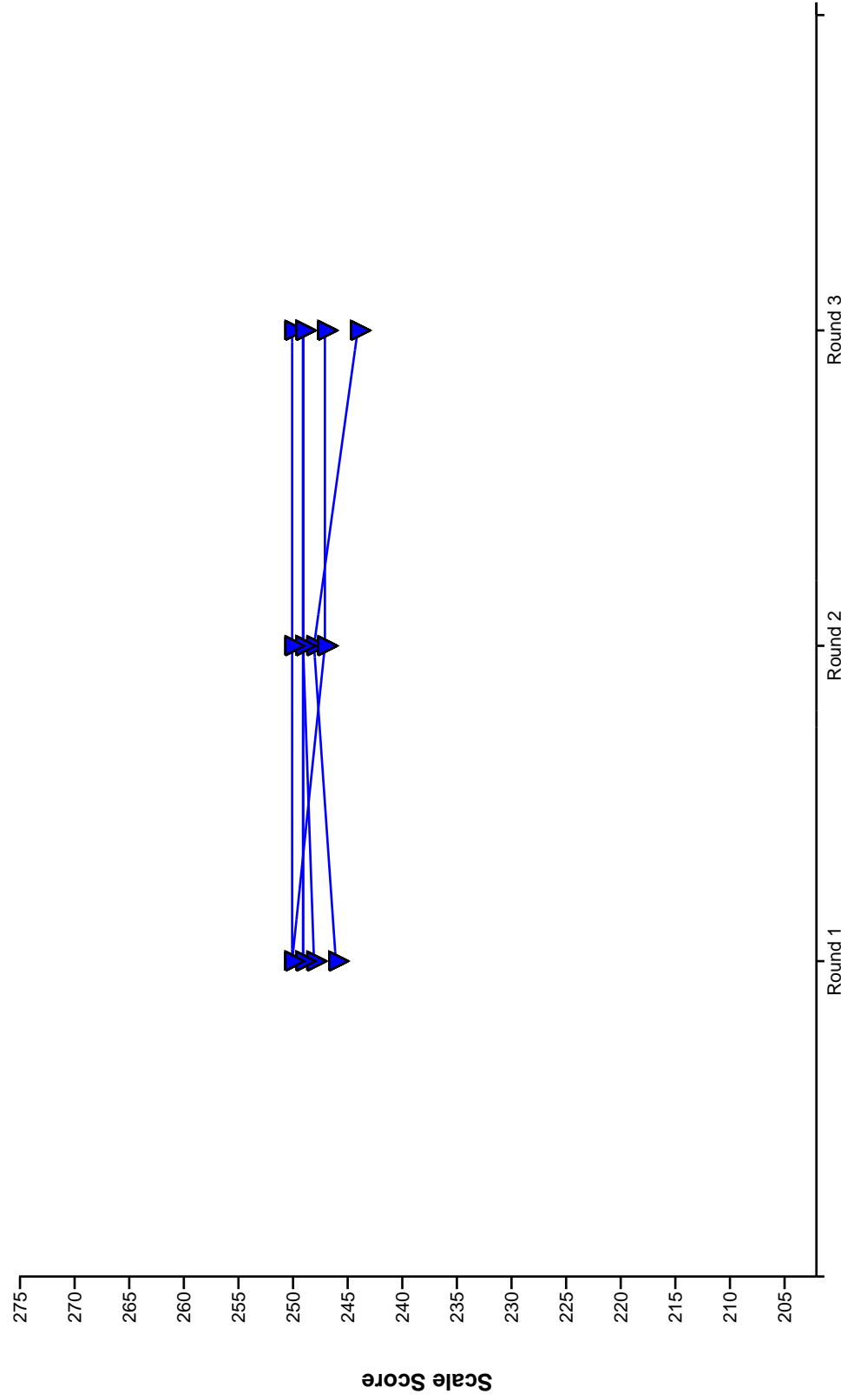
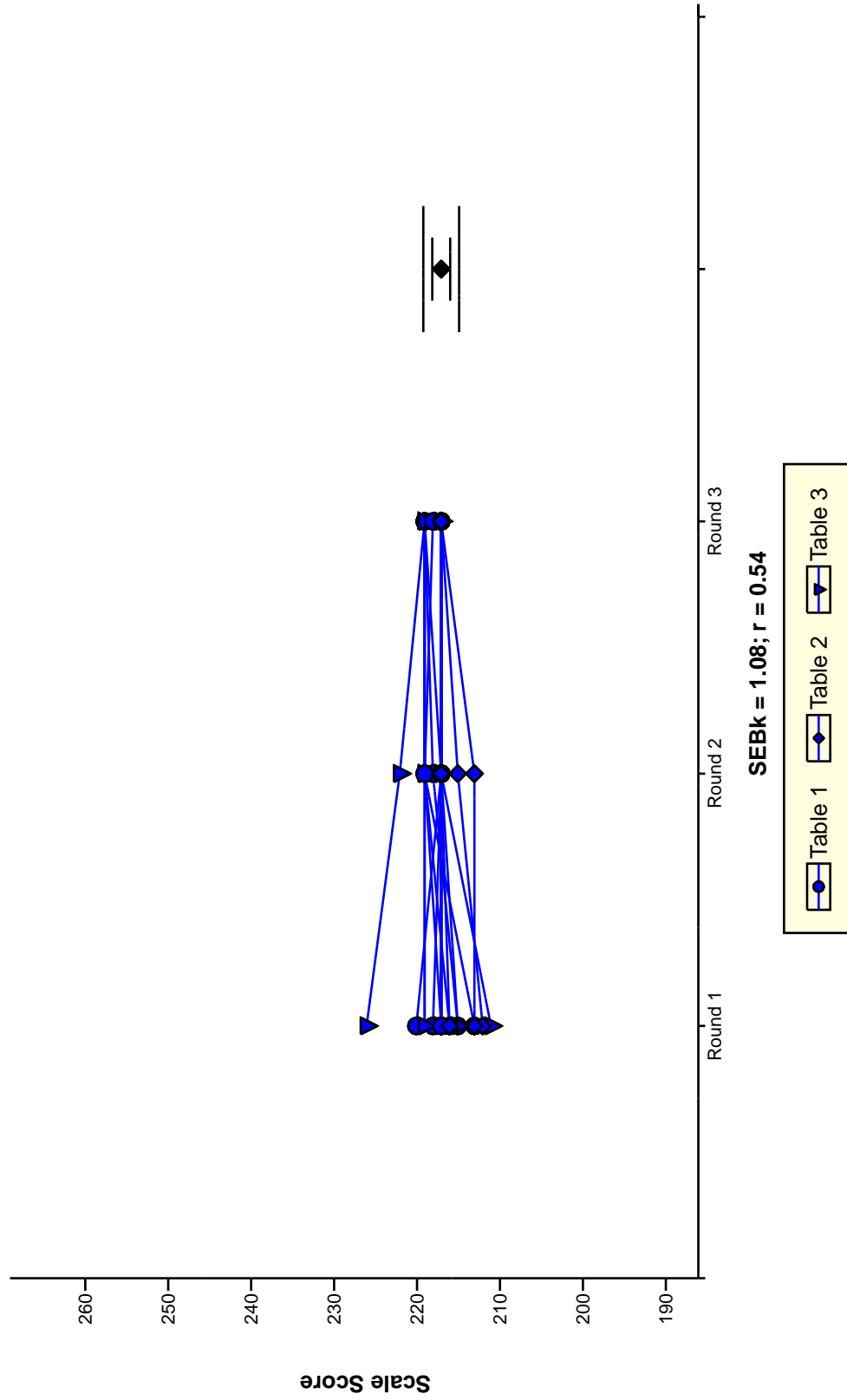


Table 3

Oregon Standard Setting Grade 5 Science Nearly Meets Cut Point



Oregon Standard Setting Grade 5 Science Nearly Meets Cut Point

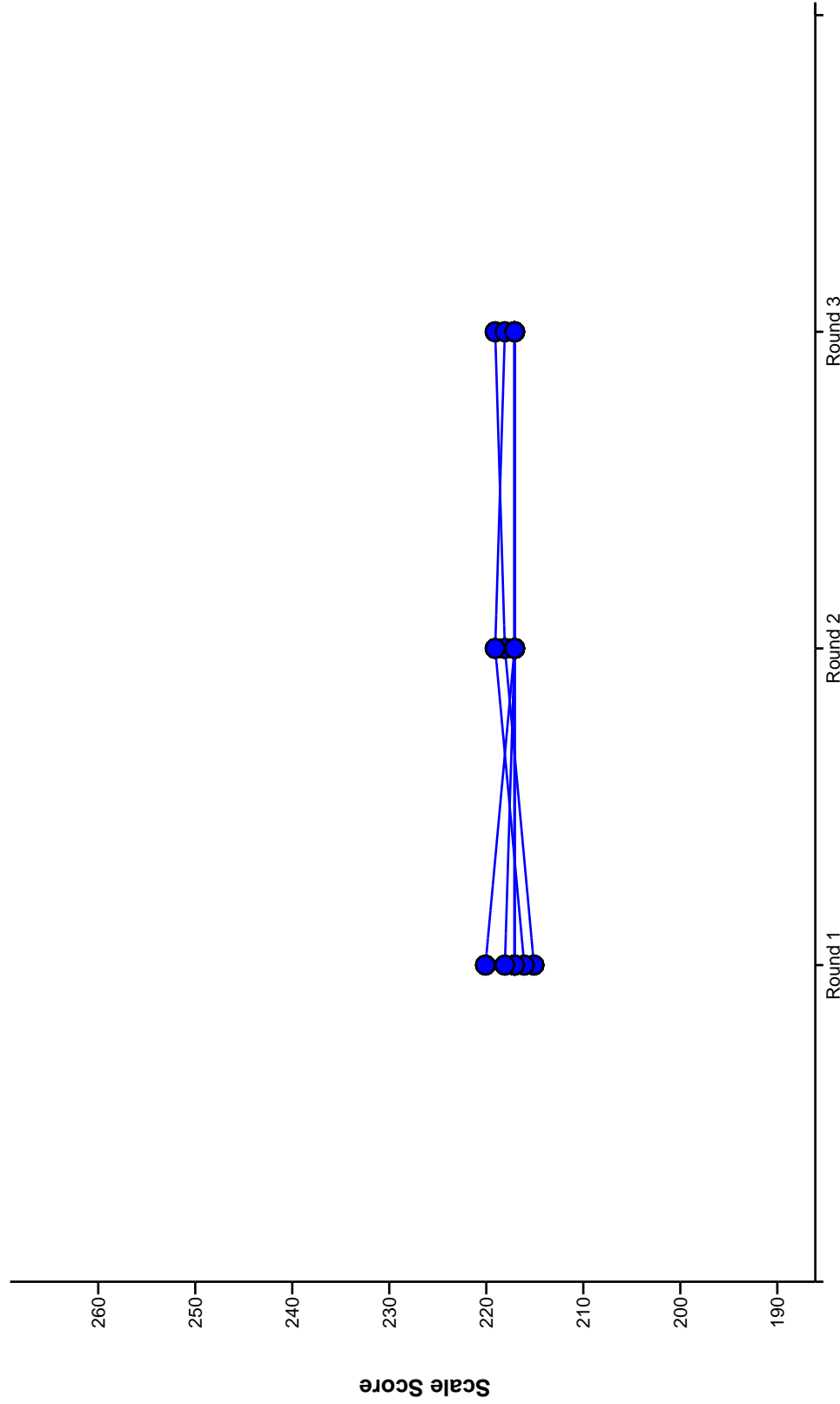


Table 1

Oregon Standard Setting Grade 5 Science Nearly Meets Cut Point

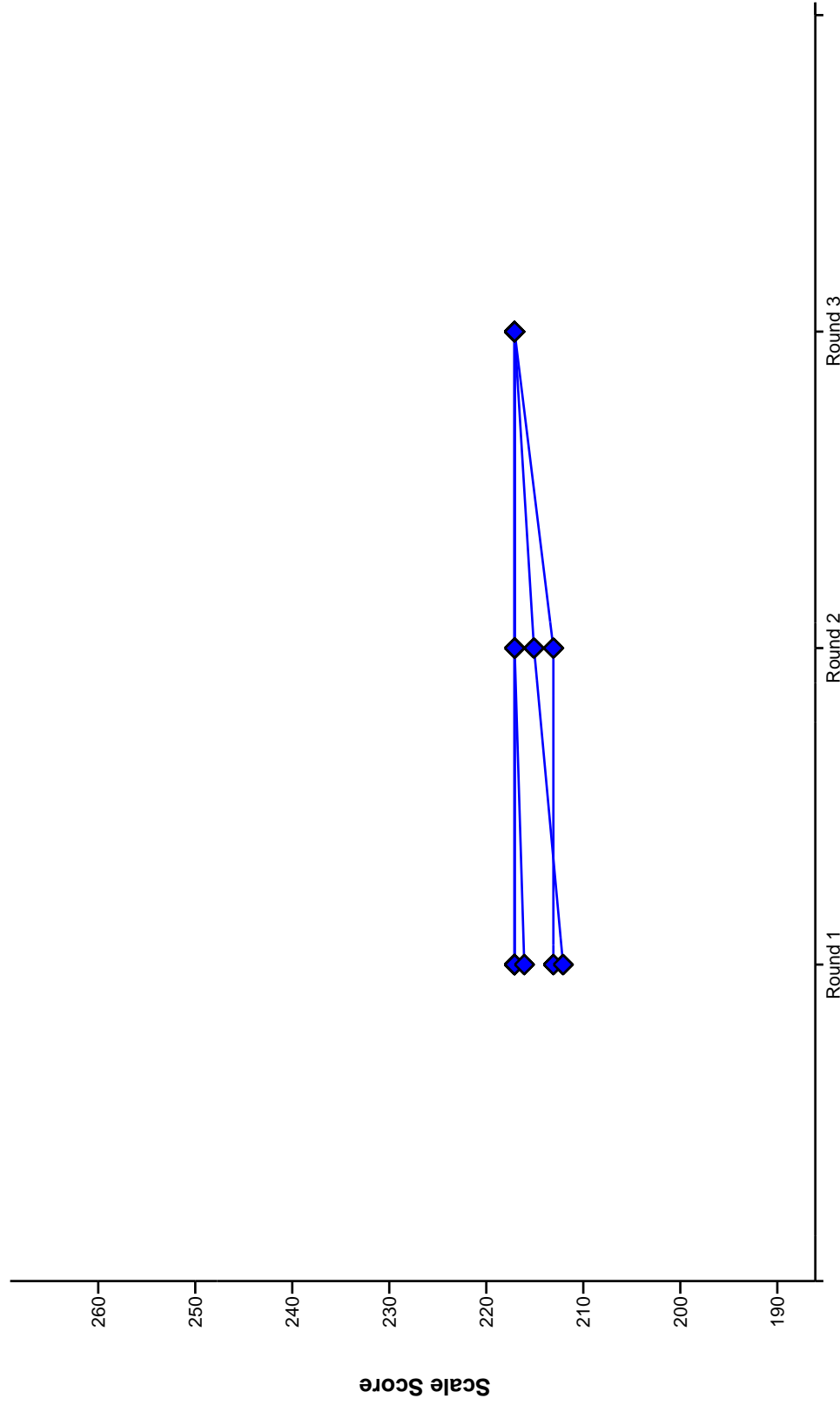


Table 2

Oregon Standard Setting Grade 5 Science Nearly Meets Cut Point

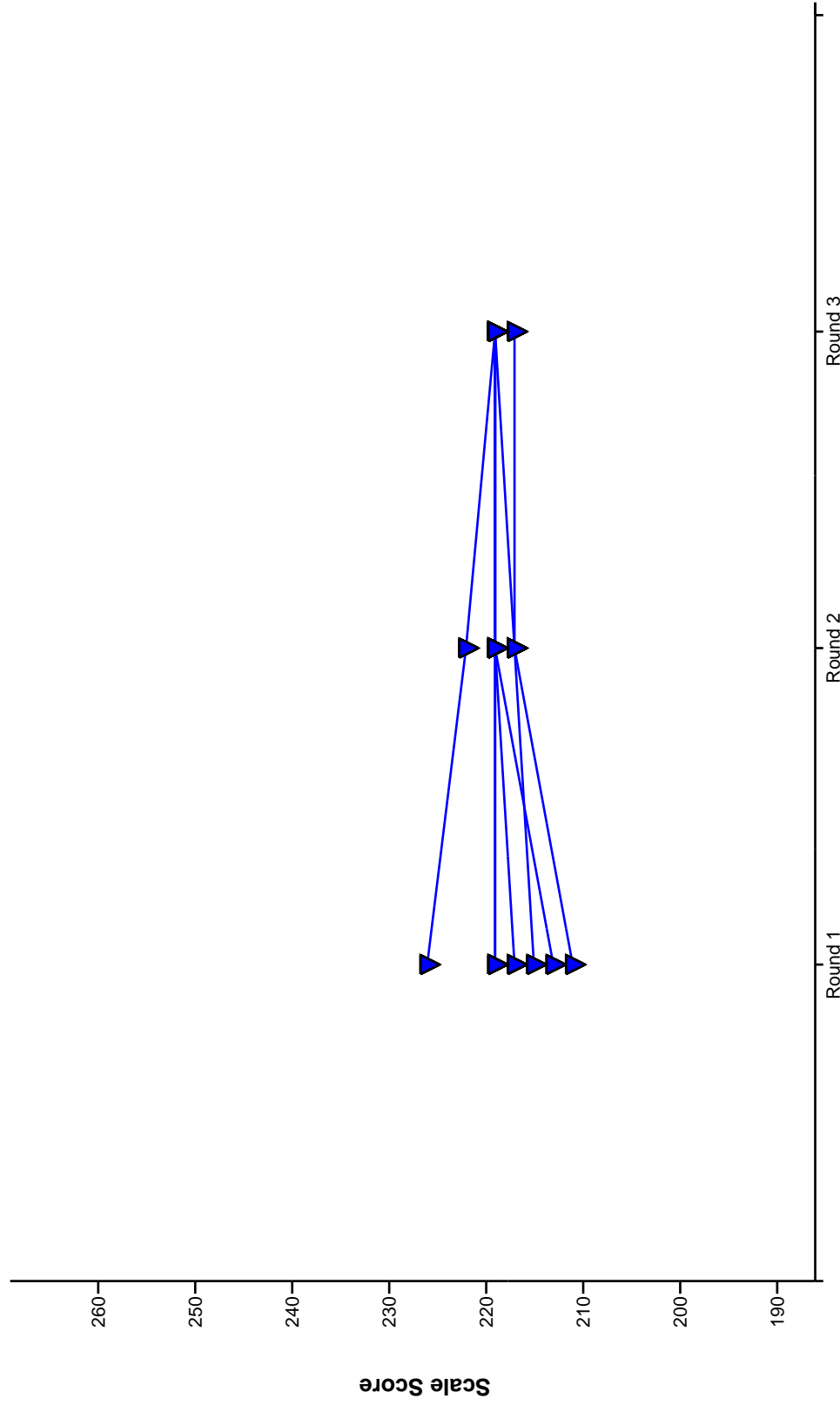
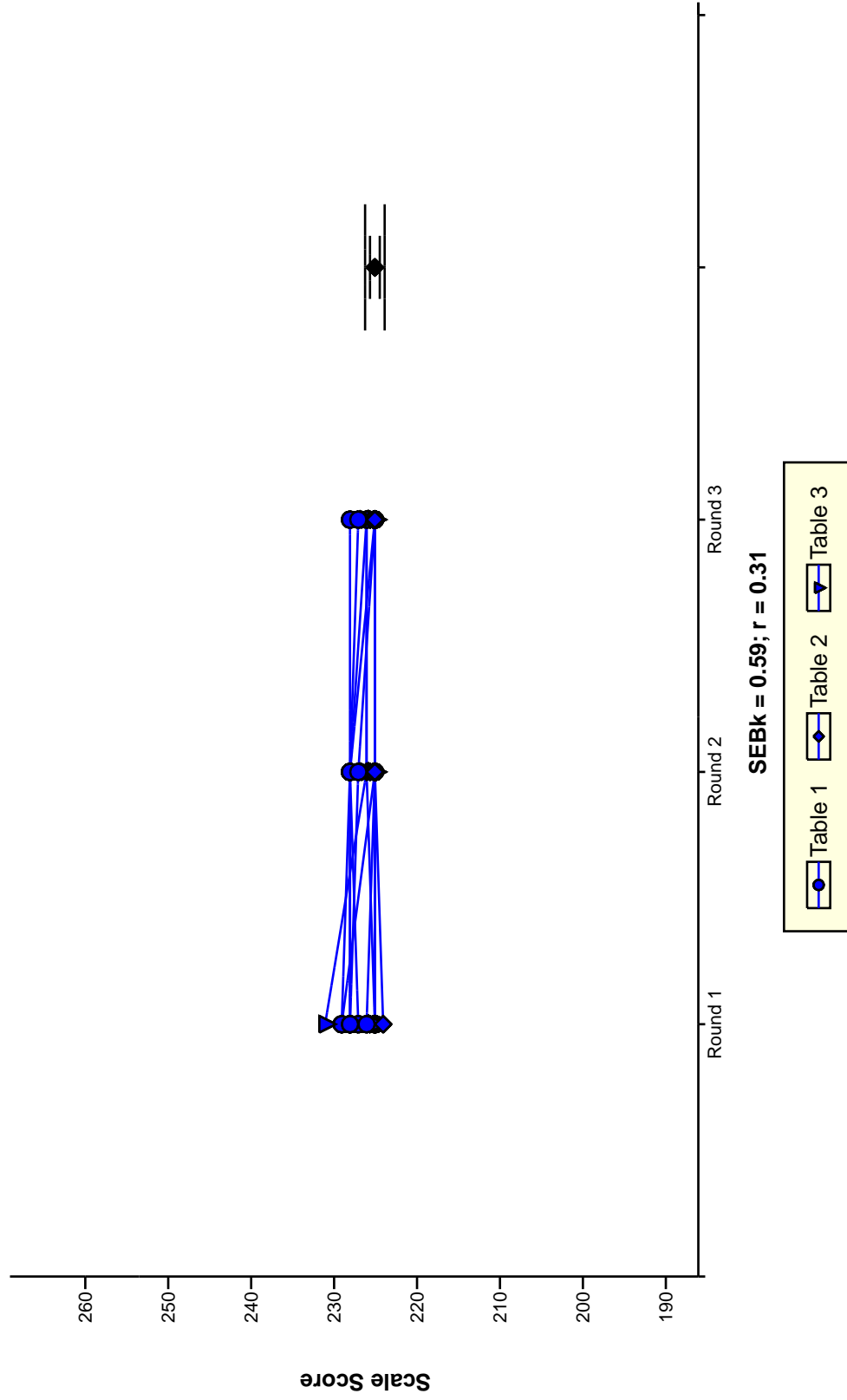


Table 3

Oregon Standard Setting Grade 5 Science Meets Cut Point



Oregon Standard Setting Grade 5 Science Meets Cut Point

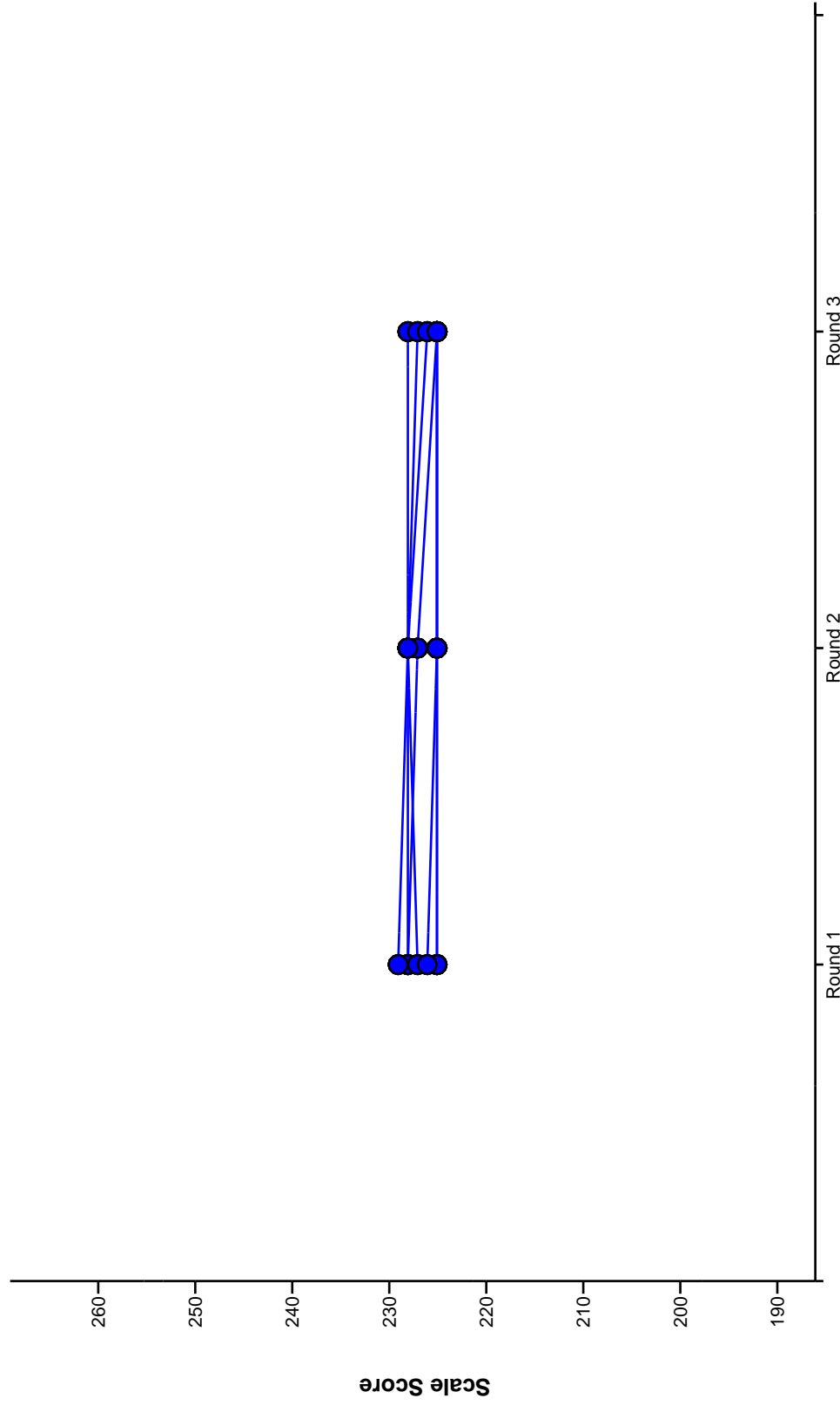


Table 1

Oregon Standard Setting Grade 5 Science Meets Cut Point

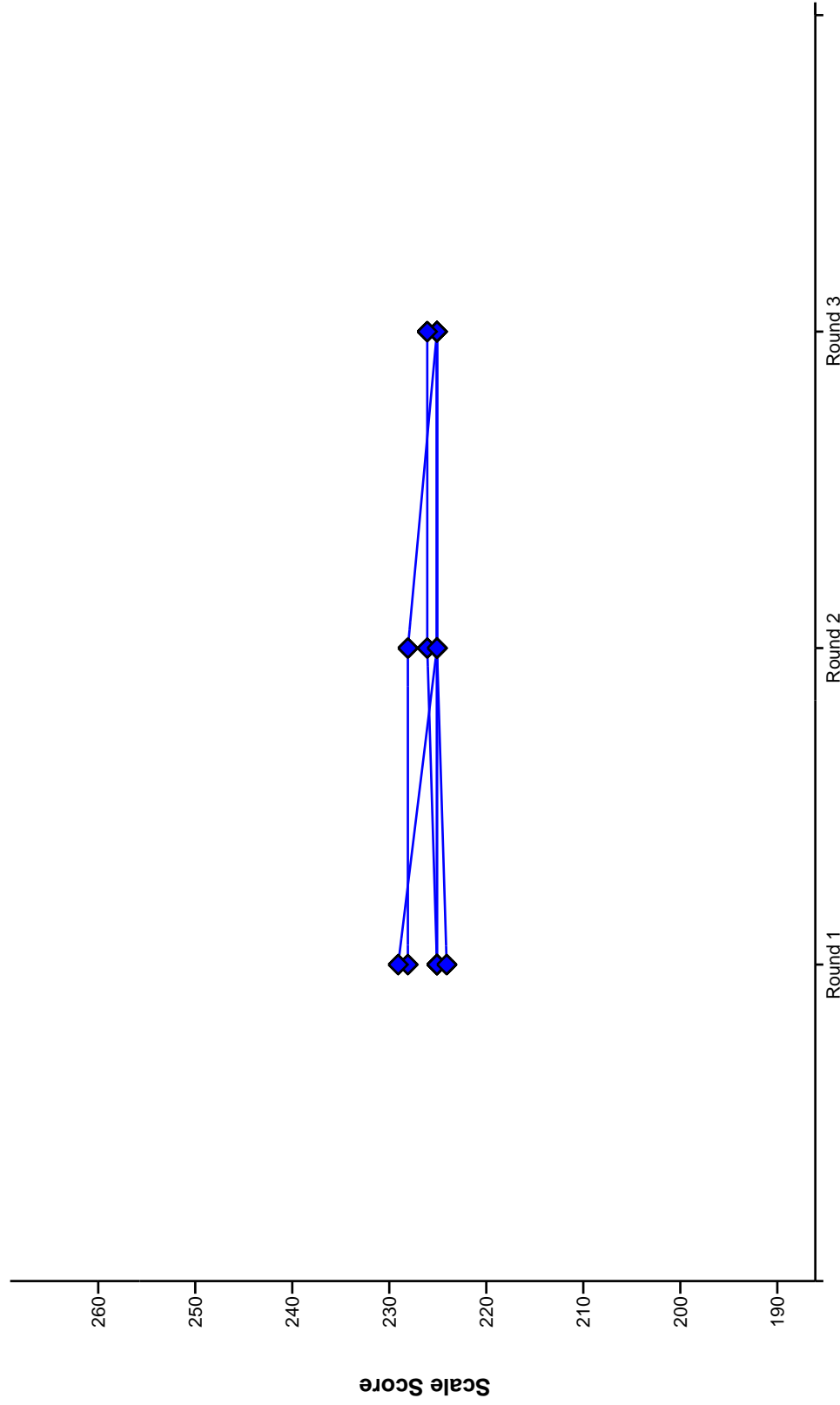


Table 2

Oregon Standard Setting Grade 5 Science Meets Cut Point

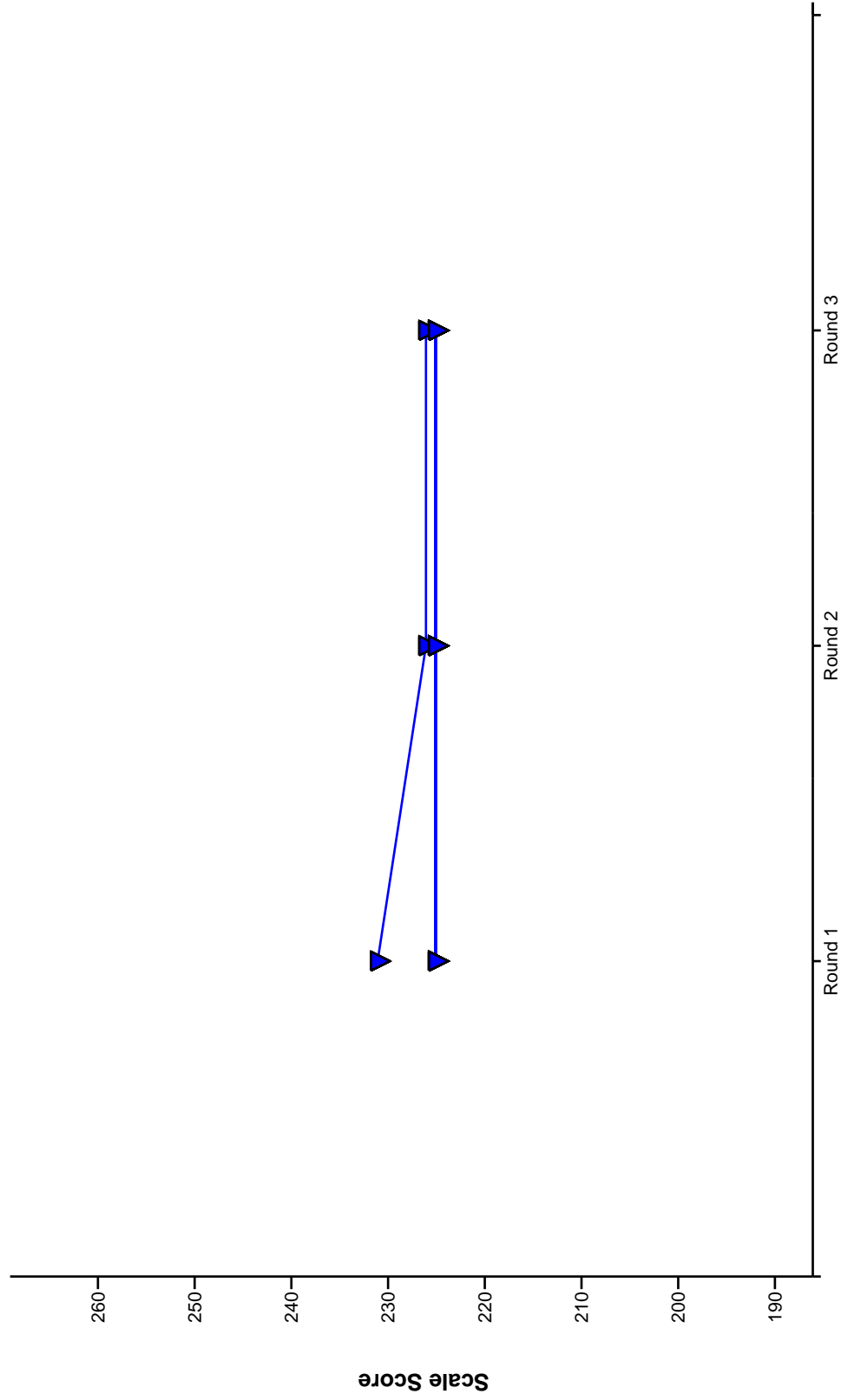
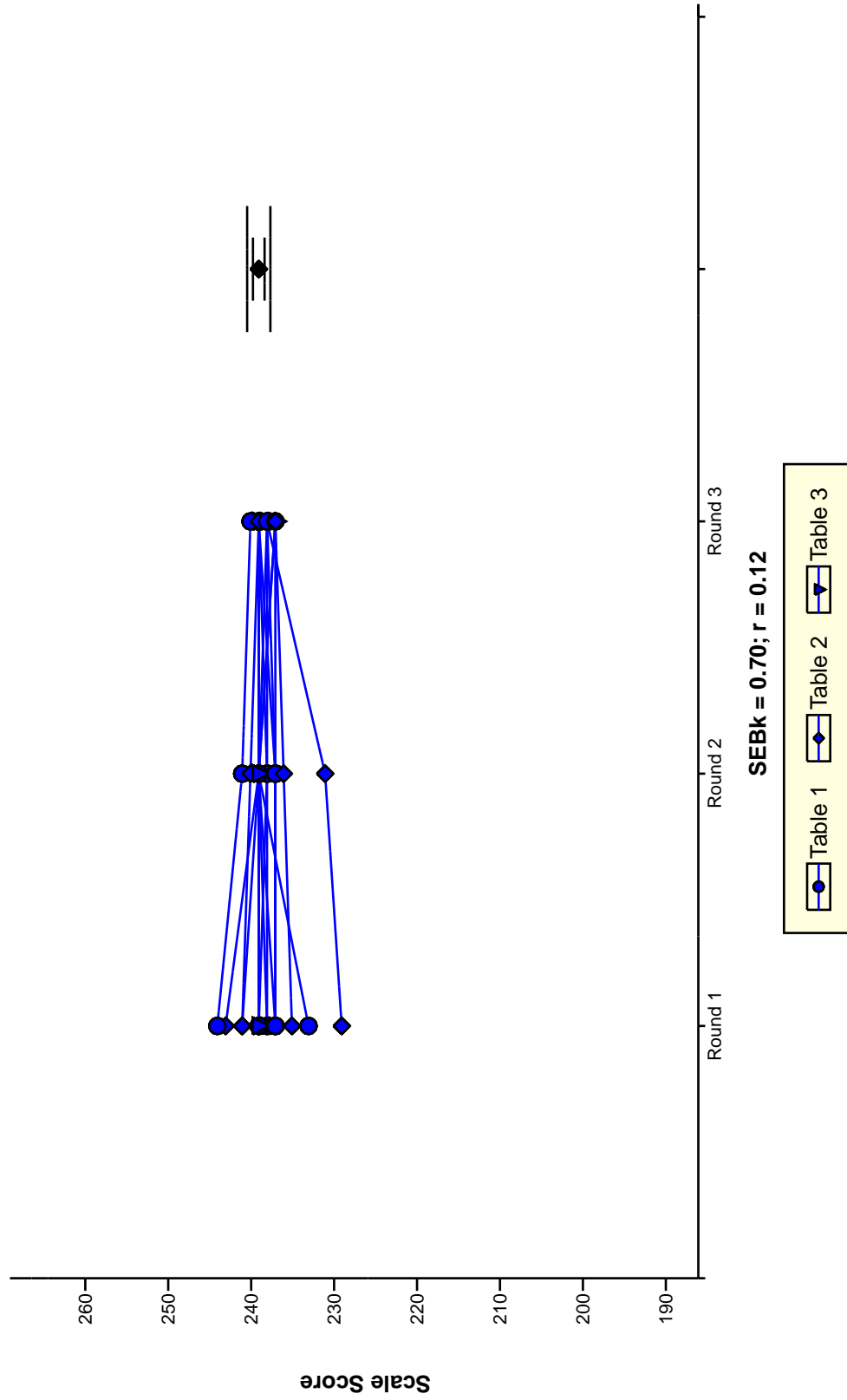


Table 3

Oregon Standard Setting Grade 5 Science Exceeds Cut Point



Oregon Standard Setting Grade 5 Science Exceeds Cut Point

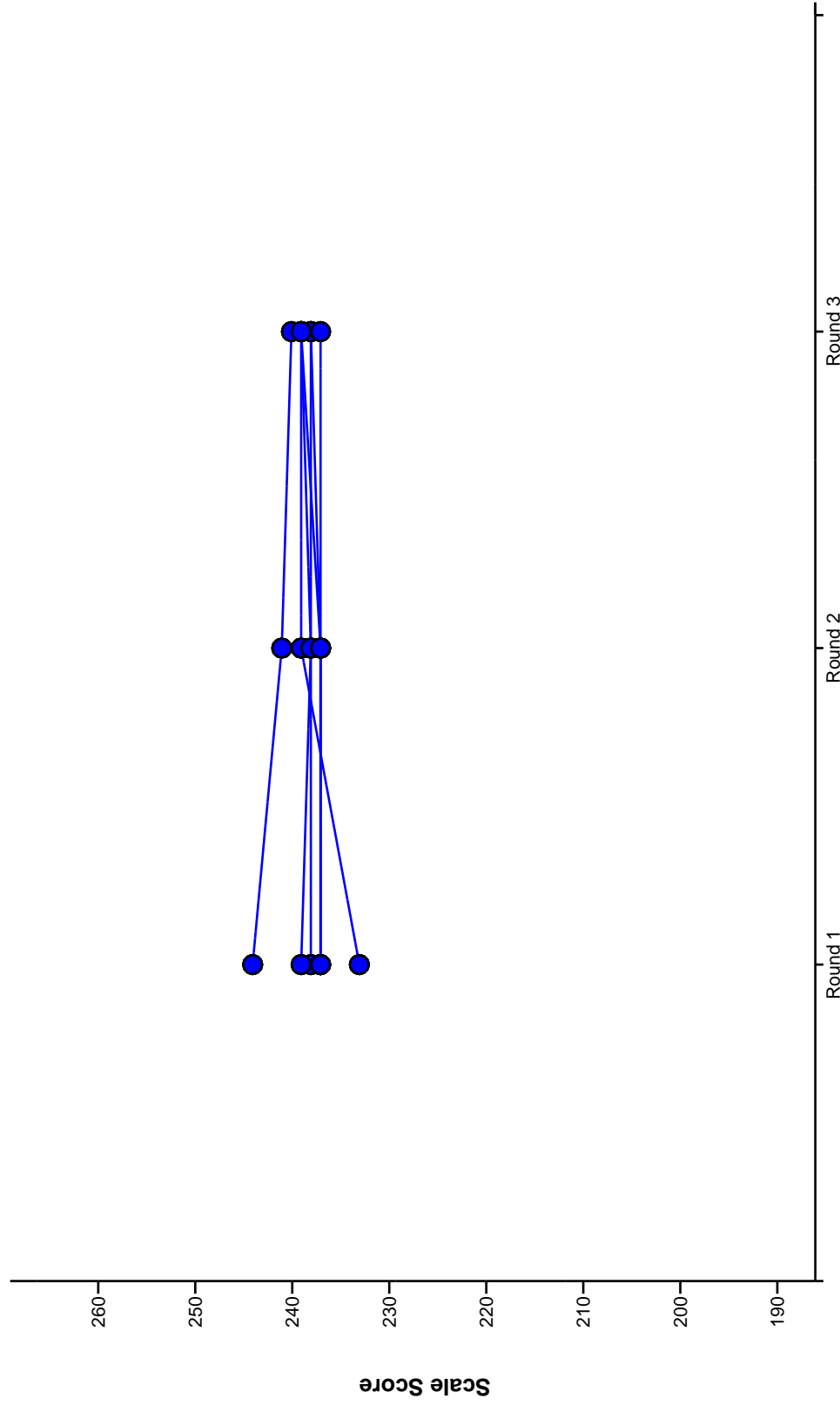


Table 1

Oregon Standard Setting Grade 5 Science Exceeds Cut Point

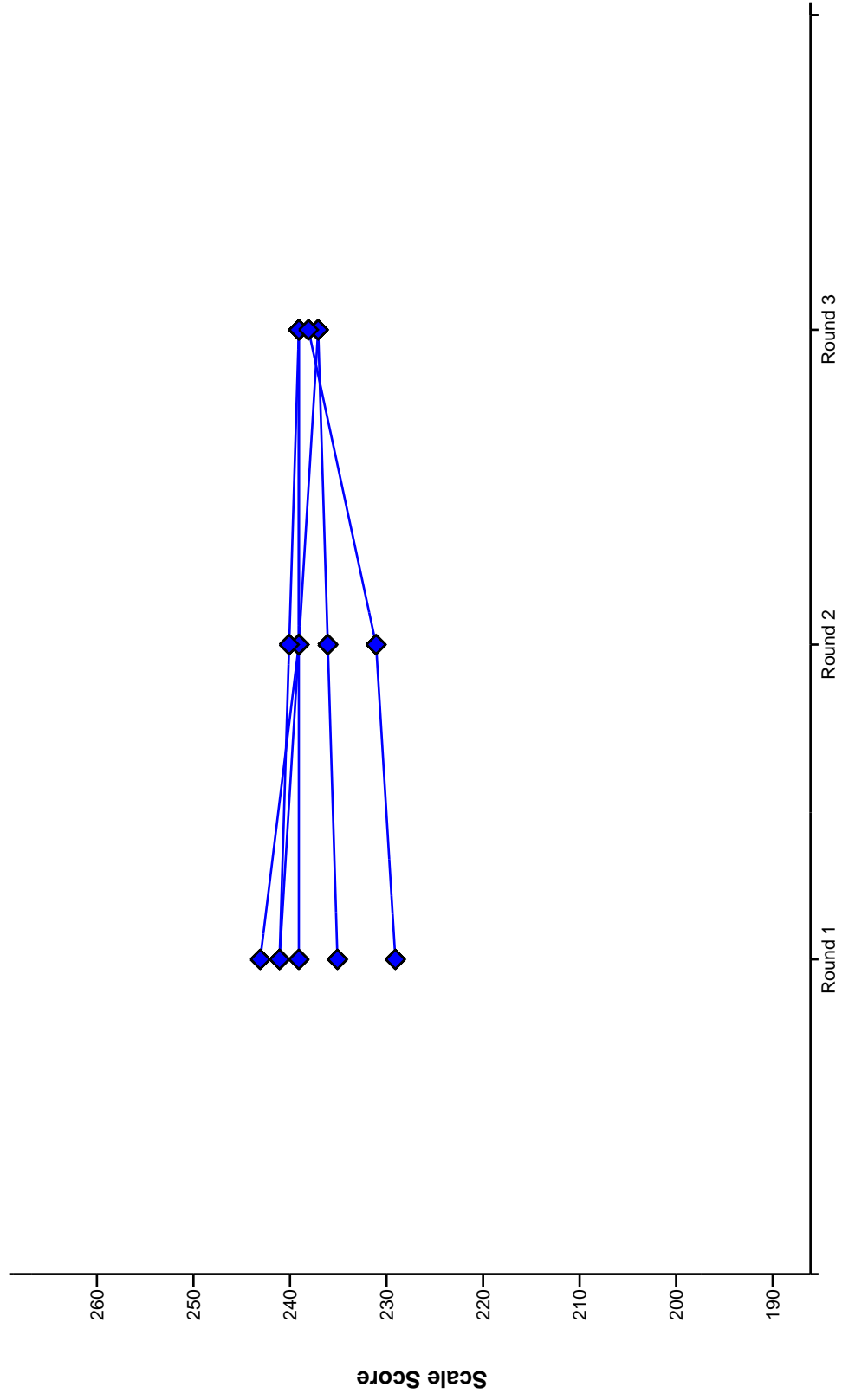


Table 2

Oregon Standard Setting Grade 5 Science Exceeds Cut Point

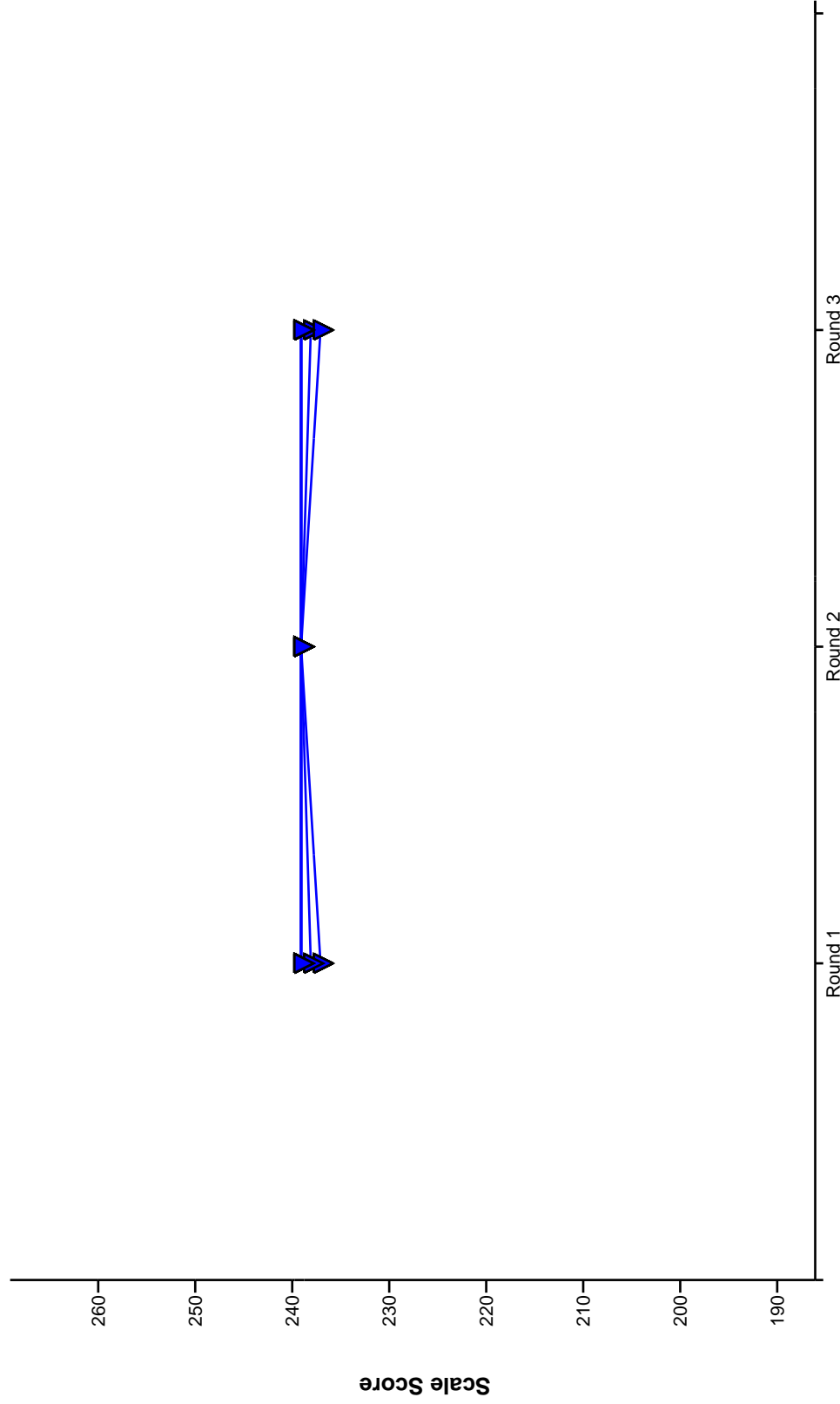
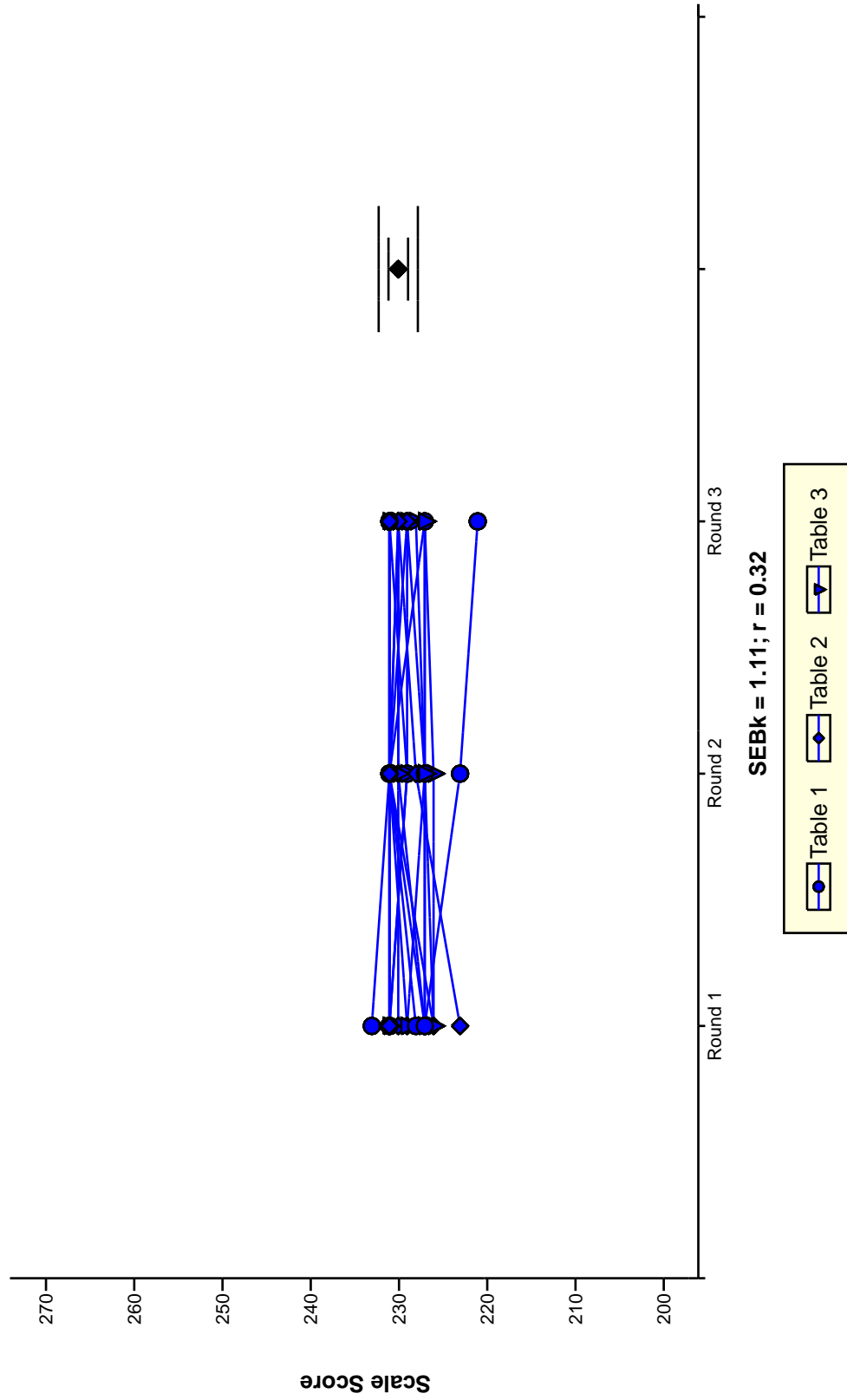


Table 3

Oregon Standard Setting Grade 8 Science Nearly Meets Cut Point



Oregon Standard Setting Grade 8 Science Nearly Meets Cut Point

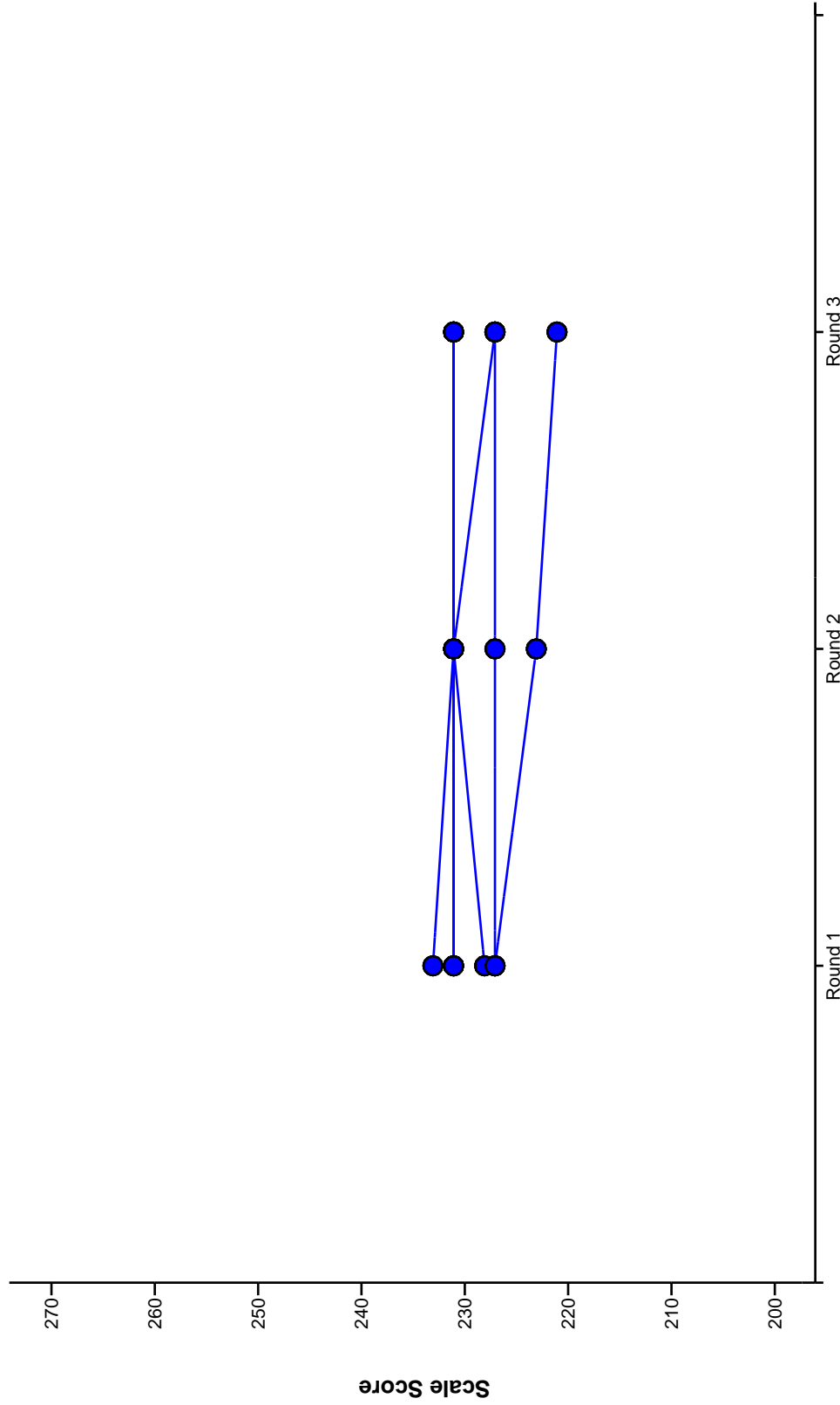


Table 1

Oregon Standard Setting Grade 8 Science Nearly Meets Cut Point

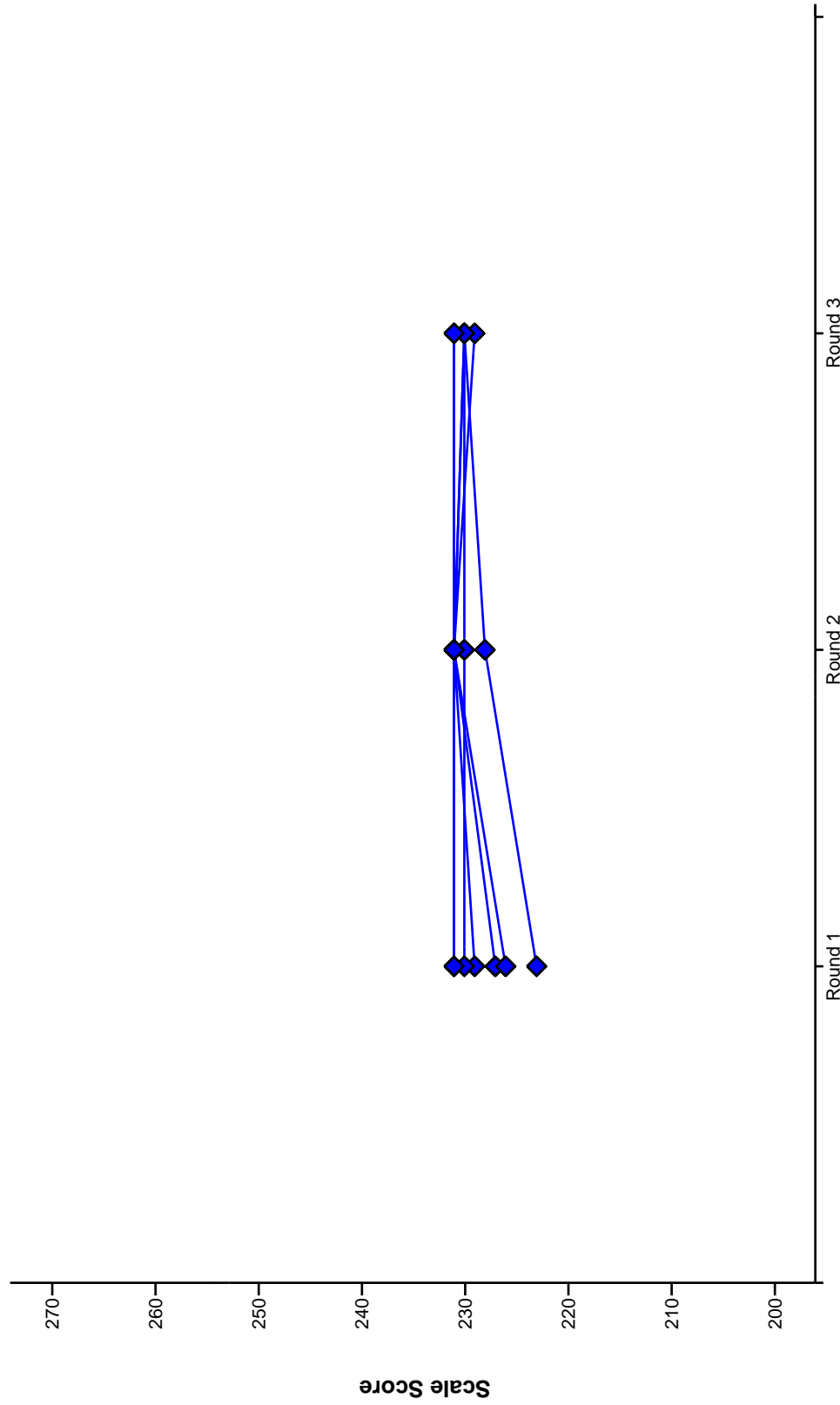


Table 2

Oregon Standard Setting Grade 8 Science Nearly Meets Cut Point

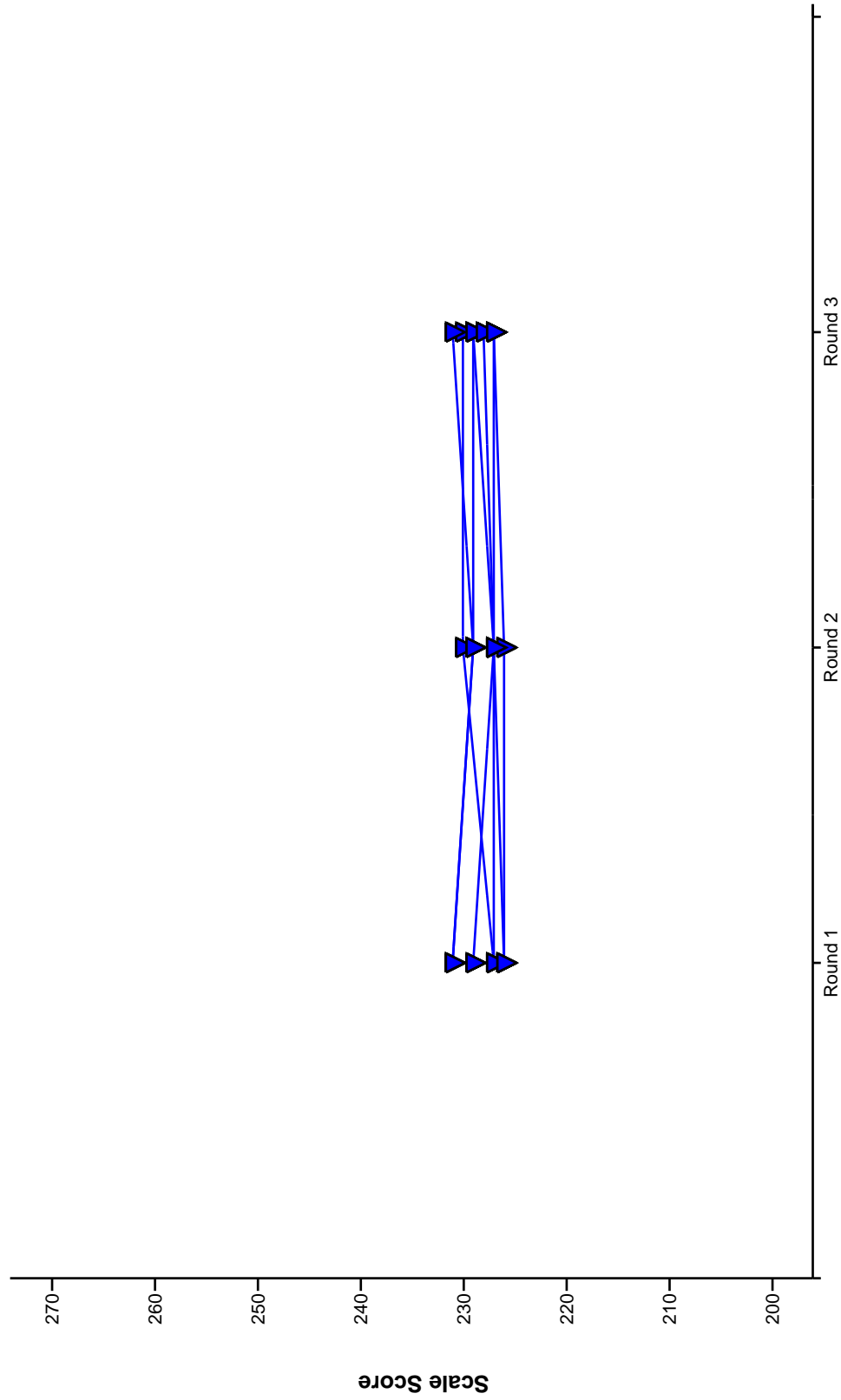
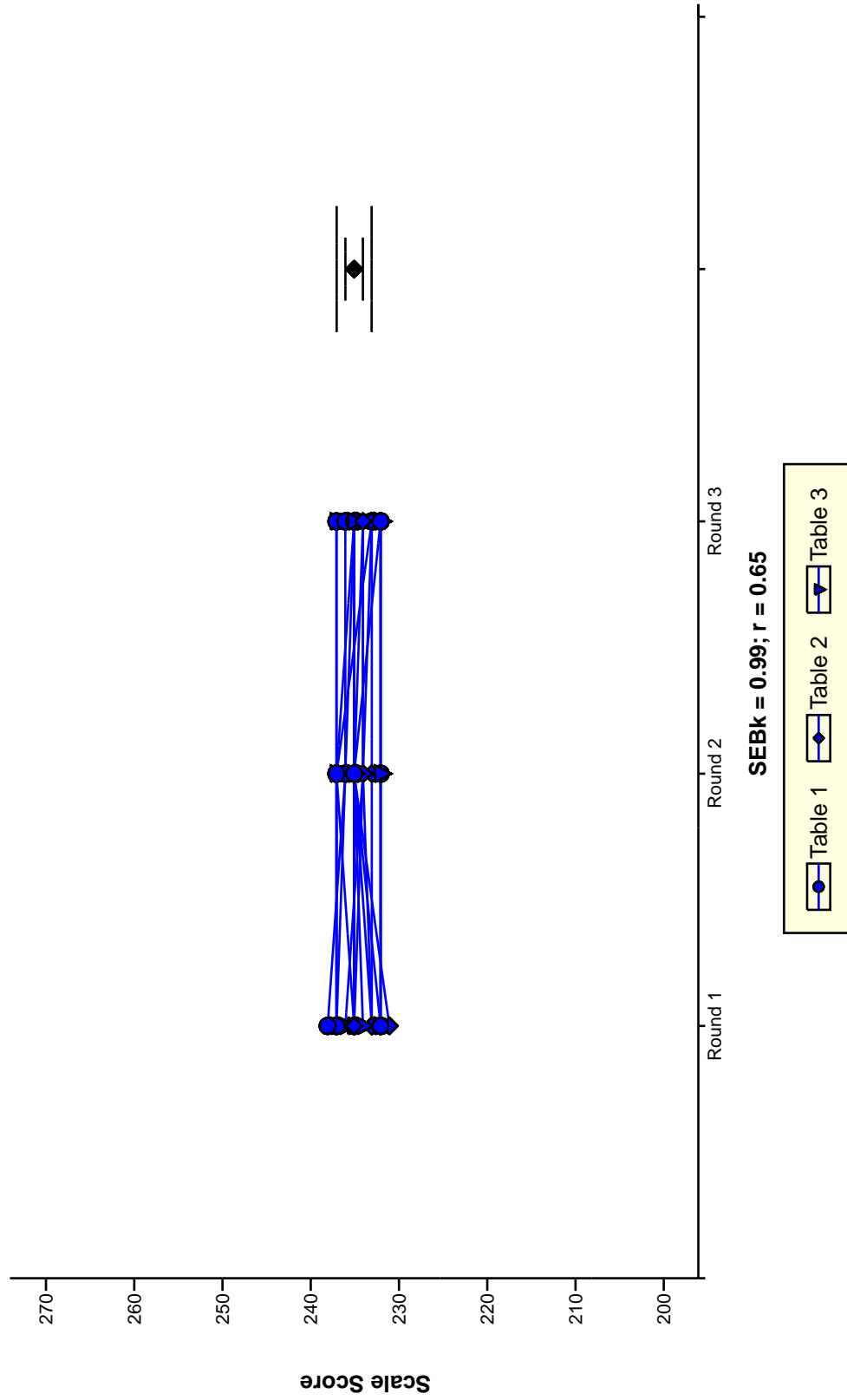


Table 3

Oregon Standard Setting Grade 8 Science Meets Cut Point



Oregon Standard Setting Grade 8 Science Meets Cut Point

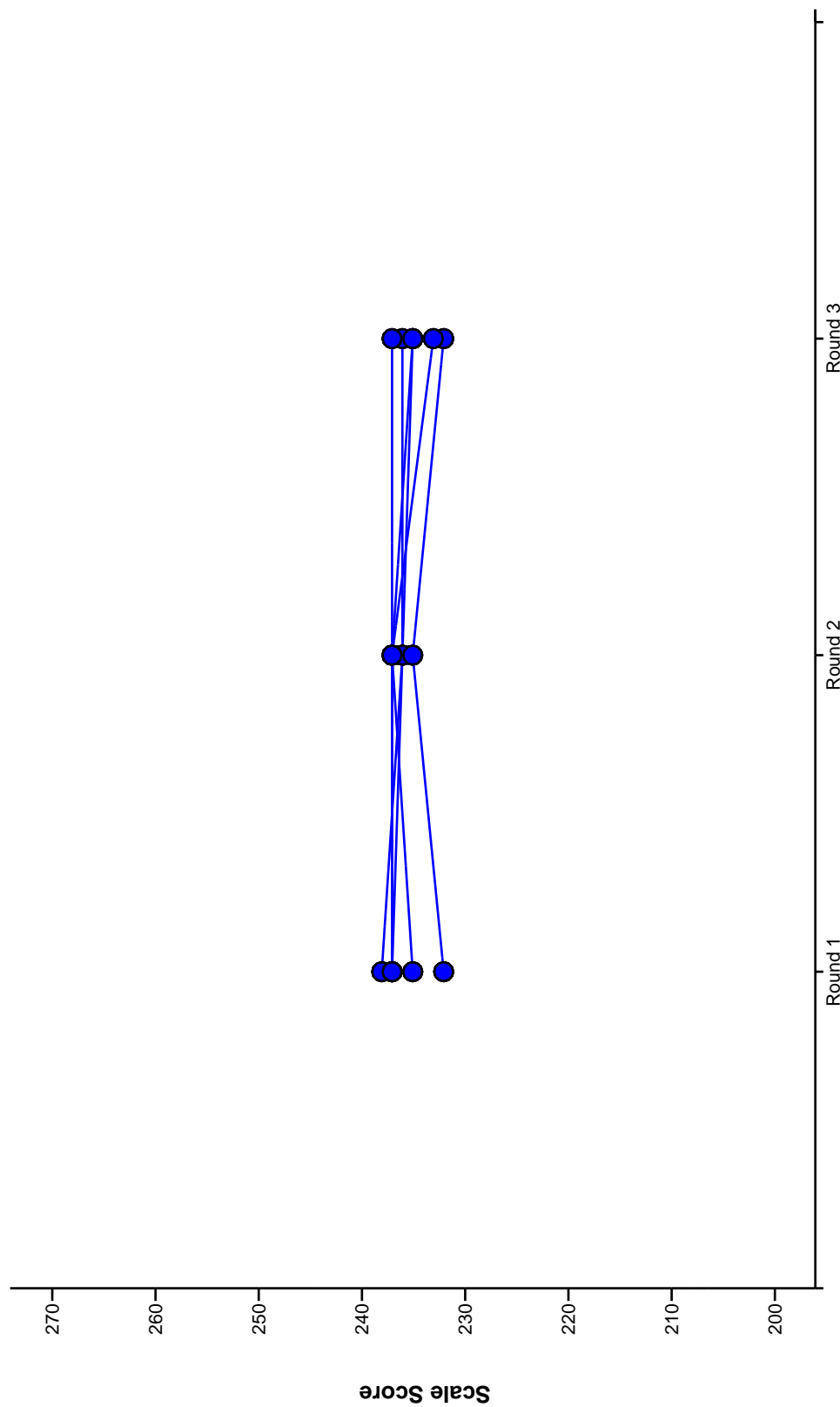


Table 1

Oregon Standard Setting Grade 8 Science Meets Cut Point

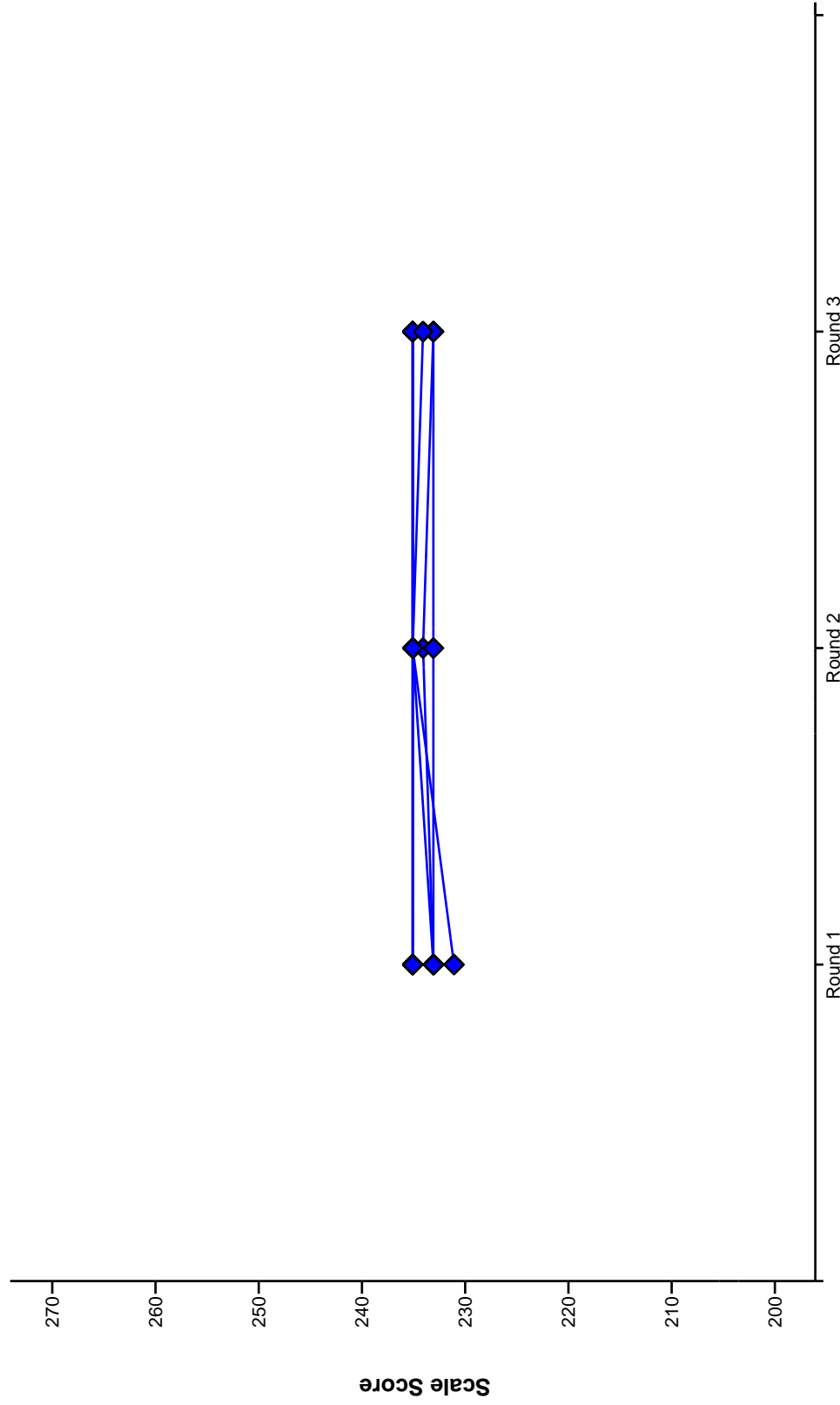


Table 2

Oregon Standard Setting Grade 8 Science Meets Cut Point

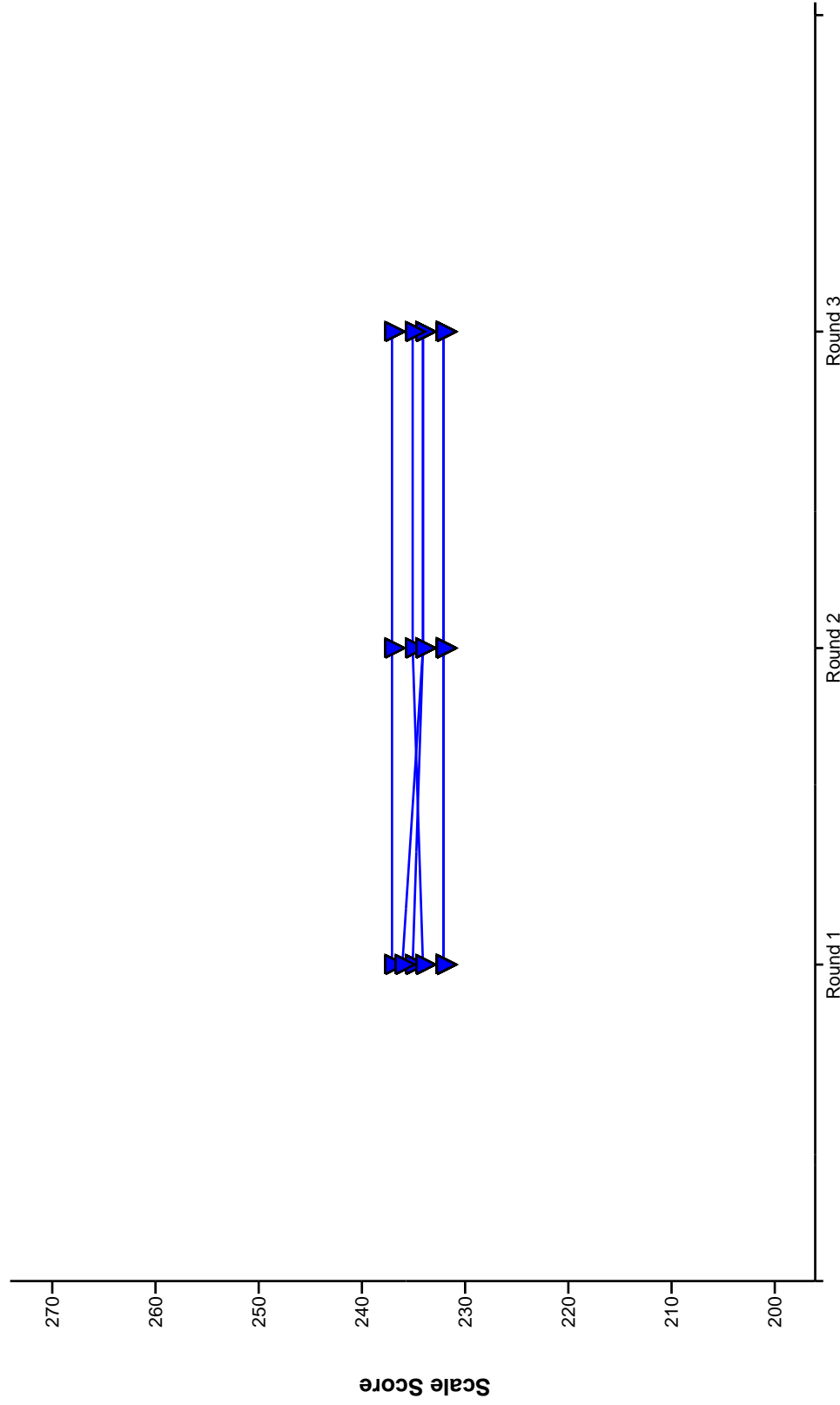
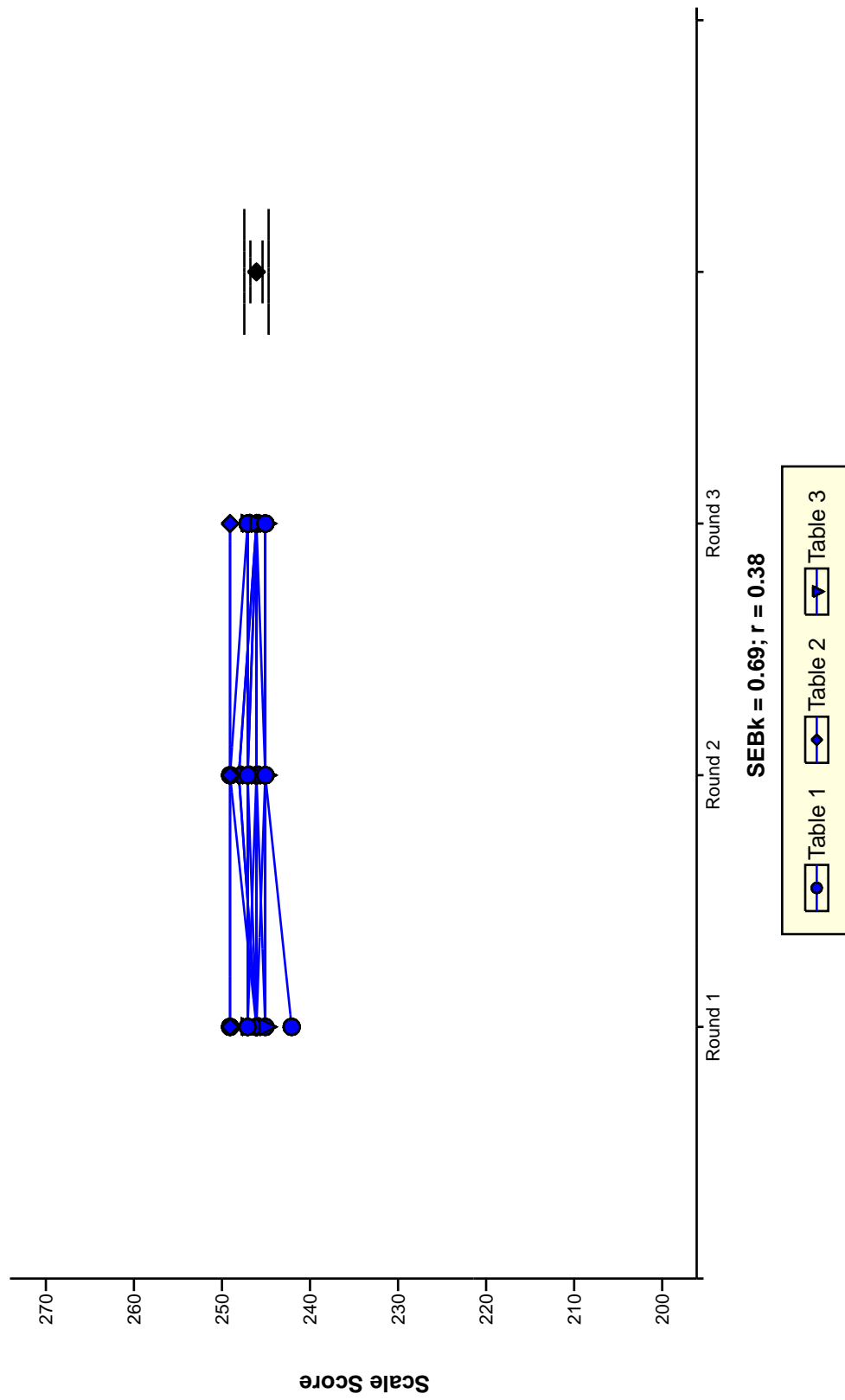


Table 3

Oregon Standard Setting Grade 8 Science Exceeds Cut Point



Oregon Standard Setting Grade 8 Science Exceeds Cut Point

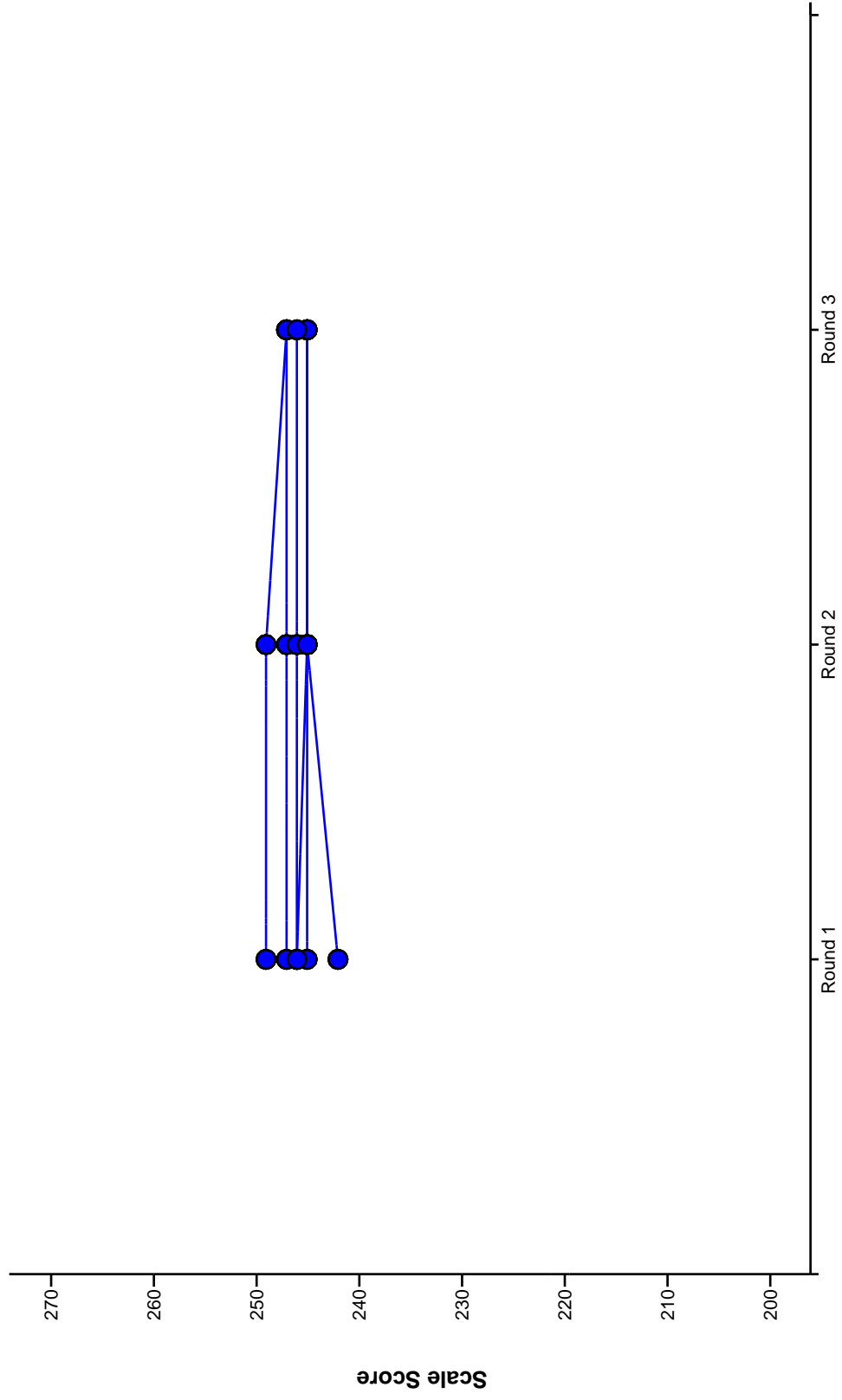


Table 1

Oregon Standard Setting Grade 8 Science Exceeds Cut Point

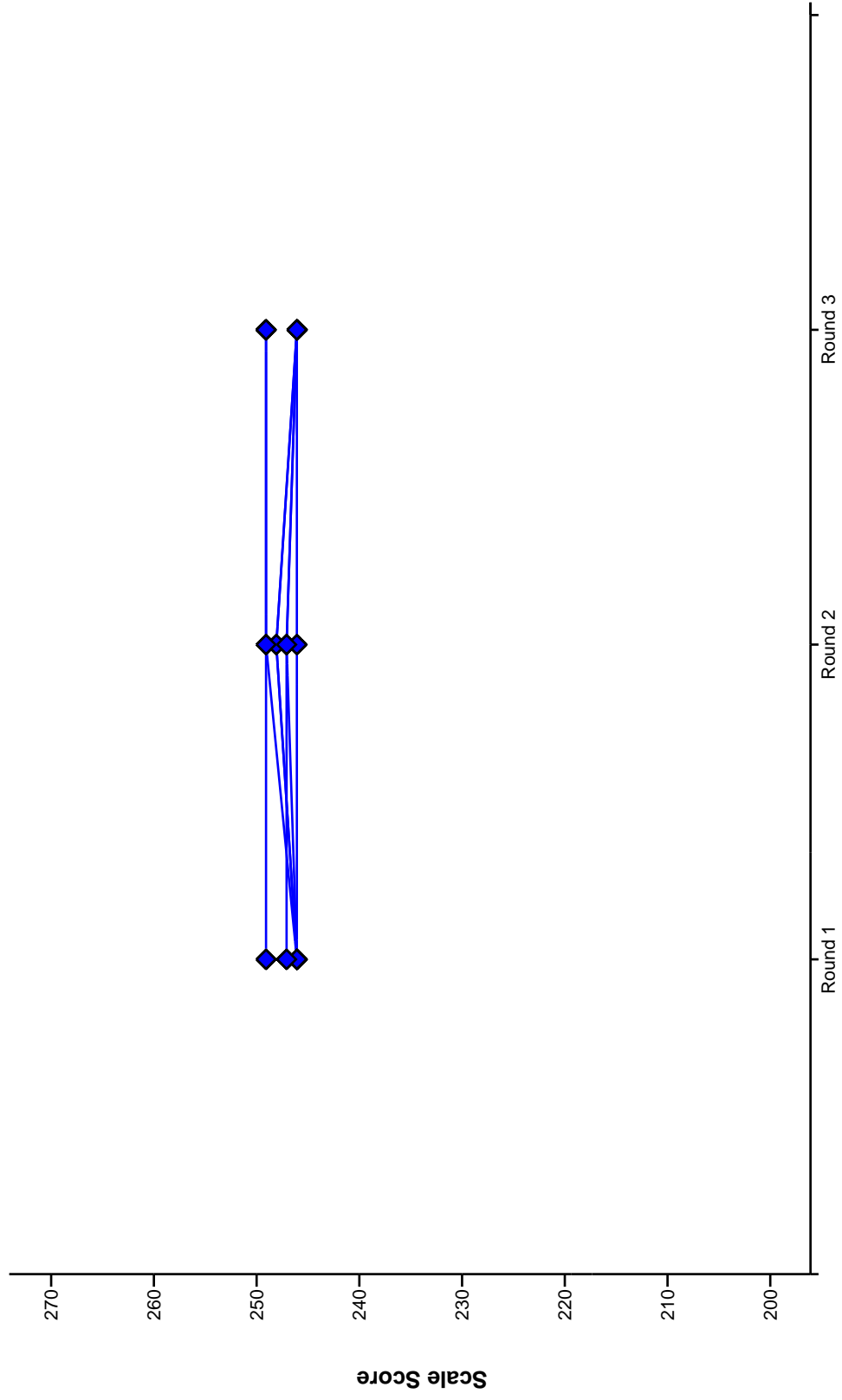


Table 2

Oregon Standard Setting Grade 8 Science Exceeds Cut Point

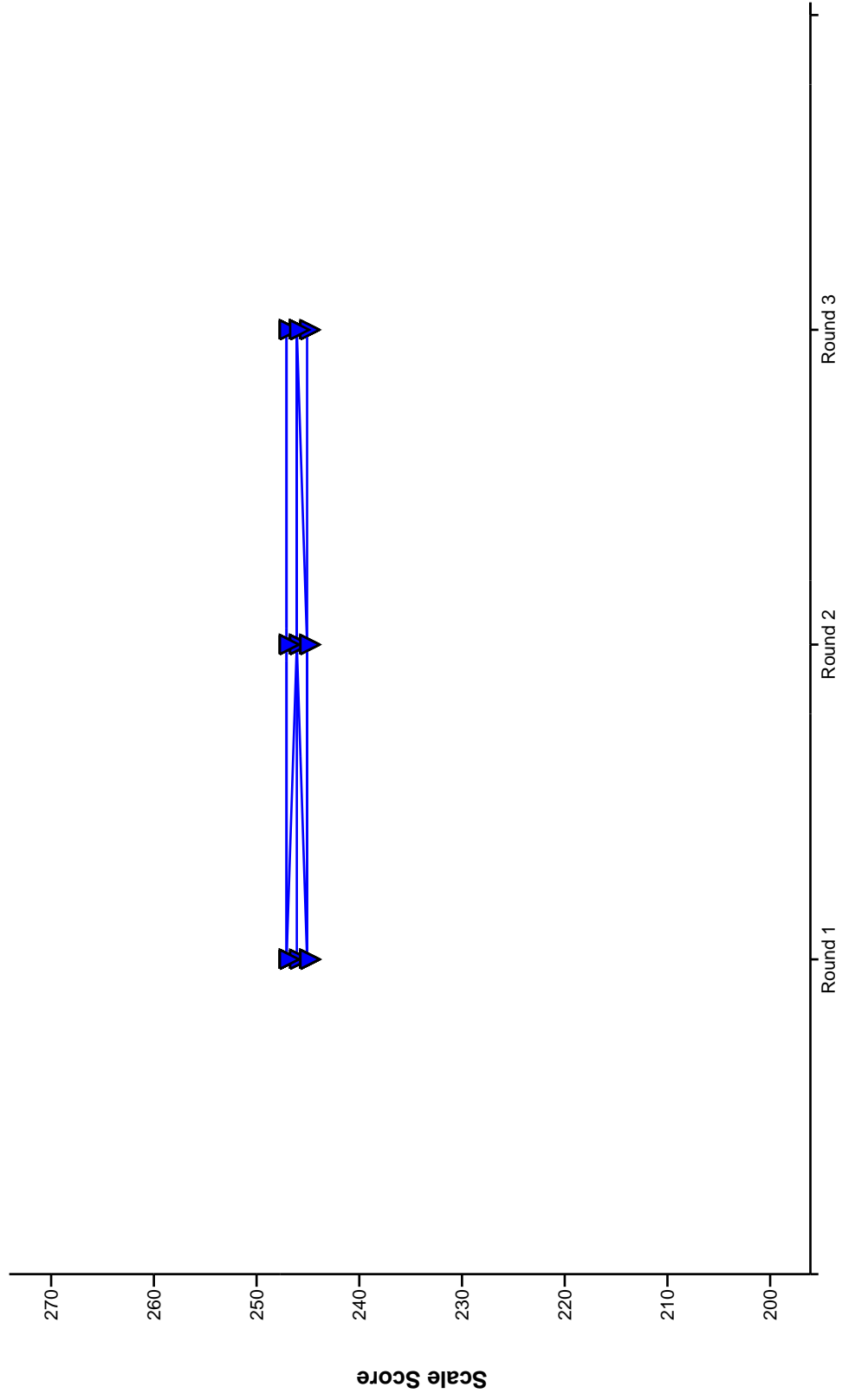
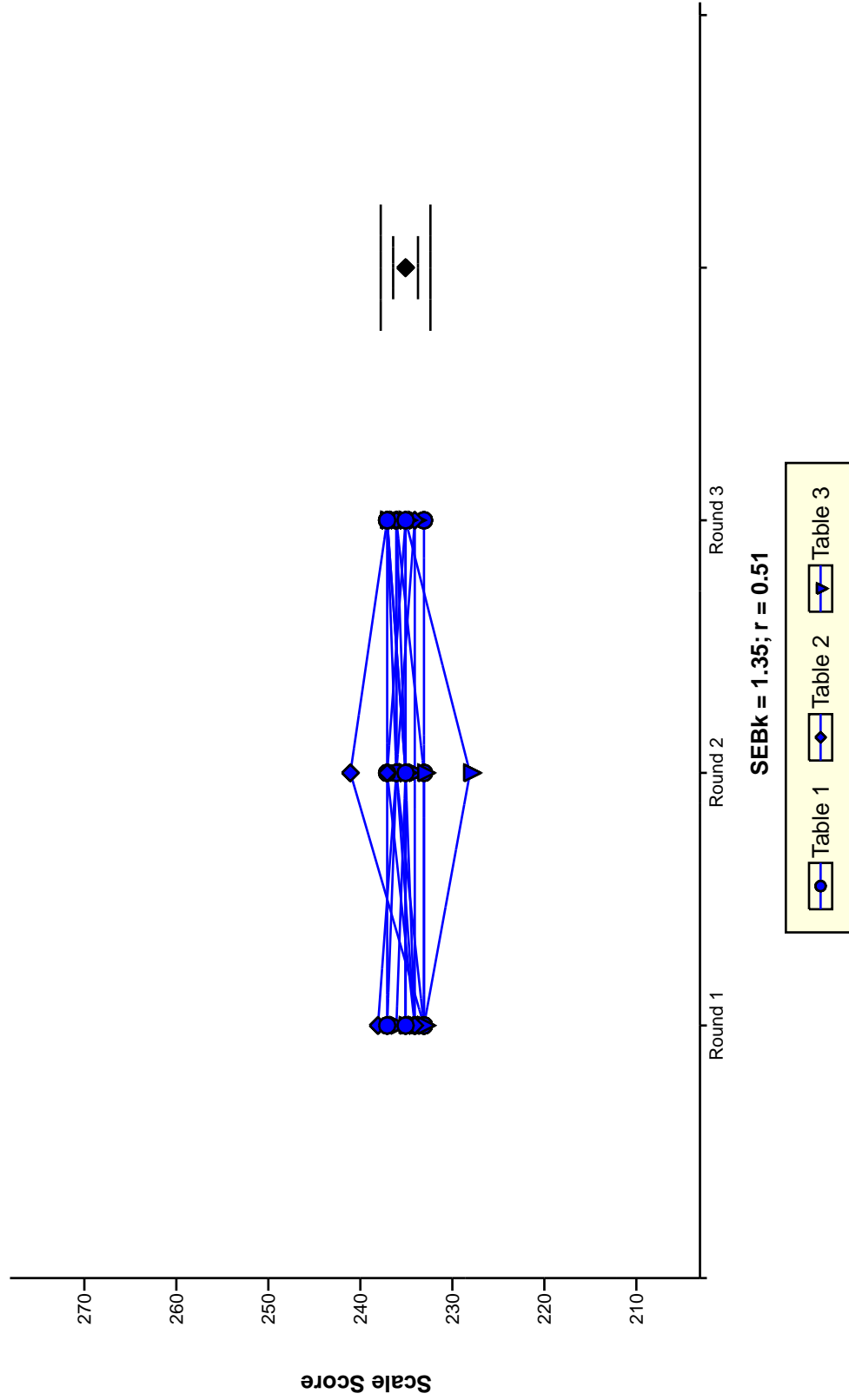


Table 3

Oregon Standard Setting Grade 10 Science Nearly Meets Cut Point



Oregon Standard Setting Grade 10 Science Nearly Meets Cut Point

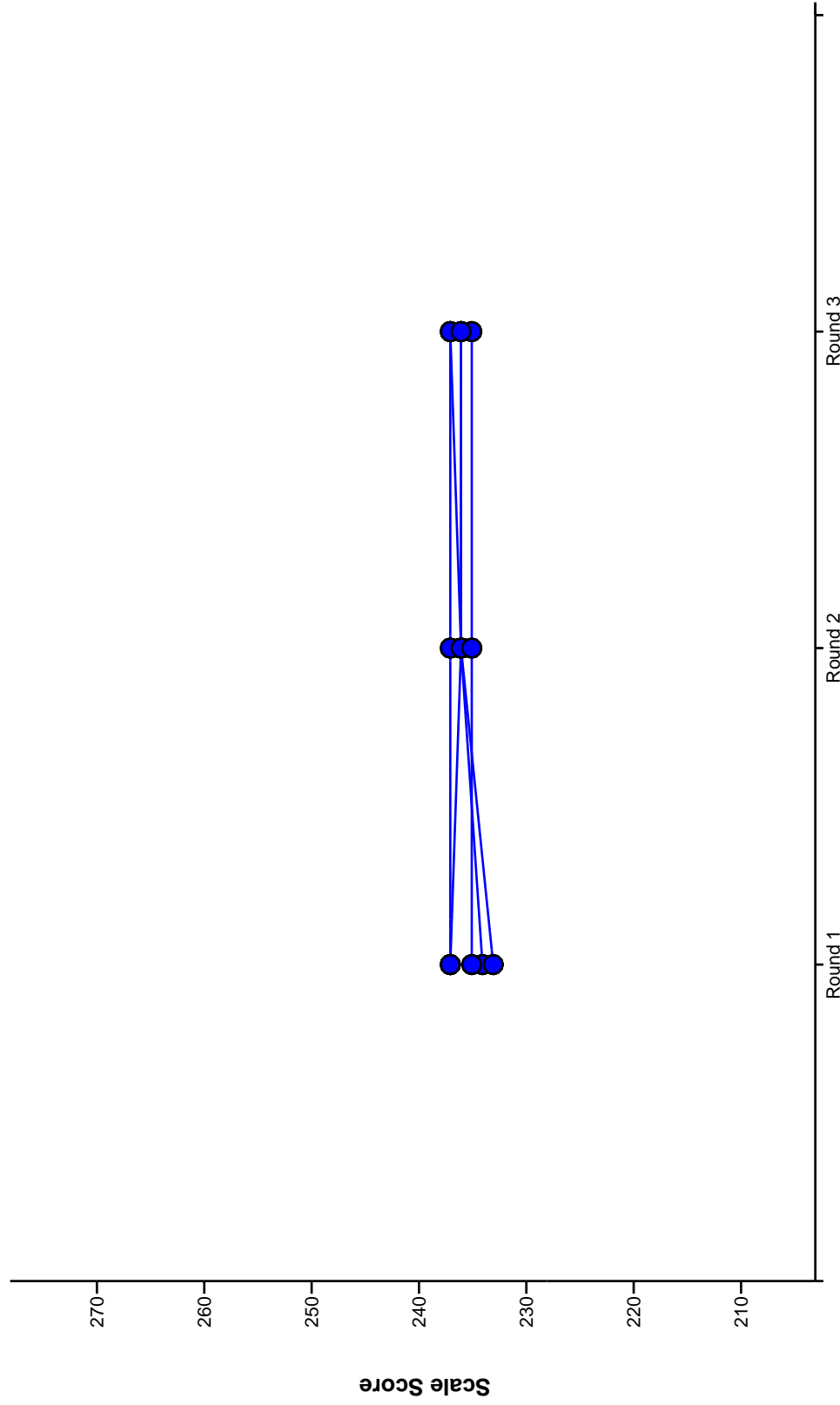


Table 1

Oregon Standard Setting Grade 10 Science Nearly Meets Cut Point

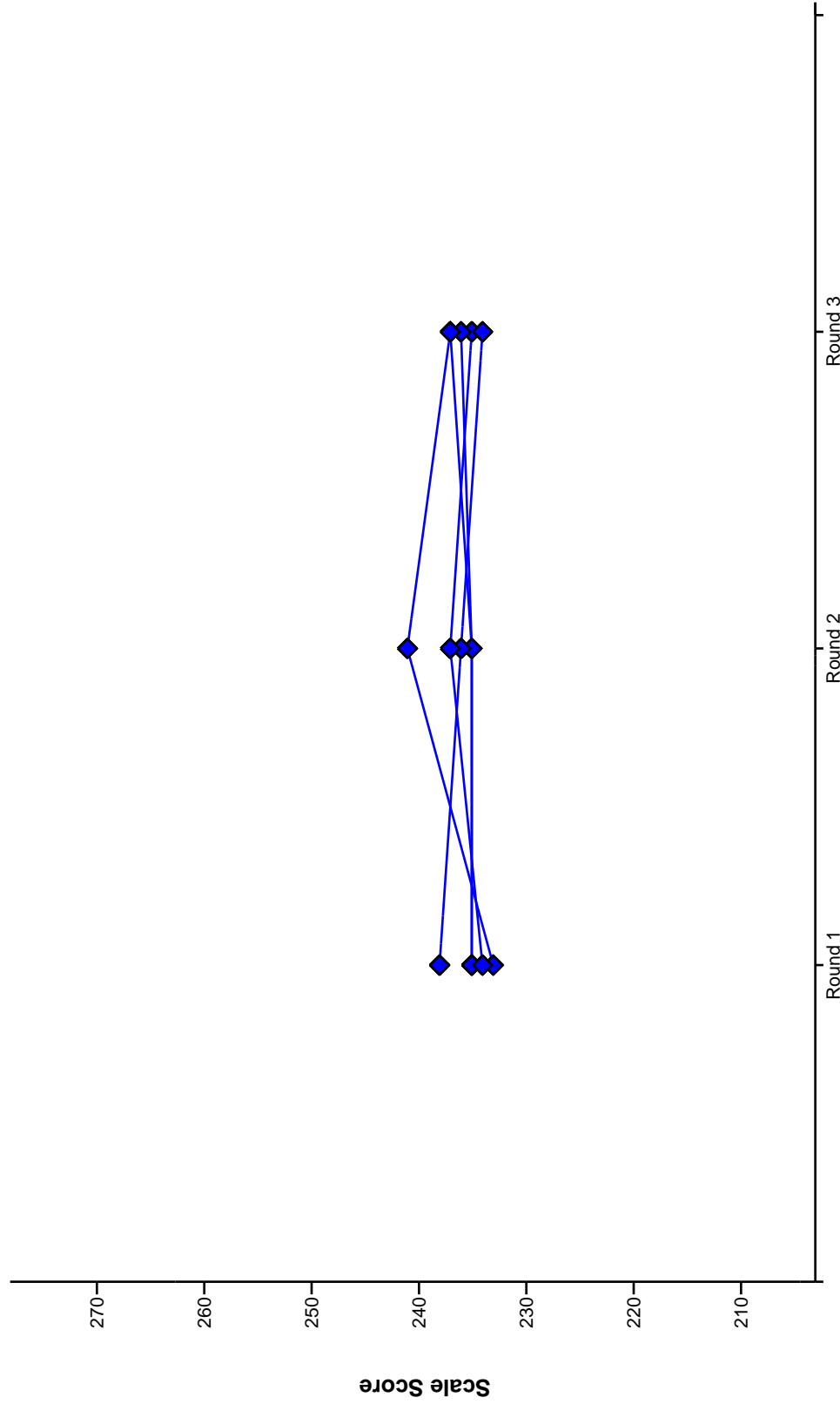


Table 2

Oregon Standard Setting Grade 10 Science Nearly Meets Cut Point

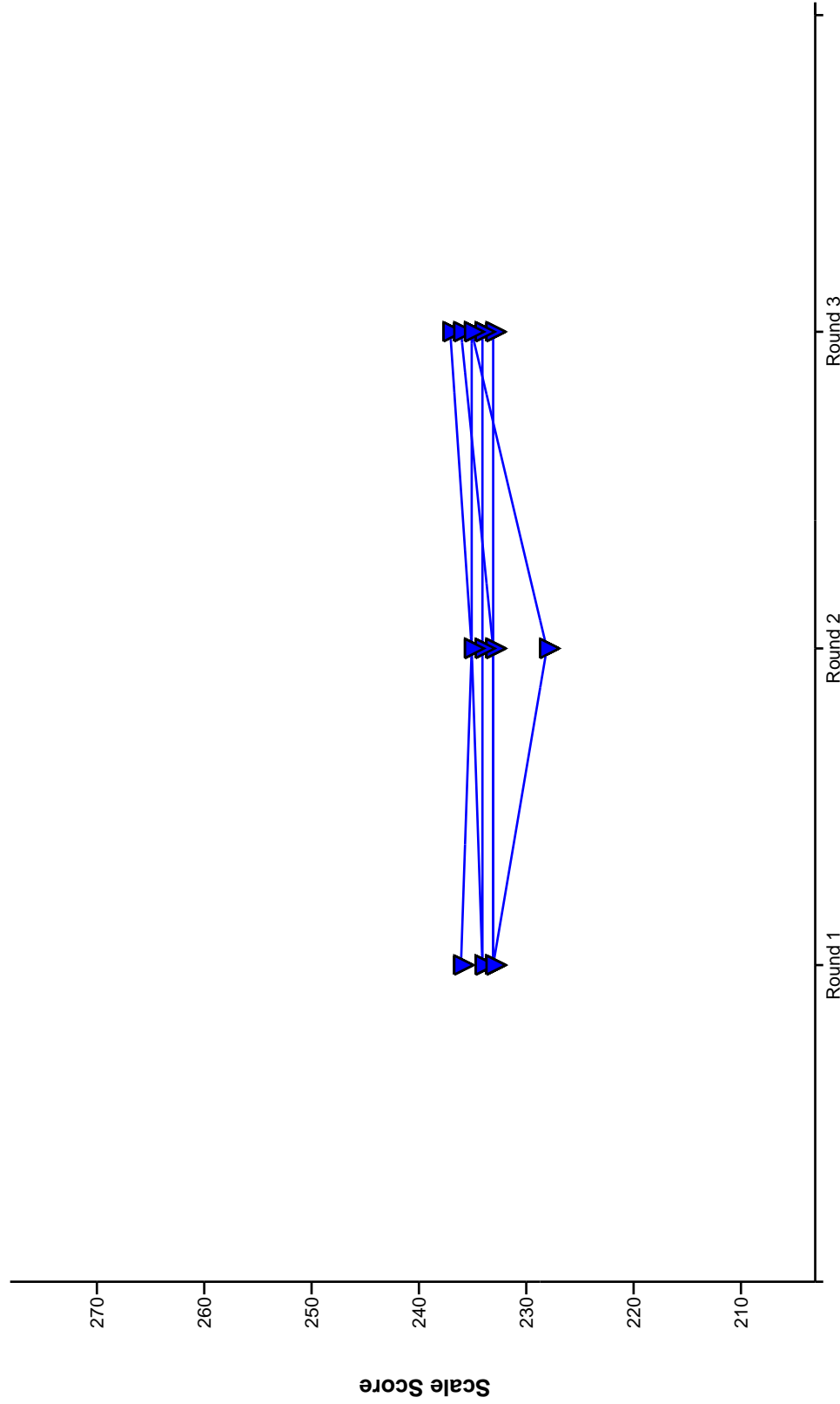
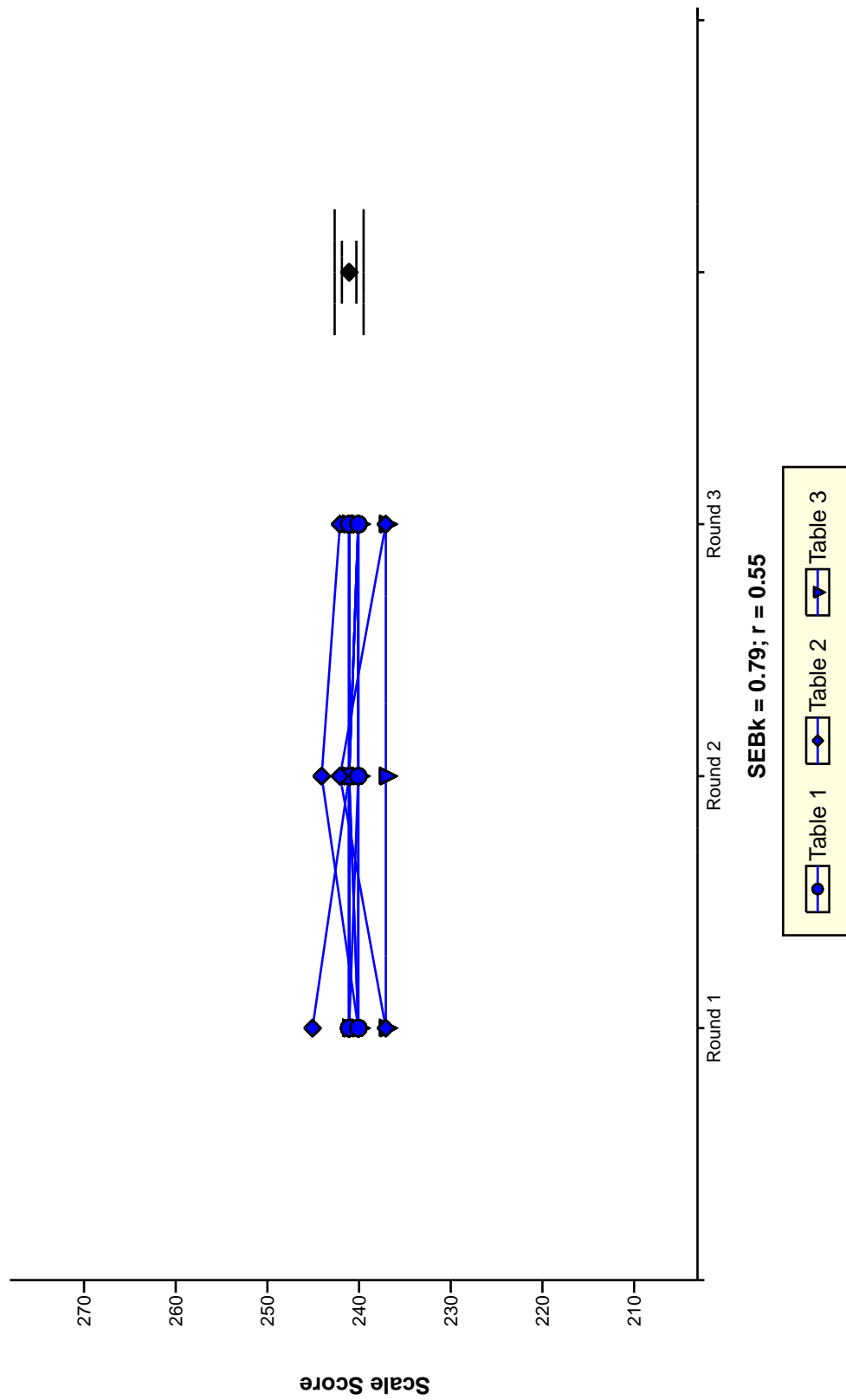


Table 3

Oregon Standard Setting Grade 10 Science Meets Cut Point



Oregon Standard Setting Grade 10 Science Meets Cut Point

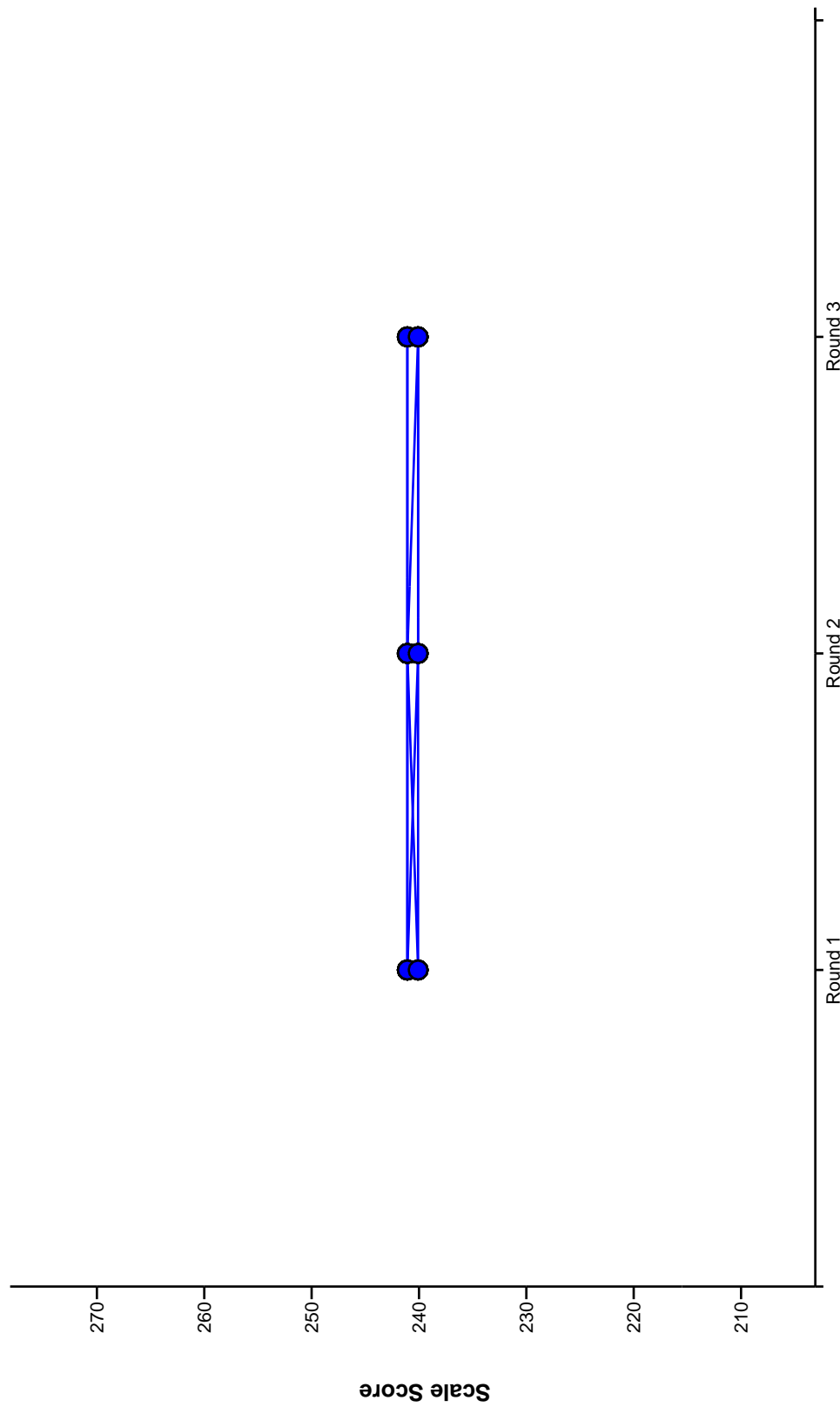


Table 1

Oregon Standard Setting Grade 10 Science Meets Cut Point

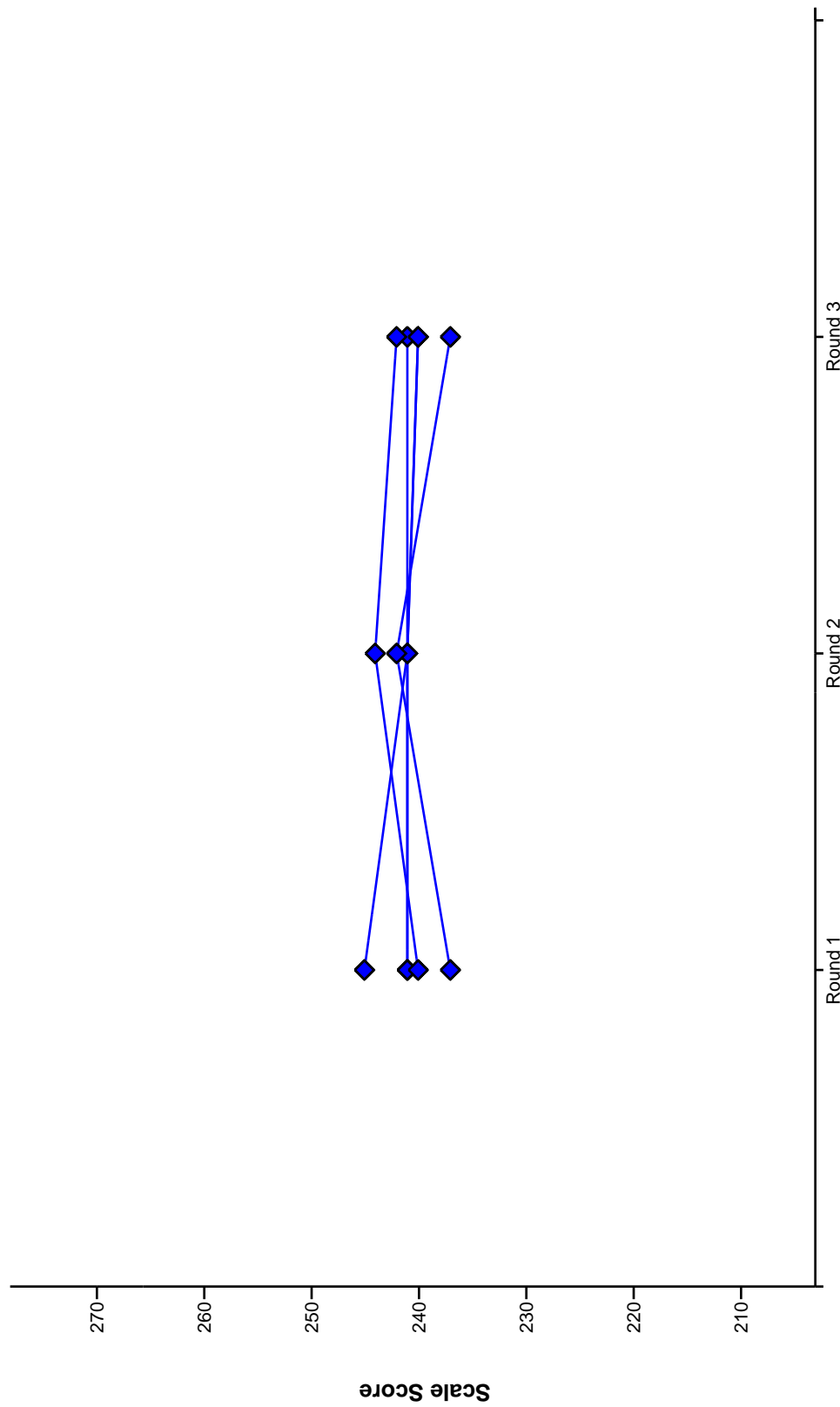


Table 2

Oregon Standard Setting Grade 10 Science Meets Cut Point

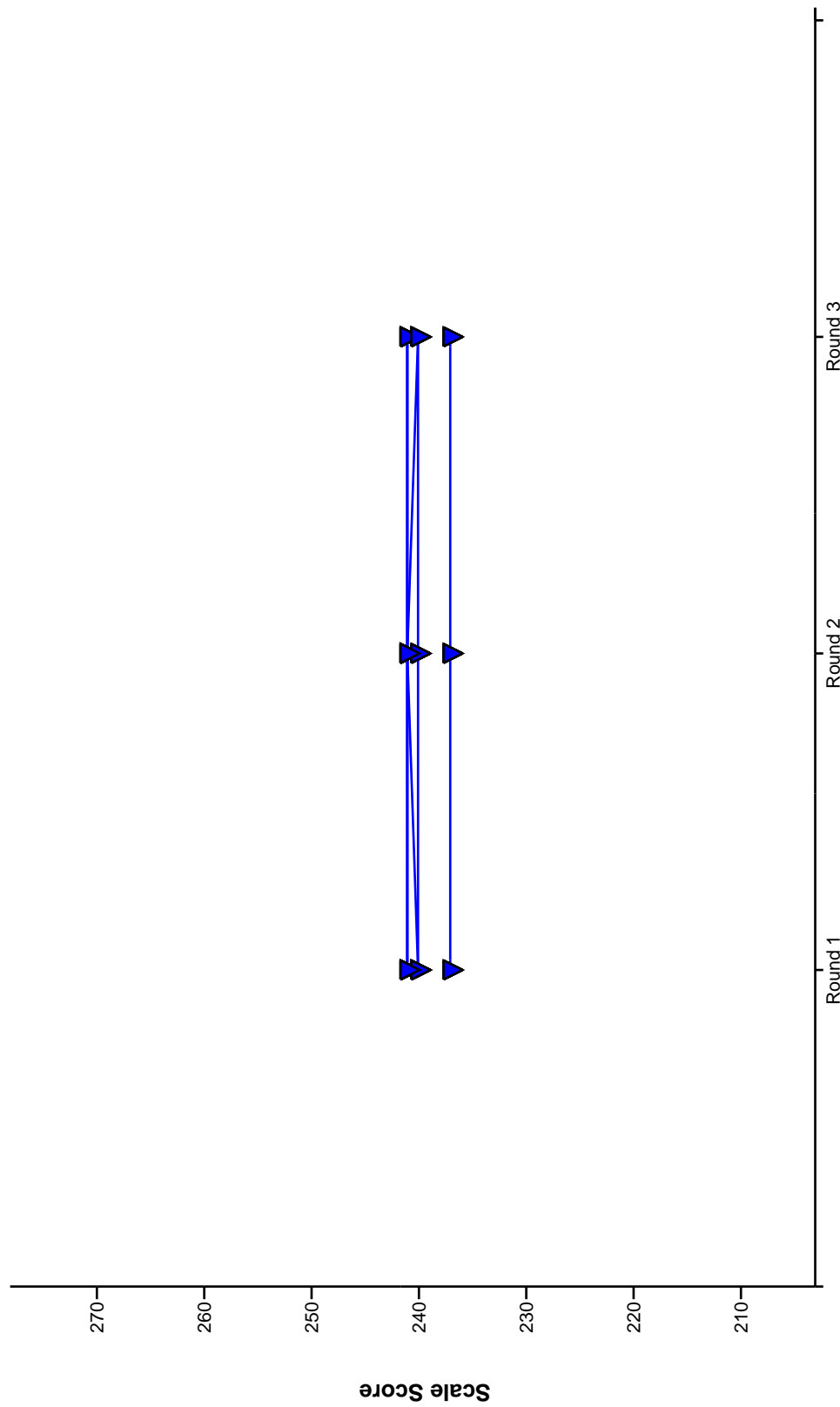
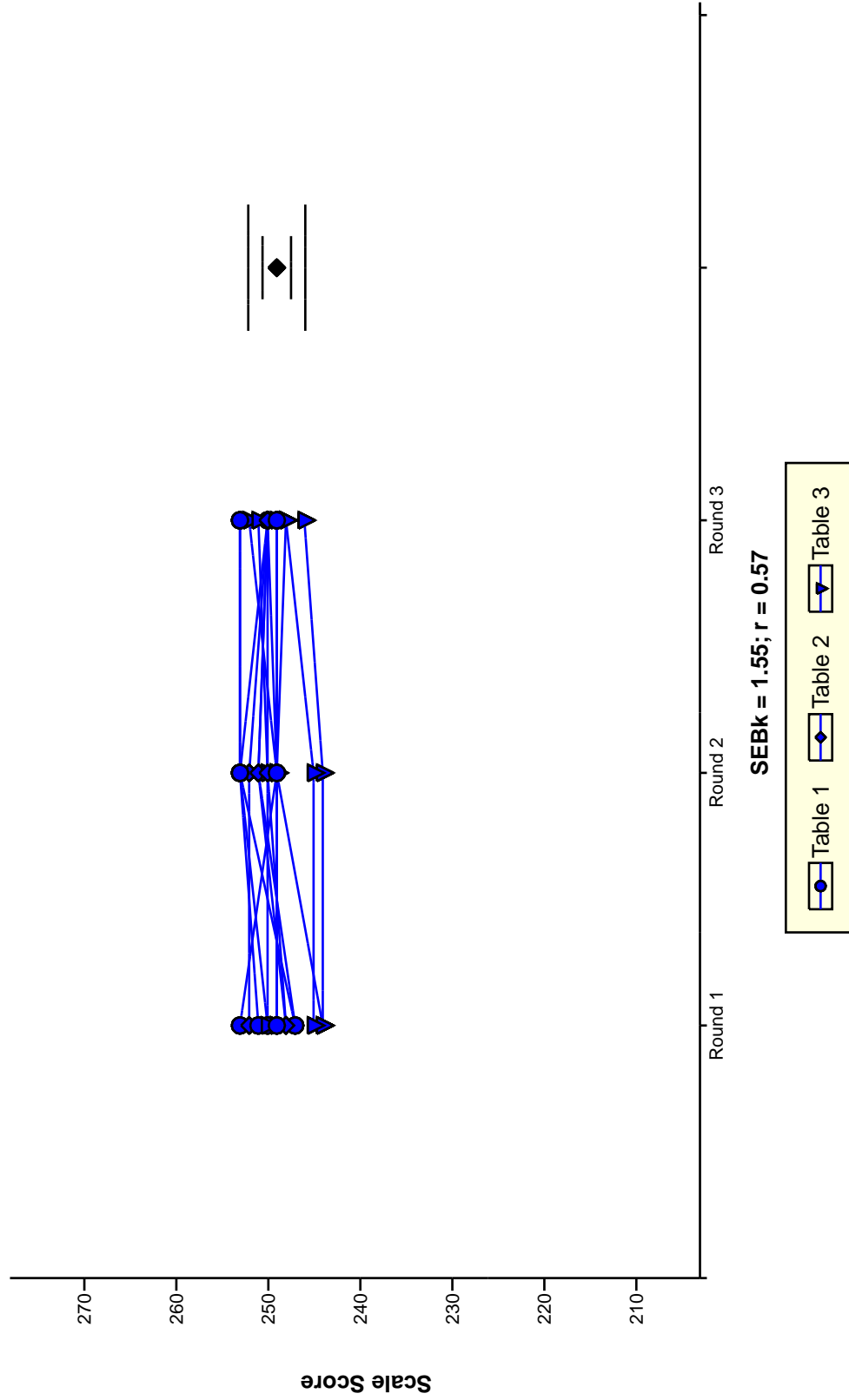


Table 3

Oregon Standard Setting Grade 10 Science Exceeds Cut Point



Oregon Standard Setting Grade 10 Science Exceeds Cut Point

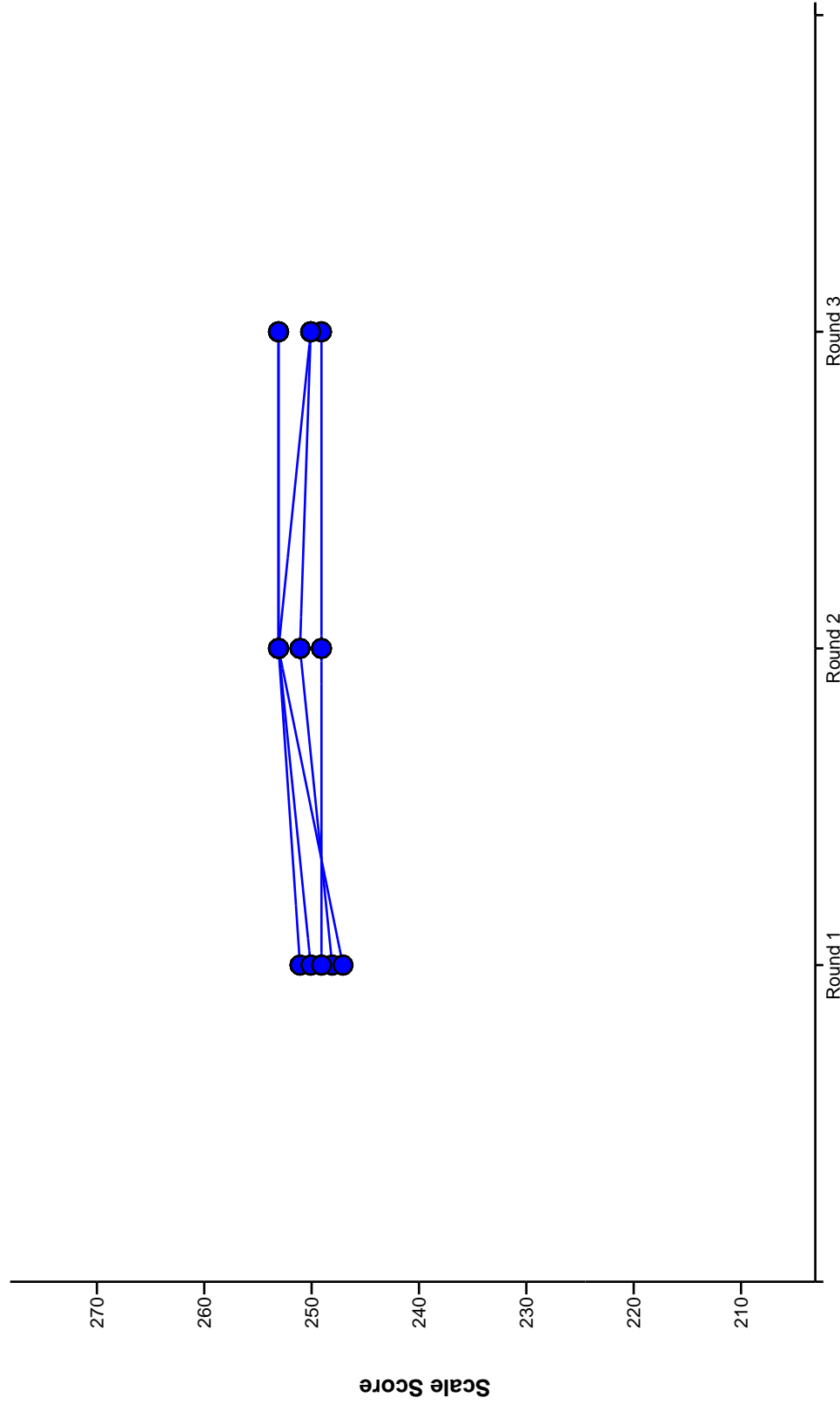


Table 1

Oregon Standard Setting Grade 10 Science Exceeds Cut Point

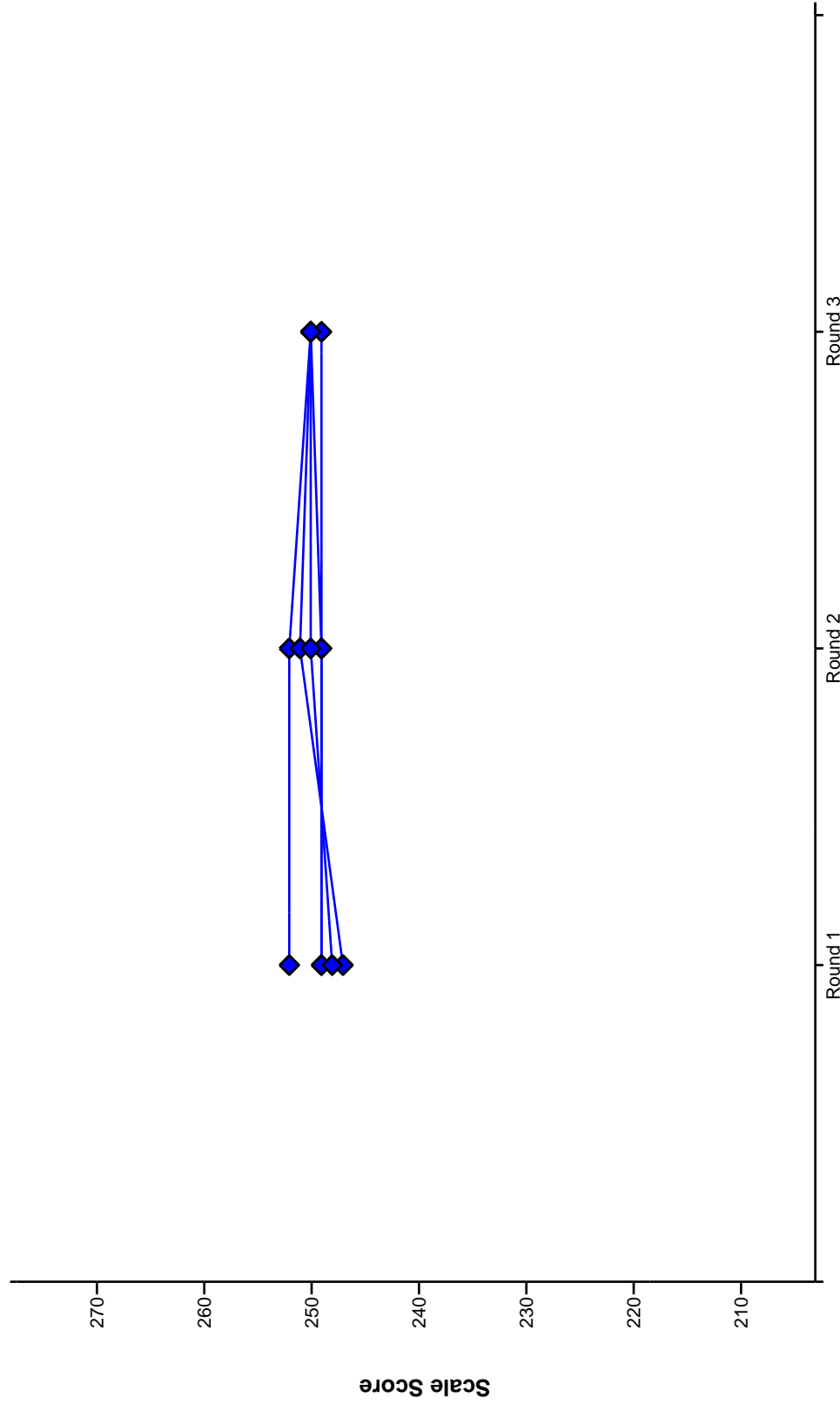


Table 2

Oregon Standard Setting Grade 10 Science Exceeds Cut Point

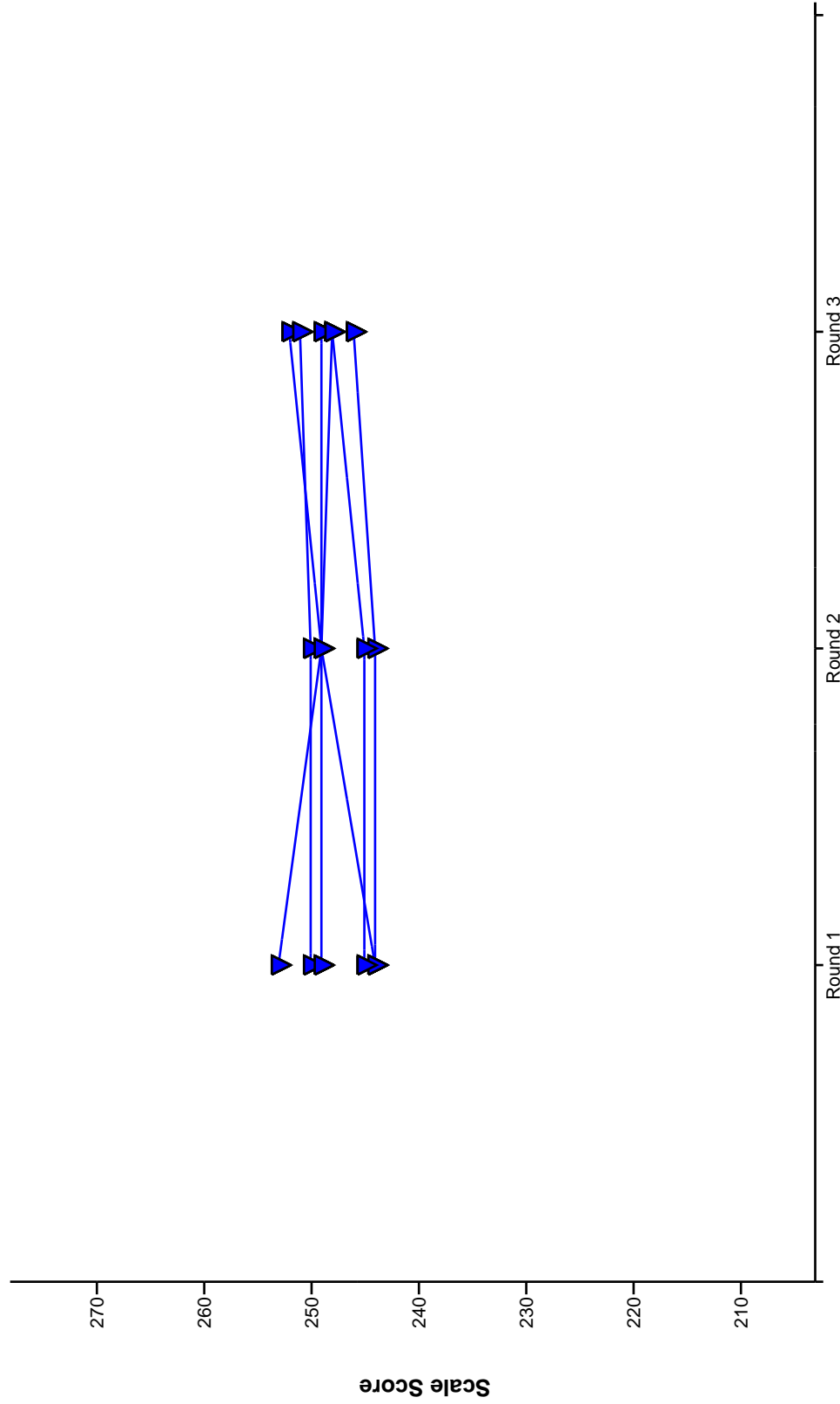


Table 3

SECTION I

Participant Evaluation of the Oregon Standard Setting

BSSP Academic Evaluation - Oregon Standard Setting – December 2006

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

29. What is your occupation?

- ☐ Teacher
☐ Administrator
☐ Other

30. How many years in your current profession?

- ☐ 1–5
☐ 6–10
☐ 11–15
☐ 16–20
☐ 21+

31. What is your primary role at this standard setting?

- ☐ Educator
☐ Parent
☐ Community Member
☐ Business Member

32. What is your education level?

- ☐ HSD or GED
☐ Bachelor's
☐ Master's
☐ Doctorate

33. What is your gender?

- ☐ Male
☐ Female

34. What is your race?

- ☐ Asian/
Pacific Islander
☐ Black/
African-American
☐ American Indian
☐ White
☐ Other

35. Are you of Hispanic origin?

- ☐ Yes
☐ No

36. Have you taught Special Education?

- ☐ Yes
☐ No

37. Have you taught ESL/ELD?

- ☐ Yes
☐ No

38. Have you taught Vocational Education?

- ☐ Yes
☐ No

39. Have you taught Alternative Education?

- ☐ Yes
☐ No

40. Have you taught Adult Education?

- ☐ Yes
☐ No

41. Which content area did you work on during this standard setting?

- ☐ Reading/Literature
☐ Mathematics
☐ Science

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

- ☐ 0
☐ 0
☐ 3
☐ 5
☐ 8
☐ HS

Please add your comments on the back of this evaluation.
Thank you!

Oregon December 2006 Academic Evaluations Bookmark Standard Setting 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."

Question 1

The Bookmark Procedure was well described.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.9%	7.2%	61.7%	29.2%	90.9%
Mathematics	3	19	0.0%	0.0%	10.5%	57.9%	31.6%	89.5%
	5	18	0.0%	11.1%	16.7%	44.4%	27.8%	72.2%
	8	20	0.0%	5.0%	0.0%	65.0%	30.0%	95.0%
	10	19	0.0%	0.0%	0.0%	68.4%	31.6%	100%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	57.9%	42.1%	100%
	5	22	0.0%	0.0%	4.5%	68.2%	27.3%	95.5%
	8	20	0.0%	5.0%	15.0%	55.0%	25.0%	80.0%
	10	16	0.0%	0.0%	18.8%	50.0%	31.3%	81.3%
Science	5	20	0.0%	0.0%	10.0%	50.0%	40.0%	90.0%
	8	20	0.0%	0.0%	5.0%	80.0%	15.0%	95.0%
	10	16	0.0%	0.0%	0.0%	81.3%	18.8%	100%

Question 2

The training on bookmark placement made the task clear to me.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	3.3%	9.6%	61.7%	25.4%	87.1%
Mathematics	3	19	0.0%	0.0%	10.5%	63.2%	26.3%	89.5%
	5	18	0.0%	11.1%	16.7%	55.6%	16.7%	72.3%
	8	20	0.0%	0.0%	5.0%	75.0%	20.0%	95.0%
	10	19	0.0%	0.0%	10.5%	57.9%	31.6%	89.5%
Reading/ Literature	3	19	0.0%	0.0%	5.3%	52.6%	42.1%	94.7%
	5	22	0.0%	4.5%	9.1%	50.0%	36.4%	86.4%
	8	20	0.0%	10.0%	15.0%	50.0%	25.0%	75.0%
	10	16	0.0%	0.0%	6.3%	68.8%	25.0%	93.8%
Science	5	20	0.0%	10.0%	5.0%	50.0%	35.0%	85.0%
	8	20	0.0%	0.0%	15.0%	80.0%	5.0%	85.0%
	10	16	0.0%	0.0%	6.3%	81.3%	12.5%	93.8%

Question 3

The training materials were helpful.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.0%	11.5%	66.5%	21.1%	87.6%
Mathematics	3	19	0.0%	0.0%	5.3%	68.4%	26.3%	94.7%
	5	18	0.0%	0.0%	16.7%	72.2%	11.1%	83.3%
	8	20	0.0%	0.0%	10.0%	70.0%	20.0%	90.0%
	10	19	0.0%	5.3%	5.3%	57.9%	31.6%	89.5%
Reading/ Literature	3	19	0.0%	0.0%	5.3%	78.9%	15.8%	94.7%
	5	22	0.0%	0.0%	9.1%	63.6%	27.3%	90.9%
	8	20	0.0%	5.0%	25.0%	60.0%	10.0%	70.0%
	10	16	0.0%	0.0%	18.8%	56.3%	25.0%	81.3%
Science	5	20	0.0%	0.0%	5.0%	60.0%	35.0%	95.0%
	8	20	0.0%	0.0%	20.0%	75.0%	5.0%	80.0%
	10	16	0.0%	0.0%	6.3%	68.8%	25.0%	93.8%

Question 4

The goals for the Bookmark Procedure were clear.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	0.0%	7.2%	9.1%	57.7%	26.0%	83.7%
Mathematics	3	19	0.0%	5.3%	10.5%	63.2%	21.1%	84.3%
	5	18	0.0%	11.1%	16.7%	55.6%	16.7%	72.3%
	8	20	0.0%	0.0%	10.0%	60.0%	30.0%	90.0%
	10	19	0.0%	0.0%	15.8%	63.2%	21.1%	84.3%
Reading/ Literature	3	19	0.0%	5.3%	0.0%	52.6%	42.1%	94.7%
	5	21	0.0%	4.8%	0.0%	61.9%	33.3%	95.2%
	8	20	0.0%	20.0%	5.0%	65.0%	10.0%	75.0%
	10	16	0.0%	12.5%	6.3%	43.8%	37.5%	81.3%
Science	5	20	0.0%	5.0%	0.0%	55.0%	40.0%	95.0%
	8	20	0.0%	15.0%	25.0%	40.0%	20.0%	60.0%
	10	16	0.0%	0.0%	12.5%	75.0%	12.5%	87.5%

Question 5

Reviewing the test items helped me place my bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	1.9%	2.4%	4.8%	38.0%	52.9%	90.9%
Mathematics	3	19	0.0%	0.0%	5.3%	36.8%	57.9%	94.7%
	5	18	11.1%	0.0%	5.6%	27.8%	55.6%	83.4%
	8	20	0.0%	0.0%	5.0%	40.0%	55.0%	95.0%
	10	19	0.0%	0.0%	10.5%	26.3%	63.2%	89.5%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	21.1%	78.9%	100%
	5	21	0.0%	0.0%	4.8%	52.4%	42.9%	95.3%
	8	20	0.0%	5.0%	0.0%	65.0%	30.0%	95.0%
	10	16	0.0%	0.0%	6.3%	50.0%	43.8%	93.8%
Science	5	20	5.0%	0.0%	0.0%	30.0%	65.0%	95.0%
	8	20	5.0%	20.0%	15.0%	40.0%	20.0%	60.0%
	10	16	0.0%	0.0%	0.0%	25.0%	75.0%	100%

Question 6

The ordering of the items in the ordered item booklet agreed with my perception of the relative difficulty of the items.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	6.2%	28.2%	19.1%	42.6%	3.8%	46.4%
Mathematics	3	19	5.3%	36.8%	15.8%	42.1%	0.0%	42.1%
	5	18	0.0%	22.2%	33.3%	44.4%	0.0%	44.4%
	8	20	0.0%	25.0%	35.0%	35.0%	5.0%	40.0%
	10	19	15.8%	52.6%	10.5%	21.1%	0.0%	21.1%
Reading/ Literature	3	19	0.0%	21.1%	15.8%	63.2%	0.0%	63.2%
	5	22	0.0%	0.0%	13.6%	68.2%	18.2%	86.4%
	8	20	0.0%	15.0%	20.0%	65.0%	0.0%	65.0%
	10	16	6.3%	12.5%	25.0%	50.0%	6.3%	56.3%
Science	5	20	5.0%	25.0%	25.0%	40.0%	5.0%	45.0%
	8	20	25.0%	45.0%	10.0%	20.0%	0.0%	20.0%
	10	16	12.5%	62.5%	6.3%	12.5%	6.3%	18.8%

Question 7

Reviewing the Target Student helped me place my bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	1.0%	11.0%	22.0%	52.6%	13.4%	66.0%
Mathematics	3	19	0.0%	0.0%	36.8%	63.2%	0.0%	63.2%
	5	18	0.0%	11.1%	33.3%	38.9%	16.7%	55.6%
	8	20	0.0%	15.0%	30.0%	50.0%	5.0%	55.0%
	10	19	0.0%	15.8%	31.6%	52.6%	0.0%	52.6%
Reading/ Literature	3	19	0.0%	5.3%	10.5%	73.7%	10.5%	84.2%
	5	22	0.0%	9.1%	9.1%	54.5%	27.3%	81.8%
	8	20	5.0%	30.0%	10.0%	40.0%	15.0%	55.0%
	10	16	0.0%	12.5%	18.8%	37.5%	31.3%	68.8%
Science	5	20	0.0%	15.0%	5.0%	55.0%	25.0%	80.0%
	8	20	5.0%	5.0%	30.0%	50.0%	10.0%	60.0%
	10	16	0.0%	0.0%	31.3%	62.5%	6.3%	68.8%

Question 8

I considered the content standards when I placed my bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	0.0%	2.4%	3.9%	40.6%	53.1%	93.7%
Mathematics	3	18	0.0%	0.0%	5.6%	16.7%	77.8%	94.5%
	5	18	0.0%	0.0%	0.0%	55.6%	44.4%	100%
	8	20	0.0%	0.0%	5.0%	55.0%	40.0%	95.0%
	10	19	0.0%	0.0%	10.5%	31.6%	57.9%	89.5%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	26.3%	73.7%	100%
	5	22	0.0%	4.5%	0.0%	40.9%	54.5%	95.4%
	8	20	0.0%	0.0%	5.0%	45.0%	50.0%	95.0%
	10	16	0.0%	6.3%	6.3%	43.8%	43.8%	87.6%
Science	5	19	0.0%	10.5%	0.0%	31.6%	57.9%	89.5%
	8	20	0.0%	5.0%	5.0%	60.0%	30.0%	90.0%
	10	16	0.0%	0.0%	6.3%	37.5%	56.3%	93.8%

Question 9

During Round 1, I placed my bookmarks without consulting other participants.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	1.4%	2.4%	2.9%	31.1%	62.2%	93.3%
Mathematics	3	19	0.0%	0.0%	0.0%	26.3%	73.7%	100%
	5	18	0.0%	5.6%	16.7%	38.9%	38.9%	77.8%
	8	20	0.0%	5.0%	0.0%	35.0%	60.0%	95.0%
	10	19	0.0%	0.0%	0.0%	42.1%	57.9%	100%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	5.3%	94.7%	100%
	5	22	4.5%	13.6%	4.5%	45.5%	31.8%	77.3%
	8	20	0.0%	0.0%	0.0%	30.0%	70.0%	100%
	10	16	0.0%	0.0%	0.0%	25.0%	75.0%	100%
Science	5	20	5.0%	0.0%	0.0%	5.0%	90.0%	95.0%
	8	20	5.0%	0.0%	0.0%	55.0%	40.0%	95.0%
	10	16	0.0%	0.0%	12.5%	31.3%	56.3%	87.6%

Question 10

I had enough time to consider my Round 1 bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	1.4%	6.7%	5.3%	33.5%	53.1%	86.6%
Mathematics	3	19	0.0%	0.0%	5.3%	21.1%	73.7%	94.8%
	5	18	0.0%	0.0%	5.6%	44.4%	50.0%	94.4%
	8	20	0.0%	5.0%	0.0%	45.0%	50.0%	95.0%
	10	19	0.0%	10.5%	10.5%	36.8%	42.1%	78.9%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	26.3%	73.7%	100%
	5	22	0.0%	18.2%	13.6%	40.9%	27.3%	68.2%
	8	20	0.0%	5.0%	0.0%	35.0%	60.0%	95.0%
	10	16	18.8%	0.0%	12.5%	43.8%	25.0%	68.8%
Science	5	20	0.0%	10.0%	0.0%	0.0%	90.0%	90.0%
	8	20	0.0%	15.0%	10.0%	40.0%	35.0%	75.0%
	10	16	0.0%	6.3%	0.0%	37.5%	56.3%	93.8%

Question 11

Overall, my table's discussions were open and honest.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	0.0%	0.5%	16.7%	82.8%	99.5%
Mathematics	3	19	0.0%	0.0%	0.0%	10.5%	89.5%	100%
	5	18	0.0%	0.0%	0.0%	22.2%	77.8%	100%
	8	20	0.0%	0.0%	0.0%	15.0%	85.0%	100%
	10	19	0.0%	0.0%	0.0%	21.1%	78.9%	100%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	5.3%	94.7%	100%
	5	22	0.0%	0.0%	0.0%	9.1%	90.9%	100%
	8	20	0.0%	0.0%	0.0%	20.0%	80.0%	100%
	10	16	0.0%	0.0%	0.0%	12.5%	87.5%	100%
Science	5	20	0.0%	0.0%	5.0%	20.0%	75.0%	95.0%
	8	20	0.0%	0.0%	0.0%	25.0%	75.0%	100%
	10	16	0.0%	0.0%	0.0%	25.0%	75.0%	100%

Question 12

Overall, I believe that my opinions were considered and valued by my group.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.5%	1.9%	4.3%	27.8%	65.6%	93.4%
Mathematics	3	19	0.0%	0.0%	0.0%	36.8%	63.2%	100%
	5	18	0.0%	5.6%	11.1%	27.8%	55.6%	83.4%
	8	20	0.0%	0.0%	0.0%	40.0%	60.0%	100%
	10	19	0.0%	0.0%	5.3%	15.8%	78.9%	94.7%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	10.5%	89.5%	100%
	5	22	4.5%	0.0%	4.5%	22.7%	68.2%	90.9%
	8	20	0.0%	10.0%	5.0%	30.0%	55.0%	85.0%
	10	16	0.0%	0.0%	0.0%	18.8%	81.3%	100%
Science	5	20	0.0%	0.0%	5.0%	25.0%	70.0%	95.0%
	8	20	0.0%	5.0%	10.0%	45.0%	40.0%	85.0%
	10	16	0.0%	0.0%	6.3%	31.3%	62.5%	93.8%

Question 13

The presentation of different types of impact data was helpful to me.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	2.4%	9.1%	13.4%	47.8%	27.3%	75.1%
Mathematics	3	19	0.0%	15.8%	5.3%	42.1%	36.8%	78.9%
	5	18	0.0%	0.0%	11.1%	66.7%	22.2%	88.9%
	8	20	0.0%	0.0%	5.0%	40.0%	55.0%	95.0%
	10	19	0.0%	10.5%	10.5%	42.1%	36.8%	78.9%
Reading/ Literature	3	19	0.0%	10.5%	5.3%	63.2%	21.1%	84.3%
	5	22	0.0%	0.0%	4.5%	50.0%	45.5%	95.5%
	8	20	5.0%	35.0%	25.0%	30.0%	5.0%	35.0%
	10	16	12.5%	18.8%	31.3%	31.3%	6.3%	37.6%
Science	5	20	0.0%	0.0%	15.0%	40.0%	45.0%	85.0%
	8	20	10.0%	0.0%	20.0%	65.0%	5.0%	70.0%
	10	16	0.0%	12.5%	18.8%	56.3%	12.5%	68.8%

Question 14

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	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	21.1%	42.1%	12.0%	19.6%	5.3%	24.9%
Mathematics	3	19	21.1%	57.9%	15.8%	5.3%	0.0%	5.3%
	5	18	0.0%	50.0%	16.7%	22.2%	11.1%	33.3%
	8	20	20.0%	55.0%	0.0%	25.0%	0.0%	25.0%
	10	19	21.1%	26.3%	15.8%	31.6%	5.3%	36.9%
Reading/ Literature	3	19	26.3%	21.1%	26.3%	15.8%	10.5%	26.3%
	5	22	31.8%	31.8%	4.5%	31.8%	0.0%	31.8%
	8	20	30.0%	45.0%	10.0%	15.0%	0.0%	15.0%
	10	16	12.5%	50.0%	12.5%	18.8%	6.3%	25.1%
Science	5	20	35.0%	30.0%	5.0%	20.0%	10.0%	30.0%
	8	20	15.0%	60.0%	10.0%	15.0%	0.0%	15.0%
	10	16	12.5%	37.5%	18.8%	12.5%	18.8%	31.3%

Question 15

I understood how to place my bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.9%	1.4%	52.2%	44.5%	96.7%
Mathematics	3	19	0.0%	5.3%	0.0%	57.9%	36.8%	94.7%
	5	18	0.0%	0.0%	0.0%	72.2%	27.8%	100%
	8	20	0.0%	0.0%	0.0%	50.0%	50.0%	100%
	10	19	0.0%	0.0%	0.0%	57.9%	42.1%	100%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	42.1%	57.9%	100%
	5	22	0.0%	4.5%	4.5%	45.5%	45.5%	91.0%
	8	20	0.0%	5.0%	0.0%	40.0%	55.0%	95.0%
	10	16	0.0%	0.0%	6.3%	56.3%	37.5%	93.8%
Science	5	20	0.0%	0.0%	0.0%	35.0%	65.0%	100%
	8	20	0.0%	0.0%	5.0%	65.0%	30.0%	95.0%
	10	16	0.0%	6.3%	0.0%	56.3%	37.5%	93.8%

Question 16

Overall, I am satisfied with my group's final bookmarks.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	1.4%	8.7%	6.8%	57.5%	25.6%	83.1%
Mathematics	3	19	0.0%	10.5%	10.5%	73.7%	5.3%	79.0%
	5	18	0.0%	11.1%	0.0%	66.7%	22.2%	88.9%
	8	20	0.0%	0.0%	5.0%	55.0%	40.0%	95.0%
	10	18	0.0%	5.6%	0.0%	61.1%	33.3%	94.4%
Reading/ Literature	3	19	0.0%	0.0%	10.5%	52.6%	36.8%	89.4%
	5	21	4.8%	4.8%	19.0%	52.4%	19.0%	71.4%
	8	20	0.0%	20.0%	10.0%	55.0%	15.0%	70.0%
	10	16	0.0%	6.3%	0.0%	68.8%	25.0%	93.8%
Science	5	20	0.0%	0.0%	10.0%	35.0%	55.0%	90.0%
	8	20	10.0%	25.0%	5.0%	50.0%	10.0%	60.0%
	10	16	0.0%	12.5%	0.0%	68.8%	18.8%	87.6%

Question 17

I feel this procedure was fair.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	2.4%	5.3%	15.4%	50.0%	26.9%	76.9%
Mathematics	3	19	0.0%	10.5%	10.5%	52.6%	26.3%	78.9%
	5	18	0.0%	16.7%	22.2%	44.4%	16.7%	61.1%
	8	20	0.0%	0.0%	10.0%	55.0%	35.0%	90.0%
	10	19	0.0%	0.0%	15.8%	63.2%	21.1%	84.3%
Reading/ Literature	3	19	0.0%	5.3%	0.0%	52.6%	42.1%	94.7%
	5	22	0.0%	0.0%	22.7%	50.0%	27.3%	77.3%
	8	19	0.0%	5.3%	26.3%	57.9%	10.5%	68.4%
	10	16	0.0%	6.3%	18.8%	56.3%	18.8%	75.1%
Science	5	20	0.0%	0.0%	10.0%	25.0%	65.0%	90.0%
	8	20	25.0%	5.0%	25.0%	35.0%	10.0%	45.0%
	10	16	0.0%	12.5%	6.3%	62.5%	18.8%	81.3%

Question 18

I am confident that the Bookmark Procedure produced valid standards.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	2.4%	11.6%	22.2%	49.3%	14.5%	63.8%
Mathematics	3	18	0.0%	0.0%	22.2%	61.1%	16.7%	77.8%
	5	18	0.0%	11.1%	33.3%	50.0%	5.6%	55.6%
	8	20	0.0%	0.0%	0.0%	85.0%	15.0%	100%
	10	19	0.0%	26.3%	5.3%	52.6%	15.8%	68.4%
Reading/ Literature	3	19	0.0%	5.3%	5.3%	68.4%	21.1%	89.5%
	5	21	0.0%	14.3%	38.1%	42.9%	4.8%	47.7%
	8	20	0.0%	25.0%	40.0%	30.0%	5.0%	35.0%
	10	16	6.3%	6.3%	12.5%	50.0%	25.0%	75.0%
Science	5	20	5.0%	0.0%	20.0%	35.0%	40.0%	75.0%
	8	20	15.0%	30.0%	30.0%	20.0%	5.0%	25.0%
	10	16	0.0%	6.3%	37.5%	50.0%	6.3%	56.3%

Question 19

I would defend the Nearly Meets cut score against criticism that it is too high.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	4.3%	8.7%	15.0%	47.3%	24.6%	71.9%
Mathematics	3	19	0.0%	0.0%	15.8%	57.9%	26.3%	84.2%
	5	18	5.6%	0.0%	11.1%	66.7%	16.7%	83.4%
	8	20	0.0%	30.0%	10.0%	45.0%	15.0%	60.0%
	10	19	0.0%	5.3%	15.8%	47.4%	31.6%	79.0%
Reading/ Literature	3	19	0.0%	0.0%	10.5%	47.4%	42.1%	89.5%
	5	22	13.6%	0.0%	22.7%	36.4%	27.3%	63.7%
	8	20	0.0%	20.0%	10.0%	40.0%	30.0%	70.0%
	10	16	6.3%	12.5%	12.5%	50.0%	18.8%	68.8%
Science	5	20	10.0%	10.0%	0.0%	55.0%	25.0%	80.0%
	8	18	11.1%	5.6%	50.0%	33.3%	0.0%	33.3%
	10	16	0.0%	12.5%	6.3%	43.8%	37.5%	81.3%

Question 20

I would defend the Nearly Meets cut score against criticism that it is too low.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		206	3.4%	6.8%	17.5%	53.9%	18.4%	72.3%
Mathematics	3	19	0.0%	10.5%	15.8%	52.6%	21.1%	73.7%
	5	18	5.6%	0.0%	5.6%	72.2%	16.7%	88.9%
	8	20	0.0%	5.0%	10.0%	70.0%	15.0%	85.0%
	10	18	5.6%	0.0%	22.2%	55.6%	16.7%	72.3%
Reading/ Literature	3	19	0.0%	0.0%	15.8%	47.4%	36.8%	84.2%
	5	22	0.0%	13.6%	18.2%	36.4%	31.8%	68.2%
	8	20	10.0%	15.0%	10.0%	50.0%	15.0%	65.0%
	10	16	0.0%	6.3%	18.8%	56.3%	18.8%	75.1%
Science	5	20	10.0%	10.0%	5.0%	65.0%	10.0%	75.0%
	8	18	5.6%	0.0%	55.6%	38.9%	0.0%	38.9%
	10	16	0.0%	12.5%	18.8%	50.0%	18.8%	68.8%

Question 21

I would defend the Meets cut score against criticism that it is too high.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	4.3%	12.6%	11.6%	46.9%	24.6%	71.5%
Mathematics	3	19	0.0%	10.5%	5.3%	52.6%	31.6%	84.2%
	5	18	0.0%	5.6%	11.1%	77.8%	5.6%	83.4%
	8	20	0.0%	15.0%	10.0%	65.0%	10.0%	75.0%
	10	19	0.0%	10.5%	10.5%	36.8%	42.1%	78.9%
Reading/ Literature	3	19	0.0%	5.3%	15.8%	47.4%	31.6%	79.0%
	5	22	13.6%	31.8%	9.1%	22.7%	22.7%	45.4%
	8	20	5.0%	25.0%	5.0%	40.0%	25.0%	65.0%
	10	16	0.0%	12.5%	18.8%	43.8%	25.0%	68.8%
Science	5	20	5.0%	10.0%	0.0%	45.0%	40.0%	85.0%
	8	18	16.7%	5.6%	38.9%	38.9%	0.0%	38.9%
	10	16	6.3%	0.0%	6.3%	50.0%	37.5%	87.5%

Question 22

I would defend the Meets cut score against criticism that it is too low.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	4.3%	10.1%	11.6%	51.7%	22.2%	73.9%
Mathematics	3	19	0.0%	5.3%	10.5%	57.9%	26.3%	84.2%
	5	18	0.0%	0.0%	0.0%	77.8%	22.2%	100%
	8	20	0.0%	15.0%	10.0%	65.0%	10.0%	75.0%
	10	19	10.5%	26.3%	10.5%	26.3%	26.3%	52.6%
Reading/ Literature	3	19	0.0%	0.0%	10.5%	52.6%	36.8%	89.4%
	5	22	0.0%	0.0%	4.5%	54.5%	40.9%	95.4%
	8	20	15.0%	30.0%	15.0%	30.0%	10.0%	40.0%
	10	16	0.0%	25.0%	6.3%	43.8%	25.0%	68.8%
Science	5	20	5.0%	5.0%	15.0%	50.0%	25.0%	75.0%
	8	18	11.1%	0.0%	33.3%	55.6%	0.0%	55.6%
	10	16	6.3%	6.3%	12.5%	56.3%	18.8%	75.1%

Question 23

I would defend the Exceeds cut score against criticism that it is too high.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	3.4%	6.3%	18.8%	50.2%	21.3%	71.5%
Mathematics	3	19	0.0%	0.0%	15.8%	63.2%	21.1%	84.3%
	5	18	0.0%	11.1%	5.6%	66.7%	16.7%	83.4%
	8	20	0.0%	15.0%	15.0%	55.0%	15.0%	70.0%
	10	19	0.0%	5.3%	21.1%	52.6%	21.1%	73.7%
Reading/ Literature	3	19	5.3%	5.3%	10.5%	52.6%	26.3%	78.9%
	5	22	13.6%	13.6%	13.6%	36.4%	22.7%	59.1%
	8	20	0.0%	10.0%	15.0%	50.0%	25.0%	75.0%
	10	16	0.0%	0.0%	43.8%	31.3%	25.0%	56.3%
Science	5	20	5.0%	5.0%	15.0%	40.0%	35.0%	75.0%
	8	18	5.6%	0.0%	38.9%	55.6%	0.0%	55.6%
	10	16	6.3%	0.0%	18.8%	50.0%	25.0%	75.0%

Question 24

I would defend the Exceeds cut score against criticism that it is too low.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		207	4.8%	5.8%	17.9%	53.1%	18.4%	71.5%
Mathematics	3	19	0.0%	0.0%	15.8%	78.9%	5.3%	84.2%
	5	18	11.1%	5.6%	5.6%	72.2%	5.6%	77.8%
	8	20	0.0%	15.0%	20.0%	50.0%	15.0%	65.0%
	10	19	10.5%	5.3%	10.5%	52.6%	21.1%	73.7%
Reading/ Literature	3	19	0.0%	0.0%	21.1%	52.6%	26.3%	78.9%
	5	22	4.5%	9.1%	13.6%	45.5%	27.3%	72.8%
	8	20	5.0%	15.0%	25.0%	40.0%	15.0%	55.0%
	10	16	6.3%	0.0%	31.3%	31.3%	31.3%	62.6%
Science	5	20	10.0%	5.0%	5.0%	40.0%	40.0%	80.0%
	8	18	5.6%	0.0%	38.9%	55.6%	0.0%	55.6%
	10	16	0.0%	6.3%	12.5%	68.8%	12.5%	81.3%

Question 25

Participating in the Bookmark Procedure increased my understanding of the test.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		209	0.0%	1.4%	7.7%	42.1%	48.8%	90.9%
Mathematics	3	19	0.0%	0.0%	0.0%	73.7%	26.3%	100%
	5	18	0.0%	11.1%	16.7%	33.3%	38.9%	72.2%
	8	20	0.0%	0.0%	5.0%	35.0%	60.0%	95.0%
	10	19	0.0%	0.0%	15.8%	36.8%	47.4%	84.2%
Reading/ Literature	3	19	0.0%	0.0%	5.3%	36.8%	57.9%	94.7%
	5	22	0.0%	4.5%	9.1%	27.3%	59.1%	86.4%
	8	20	0.0%	0.0%	0.0%	65.0%	35.0%	100%
	10	16	0.0%	0.0%	12.5%	37.5%	50.0%	87.5%
Science	5	20	0.0%	0.0%	0.0%	35.0%	65.0%	100%
	8	20	0.0%	0.0%	20.0%	45.0%	35.0%	80.0%
	10	16	0.0%	0.0%	0.0%	37.5%	62.5%	100%

Question 26

This experience will help me target instruction for the students in my classroom.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		202	1.0%	2.5%	19.3%	40.1%	37.1%	77.2%
Mathematics	3	18	0.0%	0.0%	33.3%	38.9%	27.8%	66.7%
	5	18	0.0%	5.6%	27.8%	33.3%	33.3%	66.6%
	8	20	0.0%	0.0%	5.0%	40.0%	55.0%	95.0%
	10	19	0.0%	5.3%	5.3%	63.2%	26.3%	89.5%
Reading/ Literature	3	19	0.0%	5.3%	21.1%	42.1%	31.6%	73.7%
	5	22	0.0%	4.5%	22.7%	31.8%	40.9%	72.7%
	8	19	5.3%	0.0%	5.3%	57.9%	31.6%	89.5%
	10	12	0.0%	0.0%	25.0%	58.3%	16.7%	75.0%
Science	5	20	0.0%	5.0%	15.0%	15.0%	65.0%	80.0%
	8	19	5.3%	0.0%	36.8%	26.3%	31.6%	57.9%
	10	16	0.0%	0.0%	18.8%	43.8%	37.5%	81.3%

Question 27

Overall, I valued the conference as a professional development experience.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	0.5%	1.4%	3.4%	40.9%	53.8%	94.7%
Mathematics	3	19	0.0%	5.3%	10.5%	36.8%	47.4%	84.2%
	5	18	0.0%	5.6%	5.6%	44.4%	44.4%	88.8%
	8	20	0.0%	0.0%	0.0%	30.0%	70.0%	100%
	10	19	0.0%	0.0%	0.0%	47.4%	52.6%	100%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	31.6%	68.4%	100%
	5	22	0.0%	0.0%	0.0%	40.9%	59.1%	100%
	8	20	0.0%	5.0%	5.0%	45.0%	45.0%	90.0%
	10	15	0.0%	0.0%	0.0%	66.7%	33.3%	100%
Science	5	20	0.0%	0.0%	5.0%	10.0%	85.0%	95.0%
	8	20	5.0%	0.0%	10.0%	55.0%	30.0%	85.0%
	10	16	0.0%	0.0%	0.0%	50.0%	50.0%	100%

Question 28

The standard setting was well organized.

Content Area	Grade	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Agree + Strongly Agree
Overall		208	1.4%	7.7%	12.0%	44.2%	34.6%	78.8%
Mathematics	3	19	0.0%	10.5%	21.1%	47.4%	21.1%	68.5%
	5	18	0.0%	16.7%	22.2%	38.9%	22.2%	61.1%
	8	20	0.0%	5.0%	15.0%	45.0%	35.0%	80.0%
	10	19	0.0%	0.0%	15.8%	31.6%	52.6%	84.2%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	63.2%	36.8%	100%
	5	21	4.8%	4.8%	9.5%	52.4%	28.6%	81.0%
	8	20	5.0%	10.0%	25.0%	45.0%	15.0%	60.0%
	10	16	0.0%	6.3%	12.5%	68.8%	12.5%	81.3%
Science	5	20	0.0%	0.0%	0.0%	20.0%	80.0%	100%
	8	20	5.0%	25.0%	10.0%	30.0%	30.0%	60.0%
	10	16	0.0%	6.3%	0.0%	50.0%	43.8%	93.8%

Question 29

What is your occupation?

Content Area	Grade	N	Teacher	Administrator	Other
Overall		207	74.4%	14.0%	11.6%
Mathematics	3	18	94.4%	5.6%	0.0%
	5	18	83.3%	0.0%	16.7%
	8	20	90.0%	5.0%	5.0%
	10	19	78.9%	10.5%	10.5%
Reading/ Literature	3	19	68.4%	21.1%	10.5%
	5	22	45.5%	36.4%	18.2%
	8	20	75.0%	20.0%	5.0%
	10	16	56.3%	18.8%	25.0%
Science	5	20	80.0%	10.0%	10.0%
	8	19	73.7%	10.5%	15.8%
	10	16	75.0%	12.5%	12.5%

Question 30

How many years in your current profession?

Content Area	Grade	N	1-5	6-10	11-15	16-20	21+
Overall		209	8.1%	19.1%	15.8%	21.5%	35.4%
Mathematics	3	19	5.3%	26.3%	5.3%	21.1%	42.1%
	5	18	5.6%	16.7%	16.7%	22.2%	38.9%
	8	20	10.0%	25.0%	10.0%	35.0%	20.0%
	10	19	5.3%	21.1%	5.3%	15.8%	52.6%
Reading/ Literature	3	19	0.0%	15.8%	21.1%	21.1%	42.1%
	5	22	4.5%	22.7%	13.6%	22.7%	36.4%
	8	20	20.0%	20.0%	30.0%	5.0%	25.0%
	10	16	18.8%	0.0%	12.5%	31.3%	37.5%
Science	5	20	5.0%	20.0%	20.0%	25.0%	30.0%
	8	20	15.0%	30.0%	5.0%	10.0%	40.0%
	10	16	0.0%	6.3%	37.5%	31.3%	25.0%

Question 31

What is your primary role at this standard setting?

Content Area	Grade	N	Educator	Parent	Community Member	Business Member
Overall		209	93.8%	3.3%	2.4%	0.5%
Mathematics	3	19	94.7%	0.0%	5.3%	0.0%
	5	18	94.4%	5.6%	0.0%	0.0%
	8	20	100%	0.0%	0.0%	0.0%
	10	19	94.7%	0.0%	5.3%	0.0%
Reading/ Literature	3	19	94.7%	0.0%	5.3%	0.0%
	5	22	95.5%	0.0%	0.0%	4.5%
	8	20	95.0%	5.0%	0.0%	0.0%
	10	16	87.5%	0.0%	12.5%	0.0%
Science	5	20	95.0%	5.0%	0.0%	0.0%
	8	20	90.0%	10.0%	0.0%	0.0%
	10	16	87.5%	12.5%	0.0%	0.0%

Question 32

What is your education level?

Content Area	Grade	N	HSD or GED	Bachelor's	Master's	Doctorate
Overall		209	1.0%	23.4%	69.4%	6.2%
Mathematics	3	19	0.0%	47.4%	47.4%	5.3%
	5	18	0.0%	33.3%	66.7%	0.0%
	8	20	0.0%	25.0%	75.0%	0.0%
	10	19	0.0%	21.1%	73.7%	5.3%
Reading/ Literature	3	19	0.0%	26.3%	68.4%	5.3%
	5	22	0.0%	13.6%	72.7%	13.6%
	8	20	5.0%	20.0%	75.0%	0.0%
	10	16	6.3%	25.0%	62.5%	6.3%
Science	5	20	0.0%	20.0%	70.0%	10.0%
	8	20	0.0%	0.0%	85.0%	15.0%
	10	16	0.0%	31.3%	62.5%	6.3%

Question 33

What is your gender?

Content Area	Grade	N	Male	Female
Overall		208	28.8%	71.2%
Mathematics	3	19	26.3%	73.7%
	5	18	27.8%	72.2%
	8	20	25.0%	75.0%
	10	19	42.1%	57.9%
Reading/ Literature	3	19	10.5%	89.5%
	5	21	38.1%	61.9%
	8	20	15.0%	85.0%
	10	16	56.3%	43.8%
Science	5	20	10.0%	90.0%
	8	20	25.0%	75.0%
	10	16	50.0%	50.0%

Question 34

What is your race?

Content Area	Grade	N	Asian/ Pacific Islander	Black/ African- American	American Indian	White	Other
Overall		205	1.5%	1.5%	0.5%	94.1%	2.4%
Mathematics	3	17	0.0%	0.0%	0.0%	100%	0.0%
	5	18	0.0%	0.0%	0.0%	94.4%	5.6%
	8	19	5.3%	0.0%	0.0%	94.7%	0.0%
	10	19	5.3%	5.3%	0.0%	89.5%	0.0%
Reading/ Literature	3	19	0.0%	0.0%	0.0%	94.7%	5.3%
	5	21	0.0%	0.0%	4.8%	95.2%	0.0%
	8	20	0.0%	0.0%	0.0%	95.0%	5.0%
	10	16	6.3%	0.0%	0.0%	93.8%	0.0%
Science	5	20	0.0%	5.0%	0.0%	85.0%	10.0%
	8	20	0.0%	0.0%	0.0%	100%	0.0%
	10	16	0.0%	6.3%	0.0%	93.8%	0.0%

Question 35

Are you of Hispanic origin?

Content Area	Grade	N	Yes	No
Overall		208	1.4%	98.6%
Mathematics	3	18	5.6%	94.4%
	5	18	0.0%	100%
	8	20	0.0%	100%
	10	19	0.0%	100%
Reading/ Literature	3	19	0.0%	100%
	5	22	0.0%	100%
	8	20	0.0%	100%
	10	16	6.3%	93.8%
Science	5	20	5.0%	95.0%
	8	20	0.0%	100%
	10	16	0.0%	100%

Question 36

Have you taught Special Education?

Content Area	Grade	N	Yes	No
Overall		208	17.8%	82.2%
Mathematics	3	19	21.1%	78.9%
	5	17	5.9%	94.1%
	8	20	10.0%	90.0%
	10	19	10.5%	89.5%
Reading/ Literature	3	19	21.1%	78.9%
	5	22	22.7%	77.3%
	8	20	20.0%	80.0%
	10	16	12.5%	87.5%
Science	5	20	20.0%	80.0%
	8	20	30.0%	70.0%
	10	16	18.8%	81.3%

Question 37

Have you taught ESL/ELD?

Content Area	Grade	N	Yes	No
Overall		208	16.8%	83.2%
Mathematics	3	19	26.3%	73.7%
	5	18	11.1%	88.9%
	8	20	20.0%	80.0%
	10	19	5.3%	94.7%
Reading/ Literature	3	19	10.5%	89.5%
	5	22	27.3%	72.7%
	8	20	25.0%	75.0%
	10	16	12.5%	87.5%
Science	5	19	15.8%	84.2%
	8	20	10.0%	90.0%
	10	16	18.8%	81.3%

Question 38

Have you taught Vocational Education?

Content Area	Grade	N	Yes	No
Overall		209	3.8%	96.2%
Mathematics	3	19	0.0%	100%
	5	18	5.6%	94.4%
	8	20	0.0%	100%
	10	19	15.8%	84.2%
Reading/ Literature	3	19	0.0%	100%
	5	22	4.5%	95.5%
	8	20	10.0%	90.0%
	10	16	0.0%	100%
Science	5	20	0.0%	100%
	8	20	5.0%	95.0%
	10	16	0.0%	100%

Question 39

Have you taught Alternative Education?

Content Area	Grade	N	Yes	No
Overall		209	15.3%	84.7%
Mathematics	3	19	5.3%	94.7%
	5	18	11.1%	88.9%
	8	20	20.0%	80.0%
	10	19	26.3%	73.7%
Reading/ Literature	3	19	5.3%	94.7%
	5	22	18.2%	81.8%
	8	20	25.0%	75.0%
	10	16	25.0%	75.0%
Science	5	20	0.0%	100%
	8	20	10.0%	90.0%
	10	16	25.0%	75.0%

Question 40

Have you taught Adult Education?

Content Area	Grade	N	Yes	No
Overall		209	27.3%	72.7%
Mathematics	3	19	10.5%	89.5%
	5	18	38.9%	61.1%
	8	20	20.0%	80.0%
	10	19	42.1%	57.9%
Reading/ Literature	3	19	21.1%	78.9%
	5	22	31.8%	68.2%
	8	20	30.0%	70.0%
	10	16	18.8%	81.3%
Science	5	20	30.0%	70.0%
	8	20	35.0%	65.0%
	10	16	18.8%	81.3%

Question 41

Which content area did you work on during this standard setting?

Content Area	Grade	N	Mathematics	Reading/ Literature	Science
Overall		209	36.4%	36.8%	26.8%
Mathematics	3	19	100%	0.0%	0.0%
	5	18	100%	0.0%	0.0%
	8	20	100%	0.0%	0.0%
	10	19	100%	0.0%	0.0%
Reading/ Literature	3	19	0.0%	100%	0.0%
	5	22	0.0%	100%	0.0%
	8	20	0.0%	100%	0.0%
	10	16	0.0%	100%	0.0%
Science	5	20	0.0%	0.0%	100%
	8	20	0.0%	0.0%	100%
	10	16	0.0%	0.0%	100%

Question 42

Which grade did you work on during this standard setting?

Content Area	Grade	N	Grade 3	Grade 5	Grade 8	Grade 10
Overall		209	18.2%	28.7%	28.7%	24.4%
Mathematics	3	19	100%	0.0%	0.0%	0.0%
	5	18	0.0%	100%	0.0%	0.0%
	8	20	0.0%	0.0%	100%	0.0%
	10	19	0.0%	0.0%	0.0%	100%
Reading/ Literature	3	19	100%	0.0%	0.0%	0.0%
	5	22	0.0%	100%	0.0%	0.0%
	8	20	0.0%	0.0%	100%	0.0%
	10	16	0.0%	0.0%	0.0%	100%
Science	5	20	0.0%	100%	0.0%	0.0%
	8	20	0.0%	0.0%	100%	0.0%
	10	16	0.0%	0.0%	0.0%	100%

SECTION J

The Bookmark Standard Setting Procedure: Methodology and Recent Implementations

The Bookmark Standard Setting Procedure: Methodology and Recent Implementations

Daniel M. Lewis, Donald Ross Green, Howard C. Mitzel,

Katherine Baum, Richard J. Patz

CTB/McGraw-Hill

Paper presented at the 1998 Annual Meeting of the National Council on Measurement in Education

1. Introduction

Setting performance standards has become commonplace due to the standards-based education reform movement, Title 1 requirements, and public demands for educational accountability. However, standard setting—the determination of the cut scores for an assessment used to measure students’ progress towards performance standards—remains a controversial topic. Recent trends in standards and assessments have presented challenges for standard setting techniques. First, there is a need for a standard setting procedure that efficiently accommodates multiple cut scores. Title 1 requires the demonstration of growth through at least three performance levels—Partially Proficient, Proficient, and Advanced. Second, there is a need for a standard setting procedure that accommodates multiple item types—selected-response (SR) and constructed-response (CR). The development of new standard setting procedures has been driven in part because the widely used Angoff procedure (Angoff, 1971) does not accommodate these trends effectively and has been criticized as being seriously flawed (National Academy of Education, 1993; Mitzel, 1996).

The Bookmark Standard Setting Procedure (Lewis, Mitzel, and Green, 1996) is an item response theory-based item mapping procedure developed to address these trends in standards and assessment and to simplify the cognitive tasks required of the participants setting the cut scores. This paper presents the methodology used to conduct the Bookmark Procedure. Section 2 reviews item response theory (IRT) based standard setting procedures. Section 3 describes the Bookmark Procedure in detail. The results of recent implementations of the Bookmark Procedure are presented in Section 4. The paper closes with a discussion of these results in Section 5 and conclusions in Section 6.

2. Review of IRT-Based Item Mapping Procedures

Item mapping, sometimes referred to as “behavioral anchoring,” has been used for over a decade to help identify what students at various scale locations know and are able to do. NAEP (ETS, 1987) used scale anchoring to help interpret what students know and are able to do by mapping selected “anchor” points on the scale for the NAEP reading assessment. They selected items that discriminated well according to the criteria, “(a) eighty percent or more of the students at that [anchor] point could answer the item correctly; (b) less than 50 percent of the students at the next lower [anchor] point could answer the item correctly...” (ETS, 1987, p. 386). Item mapping, then, refers to the general approach of mapping items to locations on the IRT scale such that students with scale scores near the location of specific items can be inferred to hold the knowledge, skills, and abilities required to respond successfully to those items. NAEP continued to use scale anchoring to help interpret their results for later assessments, but the discrimination criteria applied to anchor items was modified.

The 1991 Maryland School Performance Assessment Program (MSPAP) used an item mapping procedure to set proficiency levels (CTB Macmillan/McGraw-Hill, 1992). For this purpose, score points for performance assessment items were mapped to the scale at the IRT maximum information location. The proficiency levels were set by identifying interpretable clusters of item locations on the scale and the items falling within each cluster were analyzed by content experts to interpret what students in each proficiency level knew and were able to do.

Both the NAEP anchor points and the 1991 MSPAP proficiency levels were intended to help interpret what students at various points on a scale knew and were able to do. Neither was a “true” standard setting procedure in the sense that no judgments were made concerning what students should know and be able to do; instead, both used item mapping as a means to interpret what students did know and could do at various scale locations.

NAEP conducted a bona fide standard setting for the 1992 math and reading assessments using a modified Angoff procedure (Angoff, 1971). An item mapping study was conducted as part of the review of the achievement level setting (National Academy of Education, 1993). Content experts evaluated the appropriateness of the cut scores and the quality of the achievement level descriptions. Item maps, in which items were located at the point where 80% of students in the appropriate grade could answer the items correctly (after allowing for guessing), were provided to facilitate the evaluation. Although the approach used was not intended as a new or alternative standard setting method, several positive features of the item mapping approach were noted and contrasted with the Angoff procedure that was used to set cut scores. For example, it was noted that participants using the item mapping approach had "...a more systematic understanding of the item pool as a whole than did participants using the Angoff approach (National Academy of Education, 1993, p. 110)."

One drawback of the method was also reported—the lack of clear guidelines for the probability level at which to map items to the scale. It was noted that the 80-percent-correct level possibly contributed to the experts setting very high cut scores for some of the achievement levels, and that different cut scores would possibly have resulted had a 65-percent-correct mapping criterion been used.

An "item matching" procedure was used to set proficiency levels for the 1993 MSPAP (Westat, 1994). Participants studied proficiency level descriptions and conceptualized what students at a higher level could do that students at the next lower level could not do. Initial cut scores were determined by having participants match items to the proficiency level descriptions. For example, to determine the level 2 cut score, participants examined items in order of scale location and identified the items as "clearly level 1," "clearly level 2," or "borderline." When participants identified a "run" of "clearly level 1" items followed by a "run" of "clearly level two" items, the scale locations of the items constituting the two runs were used to identify the level 2 cut score. Initial cut scores for higher levels were determined in an analogous manner, and final cut scores were determined after several rounds of discussion and consensus building.

Lewis and Mitzel (1995) developed an "IRT-Modified Angoff Procedure" for which SR items were mapped onto the IRT scale at the location at which a student would have a .5 probability of a correct response, with guessing factored out. Each positive CR item score point was mapped onto the same IRT scale at the location at which a student would have a .5 probability of obtaining at least the given score point. To determine a proficient cut score, participants conceptualized "just barely proficient" students, studied the test items in order of scale location, and classified each item according to whether a just barely proficient student should have greater than, less than, or equal to a .5 likelihood of success on the item. The cut score was determined by averaging the locations of items that participants classified at the "equal to .5" level.

Under both the Maryland 1993 standard setting procedure (Westat, 1994) and the Lewis and Mitzel (1995) procedure participants could, and did, classify items such that the participants' classifications were not consistent with the scale locations. Under the Maryland procedure, participants classified some items with higher scale locations as being associated with lower proficiency levels than other items with lower scale locations. Under the Lewis and Mitzel procedure, participants judged that Proficient students should have greater success on some items with higher scale locations than on other items with lower scale locations. This inconsistency might in part be explained by noting that the scaling of items is based on empirical student performance data, that is, what students do know and can do, and that participant judgments were based on expected student performance, that is, what students should know and be able to do. However, making judgments based on "what students should know and be able to do" without conditioning those judgments based on "what students do know and can do" can lead to serious problems in 1) interpreting the results of the assessments to which standards are applied and 2) assessing student growth relative to content standards. These problems are discussed by Lewis and Green (1997).

In 1995, the Bookmark Standard Setting Procedure was developed and used to set standards for CTB/McGraw-Hill's new standardized assessment TerraNova® and has been used to set standards in 18 states or districts from 1996 to 1998. The Bookmark Procedure evolved from Lewis and Mitzel's IRT-Modified Angoff Procedure and was designed to remove the inconsistency noted above between participants' item level judgments and the items' scale locations. This was accomplished by moving the level of judgment from the item level to the cut score level, that is, instead of making judgments about each item, participants considered all the items together to make judgments about each cut score.

Several aspects of the IRT-Modified Angoff Procedure that were particularly successful were retained in the Bookmark Procedure. Most notable are 1) the use of the ordered item booklet to help participants understand how items work together to measure student achievement relative to specified content standards and 2) the common framework for interpreting SR and CR items by mapping them to the same scale and at the same probability level. These two components were central to the primary goals of the Bookmark Procedure—to provide a standard setting procedure that treats SR and CR items in a unified manner and that is based on judgments that ease the cognitive load on participants by drawing primarily on the participants’ expertise, that is, their understanding of content standards, the curriculum, teaching practices, the assessment, and student performance. The fundamental tasks required of participants in the Bookmark Procedure are analyzing items to determine what they are measuring and specifying which items students in the various performance levels should be expected to respond to successfully. We next consider the Bookmark Procedure in detail, first providing information about basic assumptions underlying the structure of the procedure.

3. Basic Assumptions and Overview of The Bookmark Procedure

3.1 Mapping Items to the IRT Scale

Item response theory (IRT, Lord 1980) provides a framework that simultaneously characterizes the proficiency of examinees and the difficulty of test items. Each IRT-scaled item has an estimated item characteristic curve (ICC) that describes how the probability of success on the item depends on the proficiency or “scale score” of the examinee. Just as it is possible to order examinees by estimated proficiency, IRT enables items to be ordered by the proficiency needed to have a specified probability of success. The facility to order items on the IRT proficiency scale is fundamental to the Bookmark Procedure.

Selected-response (SR) items can be scaled under a variety of models, for example, the Rasch (1960) model, or the 2- and 3-parameter logistic models (Birnbaum, 1968). Constructed-response (CR) items can be scaled using polytomous models, for example, the 2-parameter or generalized partial credit model (Yen, 1993; Muraki, 1992). The 3-parameter logistic (3PL) model and the 2-parameter partial credit (2PPC) model are the default models used by CTB for SR and CR items, respectively.

Scaling SR and CR items together brings significant advantages to the standard setting process, most importantly, the ability to order the CR score points with the SR items. This joint scaling allows participants to consider all items on which the standard is to be set, regardless of item format, and to directly set a single cut score for each performance level. The joint scaling of CR and SR items can be accomplished using commercially available computer programs (e.g., PARDUX, Burket, 1996; PARSCALE, Muraki & Bock, 1991).

For the purpose of standard setting, SR and CR items are located on the IRT scale such that the location of each item type is directly interpretable and conceptually similar.

Selected-Response Items. The location of an SR item is defined as the point on the ability scale at which a student would have a .67 (2/3) probability of success, with guessing factored out. We remove consideration of guessing as a factor because participants are asked to make complex judgments about what students should know and be able to do, and the consideration of guessing unnecessarily complicates those judgments. We also note that this approach was used for the item mapping studies that followed the 1992 NAEP achievement level setting (National Academy of Education, 1993).

For the 3PL model, the probability that a student with trait or scale score θ will respond correctly to SR item j is given by

$$P_j(\theta) = c_j + (1 - c_j) / [1 + \exp(-1.7a_j(\theta - b_j))].$$

where a_j is the item discrimination, b_j is the item difficulty, and c_j is the probability of a correct response by a very low-scoring student. We estimate the probability, P_j^* , of a correct response with guessing removed using the formula

$$P_j^*(\theta) = (P_j(\theta) - c_j) / (1 - c_j).$$

The location of SR item j is θ , such that $P_j^*(\theta) = .67$.

Constructed-Response Items. Each CR score point has a unique location on the scale. The location of a given CR score point is defined as the position on the ability scale for which students have a .67 probability of achieving at least that score point, that is, that score point or higher. This criteria was selected so that the location of the CR score point could be interpreted in a manner similar to the location of a SR item and in a way that is conceptually useful to the participants in setting the cut score.

Using the 2PPC model for CR items, the probability that a student with trait or scale score θ will respond at score level k to CR item j is given by

$$P_{jk}(\theta) = \exp(z_{jk}) / \sum_{i=1}^{m_j} \exp(z_{ji}),$$

where $z_{jk} = (k-1)\alpha_j - \sum_{i=0}^{k-1} \gamma_{ji}$, α_j and γ_{ji} , $i = 1, 2, \dots, m_{j-1}$, are the parameters estimated during calibration,

$\gamma_{j0} = 0$ for all j , and m_j is the number of levels for item j .

For the purpose of standard setting, the location of score point k for constructed response item j , is the scale score θ , such that $P_{jk}^*(\theta) = .67$, where

$$P_{jk}^*(\theta) = \sum_{i=k}^{m_j} P_{jk}(\theta).$$

Although the selection of .67 as the probability level used to map items to the scale is somewhat arbitrary, this value was not selected capriciously. First, because the probability level must be considered by the participants when making their judgments, a familiar value was desired. That is, using a probability level of .5823 would not be useful, but values such as .5 (1/2), .67 (2/3), or .75 (3/4) would be. Second, other item mapping procedures and research have provided some precedent. Huynh (1998) showed that for the 3PL model, the item information function is maximized at θ for which $P(\theta) = (c + 2)/3$. This corresponds to the value of 2/3 when guessing is factored out. Thus, the choice of 2/3 for mapping SR items corresponds to the maximum information location. Huynh states that the maximum information location associated with a correct response "...might serve as a signal that an examinee located at this place would be 'expected' to have the skills underlying the item."

3.2 Bookmark Standard Setting Materials

Many of the materials used for Bookmark Standard Settings are commonly used within other standard setting procedures, such as operational test booklets, student exemplar papers, and scoring guides. The following materials are unique to Bookmark Standard Settings and other item mapping procedures.

Ordered Item Booklets. Ordered item booklets are typically assembled using all items on which the standards are to be based, in order of scale location. The ordered item booklet focuses the participants' attention on one item per page, with the "easiest" item (lowest scale location) first and the "hardest" item (highest scale location) last. The purpose of the ordered item booklets is to help participants' foster an integrated conceptualization of what the test measures, as well as to serve as a vehicle to make cut score judgments. Studying the items one by one, from easiest to hardest, discussing what each item measures and why each item is more difficult than items that precede it in the book, is intended to provide participants with an understanding of how the trait increases in complexity as the items ascend the scale, and of the knowledge, skills, and abilities students must hold in order to respond successfully to items.

The items used in the ordered item booklets can be items from single or multiple forms of an operational test or items on a common scale from an item pool that is representative in content and difficulty of a single form of the operational test. The use of items beyond those of a single operational form is recommended when possible, to increase the generalizability of the standards to other forms to which the standards may be applied in future years.

Item Map Rating Forms. The item map rating form is a guide to the ordered item booklet, and lists all items ascending by location, that is, in the same order in which they appear in the ordered item booklets. Associated item information is also included on the item map rating form, such as the items' scale location, item number in the operational or field test booklet, the standard or objective the item was written to measure, space for the participants to make notes about the items, and the cut score judgments they are considering for each round.

3.3 Determining Cut Scores Under the Bookmark Procedure

The cut score for a given performance level, for example, Proficient, can be identified by a bookmark placed between two items in the ordered item booklet such that from the judge's perspective, the items preceding the bookmark represent content that all proficient students should be expected to know and be able to do (with at least a 2/3 likelihood of knowing the correct response for SR items or of obtaining at least the given score point for CR item score points). By placing the bookmark at the furthest most item for which this is true, a location on the ability scale can be estimated as the cut score. This is computed as the scale location of the item that appears immediately prior to the bookmark. Judgments are made at the cut score level, that is, participants consider all the items when they place their bookmarks, but the bookmarks define cut scores.

To set two cut scores defining three performance levels, for example, Partially Proficient, Proficient, and Advanced, each judge considers the items in the ordered booklet and places two bookmarks that define the two cut scores. The items that precede the first bookmark should represent content that all proficient students are expected to know and be able to do. The items that precede the second bookmark should represent content that all advanced students are expected to know and be able to do.

When an item precedes a judge's bookmark, the judge is stating that all proficient students should have ability sufficient to have at least a 2/3 likelihood of responding correctly to the SR item or of obtaining at least that score point for a CR item score point. This probability level is held only by students with scale ability locations as high or higher than the scale location of the item. Thus, all proficient students must have ability level at least as high as the scale location of each item before the bookmark. On the other hand, when an item falls after the bookmark, the judge is stating that a student could be classified as proficient, yet have less than a 2/3 likelihood of success on the item. This means that a student could have ability lower than the location of the first item after the bookmark and still be classified as proficient. Thus, the proficient cut score is at least the location of the item immediately prior to the bookmark but less than the location of the item following the bookmark. The location of the item immediately prior to the bookmark is used as the operational cut score.

3.4 Writing Performance Level Descriptors

Performance level descriptors are intended to be valid descriptions of the knowledge, skills, and abilities held by students that place in the various performance levels. Performance level descriptors emerge as an outcome of setting cut scores under the Bookmark Procedure. For example, suppose two cut scores are set defining the three performance levels Partially Proficient, Proficient, and Advanced. Items prior to the Proficient bookmark reflect content that all Proficient students are expected to know and be able to do, and therefore, the knowledge, skills, and abilities required to respond successfully to these items are synthesized to form descriptors of the Proficient student. Similarly, the items following the Proficient bookmark and prior to the Advanced bookmark are used to yield descriptors of the additional knowledge, skills, and abilities a student must hold to be considered Advanced.

The estimated probability of a successful response for a student in a given performance level is at least .2/3 for the items used to write the performance level descriptors. Thus, descriptors written with this approach are valid to the degree that participants can communicate the knowledge, skills, and abilities required to successfully complete the items attributed to the respective performance levels. Of course, because they are based on probabilities, not every student will have mastered all the skills attributed to them by the descriptors. The validity of performance level descriptors written in this manner is discussed more fully by Lewis and Green (1997).

3.5 Bookmark Standard Setting Panel Composition and the Use of Multiple Panels

Operationally, the composition of a standard setting panel results from the sponsoring agency's selection criteria and availability of participants. We recommend at least 18 participants per panel. The panel of participants for a given grade and content area are typically divided into three small groups. One participant within each small group is predesignated to act as a small group facilitator for the process, and receives training prior to the standard setting. Small-group facilitators are selected from the pool of participants based on experience with the students, curriculum, instruction, assessment, and the ability to facilitate groups. The small-group facilitators are voting members of their small group. The sponsoring agency makes recommendations for the assignment of participants to small groups such that the three small groups are roughly balanced in terms of the educational background and geographic location of the participants. The use of small groups facilitates having all participants actively involved in the discussion of items and expectations for student performance. A Bookmark standard setting is typically facilitated by a single large group leader who is responsible for monitoring the process for a given grade and content area and the small group facilitators who monitor the process within their small groups.

The use of multiple small groups is integrated into the structure of the judgment process. Prior to the first round of judgments, participants study the ordered item booklets within their small groups, and discuss what each item measures and why each item is more difficult than the preceding items in the booklet. Following discussion, participants make individual and independent Round 1 judgments, that is they place bookmarks that indicate the items that reflect content they expect students in each performance level to know and be able to do.

In Round 2, each small group discusses the items for which there was not consensus according to the small group's Round 1 judgments. For a given performance level, these are the items in the ordered item booklet between the first and last of the small group participants' bookmarks. This appropriately narrows the discussion only to the items for which participants have differing opinions relative to expected student performance for a given performance level. Following discussion, Round 1 judgments may be modified with Round 2 judgments.

Prior to Round 3, a small-group judgment is computed for each small group as the median of the small group's bookmark placements. In Round 3, the large group is presented with each small group's Round 2 judgments and the estimated percent of students in each performance level based on the current large group median. The large group discusses the reasonableness of the impact data and the items for which there was not consensus among the small groups. Following discussion, Round 2 judgments may be modified with Round 3 judgments.

The Bookmark Procedure is structured so that each small group works independently of the other small groups until the third round. The standard error estimated from each small groups' independent Round 2 results provides a measure of the stability of the cut scores, as discussed in the next section.

3.6 Capturing and Communicating Degrees of Consensus

The Bookmark Standard Setting Procedure is a collaborative enterprise that fosters consensus among participants as to the standards to which we hold our students accountable. However, consensus is not forced. In the results discussed in Section 4, varying degrees of consensus were attained. It is important that the degree of consensus be measured and reported with the recommended cut scores to the governing bodies who make final cut score decisions.

The degree of consensus is quantified by calculating a standard error for each cut score arrived at through the multiple-group, three-round process. Because the small groups act independently through the first two rounds, an appropriate standard error can be calculated by treating individual Round 2 scores as if sampled from independent clusters. Formulas for the cluster sample standard error (Cochran, 1963, p. 210) are presented in Appendix 1.

Data arising in standard setting contexts have complex dependency structures and reflect many sources of error. It is important to appreciate this complexity and avoid making strong conclusions based on statistical procedures whose assumptions can not be satisfied. In Bookmark standard settings we use appropriately general statistics such as the cluster sample standard error, as well as graphics to help inform these judgments.

4. Recent Implementations of the Bookmark Procedure

4.1 Background

Table 1 summarizes the grades, content areas, test scales, test formats, and numbers of participants associated with four state and one district Bookmark standard settings facilitated by CTB in 1996 and 1997. A total of twenty panels set cut scores in grades ranging from 3 to 10 in Reading, Language Arts, and Mathematics.

For thirteen of the twenty grade/content areas, the ordered item booklets used to set cut scores included more items than were on the operational test forms. As Table 1 indicates, the operational test forms had an average of 67 score points and the ordered item booklets used to set cut scores had an average of 111 score points. The operational tests were all composed of a mixture of SR and CR items with an average of 76 percent SR items and 24 percent CR items. On average 59 percent of the total score points were from SR items and 41 percent were from CR items. The ordered item booklets used to set standards had an average of 73 percent SR items and 27 percent CR items. On average, 54 percent of the total score points in the ordered item booklets were from SR items and 46 percent were from CR items.

Table 1 also shows the number of cut scores, number of small groups, and total number of judges per grade/content area.

4.2 An Illustrative Example

Figures 1-4 illustrate the Bookmark Standard Setting Procedure for an example selected from the recent implementations. In this case, three cut scores were set for a Grade 8 Language Arts assessment. Figures 1, 2, and 3 show the individual participants' Proficient cut score ratings for Small Groups 1, 2, and 3, respectively. The vertical axes indicate the test scale referenced to a mean of 0 and standard deviation of 1. The horizontal axes indicate the round (1, 2, or 3).

Figure 1 shows the Proficient cut score ratings for the four participants in Small Group 1. Note that there is a reasonable amount of variability in the first round, with Group 1 participants' cut scores ranging from .05 to .44 on the scale. The observed variability reflects the fact that in the first round, participants make individual and independent judgments.

In the second round, the small group participants discuss and debate the rationale and perspective that lead to each of their Round 1 judgments. This tends to decrease the variability within each small group. In the case of Group 1 (Figure 1), a high degree of consensus has been reached in Round 2, with participants' cut scores ranging from .41 to .44 on the scale. Three of the four Group 1 participants raised their cut scores, apparently strongly influenced by the fourth participant's perspective.

In the third round, small-group cut scores are computed for each small group (based on small-group medians). Each small group presents the rationale and perspective that lead to their Round 2 judgments, and impact data is presented. In the example indicated in Figure 1, all participants in Group 1 maintained their Round 2 judgments in Round 3. This was probably due to the fact that Small Groups 2 and 3 both made Round 2 judgments that were very similar to those of Small Group 1, as can be observed in Figures 2 and 3.

Figures 2 and 3 illustrate the three rounds of judgments for Small Groups 2 and 3, respectively. Figure 2 indicates that Group 2 made judgments for each round that were very similar to those of Group 1. Figure 3 shows a different pattern of ratings for Small Group 3. There is a reasonable amount of variability in the Round 1 ratings for Small Group 3, with the five participants' cut scores ranging from .31 to .61. In the second round, we see the results of consensus building, however in this case, the participants tended toward the group's median cut score. The range of the participants' cut scores (.41 to .46) has decreased considerably from that of Round 1. In the third round, Small Group 3 reached consensus, with all five participants rating the Proficient cut score at .44.

Figure 4 illustrates the judgments for all participants, by round, for all three cut scores (Partially Proficient, Proficient, and Advanced). The middle set of lines indicate the Proficient judgments examined in Figures 1-3. It can easily be seen that in Round 2, each of the three groups independently arrived at the same median cut score (.44). However, this does not occur routinely. The reader need only look at the patterns for the Advanced and Partially Proficient cut scores to observe that although Round 2 does typically bring a degree of consensus, it is not as uniform for these cut scores as for the Proficient cut score.

Also depicted in Figure 4 are confidence bands centered at the Round 3 median cut score with a width of two Round 2 standard errors. The Round 3 median best captures the consensus cut score from the entire Bookmark Procedure. Round 2 standard errors are used to quantify the degree of consensus obtained across independent groups, as discussed in Section 3.6 Capturing and Communicating Degrees of Consensus. The type of information exemplified in Figure 4, is valuable to decision makers who must act on the recommendations of the standard setting panels. In the example depicted in Figure 4, the participants' recommended cut scores were adopted by the sponsoring agency.

4.3 Results

The results for the proficient cut score by round for each of the 20 examples are located in Table 2 (Summary data for all performance level cut scores are provided in Tables 3 and 4.). All statistics that are derived from the participants cut score judgments are presented in standardized units, that is, referenced to the standard deviation units of the scale. This allows statistics across scales to be compared.

The column labeled "Range (Cut)" indicates the magnitude of the range of the participants' scale score cut scores for each round and each cut score in scale standard deviation units (computed as the difference between the maximum and minimum of the participants' cut scores divided by the scale standard deviation). The column "SD (Cut)" indicates the standard deviation of the participants' scale score cut scores for each round in scale standard deviation units.

The columns labeled "Intra Class Corr" [Intraclass Correlations] and "Round 2 SE (Cut)" [standard errors] provide information about the replicability of the participants' judgments across groups. These are explained in detail in Appendix 1. The standard error is reported in scale standard deviation units.

Table 3 presents the mean SD of the participants' cut score judgments for each cut score and round (in standardized units), as well as the standard deviation, minimum, and maximum of these standard deviations. For the Advanced cut scores, the mean SDs decreased from .35 (Round 1) to .16 (Round 2) to .15 (Round 3). For the Proficient cut scores, the mean standard deviations decreased from .32 (Round 1) to .14 (Rounds 2 and 3). For the Partially Proficient cut scores, the mean standard deviations decreased from .27 (Round 1) to .16 (Round 2) to .13 (Round 3).

Table 3 also presents the mean Round 2 standard errors and intraclass correlations of the participants' cut score judgments for each cut score. The mean Round 2 standard errors are .07, .08, and .07, and the mean Round 2 intraclass correlations are .67, .69, and .70 for the Advanced, Proficient, and Partially Proficient cut scores, respectively.

Table 4 presents the mean difference in median cut scores between successive rounds, as well as the standard deviation, minimum, and maximum of the mean differences. The mean differences between the median Round 2 and Round 1 cut scores were .22, .16, and .10, for the Advanced, Proficient, and Partially proficient cut scores, respectively. The mean differences between the median Round 3 and Round 2 cut scores were .04, .00, and .04, for the Advanced, Proficient, and Partially Proficient cut scores, respectively.

5. Discussion

As would be expected in a consensus building process, the variability of participants' judgments tended to decrease in successive rounds for each cut score. The magnitude of the variability was similar for the three performance levels in each round. This is indicated by the mean standard deviations (Table 3) for the Advanced, Proficient, and Partially Proficient cut scores of .35, .32, and .27, respectively, in Round 1; .16, .14, and .16, respectively in Round 2; and .15, .14, and .13, respectively, in Round 3. This suggests a consistency in the degree to which participants are able to translate their qualitative conceptualizations of each performance level operationally into expected performance on test items. The ability for participants to be able to clearly conceptualize the knowledge, skills, and abilities of students within each performance level is fundamental to any standard setting process. These results indicate that participants seem to be able to do so to a similar degree for three performance levels. This may not hold when there are more than three performance levels.

A pattern of decreasing variability in participants' judgments from each round to the next is also consistent for the three performance levels. The mean standard deviations decreased from .35 (Round 1) to .16 (Round 2) to .15 (Round 3) for the Advanced performance level; from .32 to .14 to .14 for the Proficient performance level; and from .27 to .16 to .13 for the Partially Proficient performance level. A considerable reduction in variability occurs from

Round 1 to Round 2, but there is only a nominal reduction from Round 2 to Round 3. This indicates that the participants' perspectives change considerably from the interactions within their small groups during Round 2, but do not change as much from the interactions between the small groups or the consideration of impact data in Round 3. This is desirable from the perspective that participants should feel more confident of their judgments with each round, and therefore, should be less likely to modify their judgments in subsequent rounds. However, the results may not only reflect an increase in confidence in participants' judgments, but also the support of other members within the small group to maintain their judgments in spite of differences between the small groups.

The mean standard errors computed from Round 2 provide an estimate of the variability of the cut scores across panels. The mean standard errors of .07, .08, and .07 for the Advanced, Proficient, and Partially Proficient cut scores are of similar magnitude to those reported for Math and Reading in the NAEP 1992 standard setting (ACT, 1993). It is important to remember that these are estimated from the small groups' independent Round 2 results.

The mean Round 2 intraclass correlations of .67, .69, and .70 for the Advanced, Proficient, and Partially Proficient cut scores, respectively, indicate that an appropriate degree of within-group consensus occurred in Round 2, and that individual judgments should not be treated as independent once group discussions have taken place.

Several conclusions can be drawn from looking at the mean differences between the median of the participants' cut scores between Rounds 2 and 1 and between Rounds 3 and 2. The mean differences in medians between Rounds 2 and 1 of .22, .16, and .10, for the Advanced, Proficient, and Partially Proficient cut scores, respectively, indicate that participants' cut scores tend to rise considerably from Round 1 to Round 2. This is somewhat surprising, as one might expect participants' judgments to tend toward the median, but leave the median relatively unchanged. The rise may be attributable to social pressure for high standards. For example, suppose one participant enters Round 2 having placed his/her bookmark in the ordered item booklet at say, page 50, and a second participant has placed his/her bookmark on page 60. In Round 2, the participants discuss items 50-59 in terms of whether a student should be expected to master these items to be considered proficient. It may be that under these circumstances, a psychological advantage exists for "higher standards." It is interesting to note that the increase in median cut scores from Round 1 to Round 2 is greatest for the Advanced cut score, and the least for the Partially Proficient cut score. Thus, the increase is positively correlated with the performance level, suggesting that this social pressure is greatest when the standards are expected to be highest.

The mean differences between the median of the participants' cut scores between Round 3 and Round 2 are .04, .00, and .04, for the Advanced, Proficient, and Partially Proficient cut scores, respectively. Thus, the increase in median cut scores from Round 2 to Round 3 tends not to be large. This must be considered in light of the two new pieces of information that are provided to participants in the third round. First, the participants view and discuss the results from the other small groups. Second, the participants discuss impact data associated with the median cut score computed from all participants' bookmarks. The results indicate that although these factors can affect participants' judgments, they are not systematic. Again, it seems that by Round 3, participants are well grounded in their judgments.

6. Conclusions

In sum, the results indicate that the participants are making judgments as would be expected and desired, given the structure of the Bookmark Procedure. The patterns of variability are particularly encouraging. The highest variability occurs in the first round, when participants make independent ratings, and decreases significantly from Round 1 to Round 2, but does not decrease significantly from Round 2 to Round 3. This indicates that participants listen to each others' perspectives and in many cases find the arguments persuasive and therefore modify their judgments in Round 2. The stability of the small group median scores from Round 2 to Round 3 suggest that participants have developed a stable perspective by the third round. They do not react strongly to the new information provided in the third and final round as they did to that of the second round.

Setting standards is a complex process involving educational, psychological, statistical, and ultimately, political considerations. We have observed that the Bookmark Procedure facilitates the standard setting process by providing a framework through which informed educators come to understand how a particular test measures the skills the students are expected to master, and by providing a structure that fosters rational consensus building regarding expected student performance. Participants' judgments are based on well defined criteria—which items students be expected to respond successfully to be classified in the various performance levels.

Further studies are required to determine the degree to which cut scores arrived at through the Bookmark Procedure are consistent with other measures of student proficiency such as teacher judgment or cut scores set concurrently with other procedures. There is no “gold standard” for cut scores or standard setting procedures. Research has shown that different standard setting procedures will likely lead to somewhat different cut scores (National Academy of Education, 1993). However, several aspects of the Bookmark Procedure have lead CTB to make it their default standard setting method.

First, participants leave the Bookmark Standard Setting with a strong understanding of what their final cut scores mean in terms of expected student performance for each performance level, as measured by the assessment. This understanding is fostered by the use of the ordered item booklets and the structure provided by item mapping procedures in general. Observations during the item mapping studies that followed the 1992 NAEP standard setting have also been observed following each Bookmark standard setting:

“...the experts or judges using the item-mapping approach had a much more direct understanding of the continuum for which they were attempting to devise levels...by engaging in discussions and studying the item maps, participants had a more systematic understanding of the item pool as a whole than did participants using the Angoff approach.... (National Academy of Education, 1993, p. 110).”

Second, Bookmark Standard Setting participants are able to translate this “understanding” to communicate what students in each performance level know and are able to do by writing performance level descriptors based on empirical data. Teachers, parents, and students are able to use the performance level descriptors to understand the level of achievement required for students to place in each performance level. The sponsoring agency and the public can use the performance level descriptors and the percent of students in each performance level to better understand the current state of student achievement relative to the standards.

Third, Bookmark Standard Setting participants frequently comment on how instruction would improve if every teacher could go through a similar process. Their comments suggest that they have a unique awareness of how the assessment relates to the content standards, curriculum, and instruction. CTB is currently experimenting with methods of capturing the participants’ perspectives to provide information to the sponsoring agency that may improve the alignment of content standards, curriculum, instruction, and assessment. This topic is more fully discussed in Lewis and Green (1998).

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Send requests for information to: Daniel M. Lewis
Research Department
CTB/McGraw-Hill
Monterey, CA 93940

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Appendix 1

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 given by the cluster sample standard error of the Round 2 mean cut score:

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

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, \bar{Y}_k is the average cut score for group k , and $\bar{\bar{Y}}$ is the average of all Round 2 cut scores, then

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

If we have only two groups ($n=2$) and perfect dependence (agreement) within groups ($r=1$), then the cluster sample standard error simplifies to $SE_{cut} = |\bar{Y}_1 - \bar{Y}_2|/2$, 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, $SE_{cut} = \sqrt{S^2/N}$. 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 Figures 1-4 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.

Table 1. Background Information for Recent Implementations

Grade	Content Area	Operational Test			Ordered Item Booklet			Total # of Judges
		# of SR Items	# of CR Items	Total Score Points	# of SR Items	# of CR Items	Total Score Points	
3	Reading Language Math	30	13	51	74	18	104	3
		20	4	31	56	10	83	2
		30	8	48	96	16	132	4
6	Reading Language Math	31	9	55	98	23	159	3
		24	5	43	67	12	114	2
		31	11	58	95	33	176	3
8	Reading Language Math	34	6	51	67	12	98	3
		21	5	41	43	12	88	2
		31	10	54	63	20	116	3
4	Reading	46	21	95	46	21	95	3
4	Writing	32	13	59	42	34	112	3
4	Math	32	23	77	31	62	146	4
8	Math	31	20	73	31	56	145	4
10	Math	25	19	73	25	43	133	4
3	ELA	46	2	55	46	2	55	4
6	ELA	55	13	87	55	13	87	1
8	ELA	72	18	113	72	18	113	1
10	ELA	69	11	100	69	11	100	1
10	ELA	67	13	98	67	13	98	1
10	Math	59	22	74	59	22	74	1

Note. ELA = English/Language Arts, SR = selected response, CR = constructed response.

Table 2. Results

Grade	Content Area	Cut	Round	Range (Cut)*	SD (Cut)*	Intra Class Corr	Round 2 SE (Cut)*
3	Reading	Proficient	1	0.45	0.15	0.96	0.17
			2	0.53	0.25		
			3	0.31	0.11		
3	Language	Proficient	1	0.29	0.11	NA	NA
			2	0.19	0.07		
			3	0.00	0.00		
3	Math	Proficient	1	1.09	0.37	0.37	0.04
			2	0.24	0.08		
			3	0.00	0.00		
6	Reading	Proficient	1	0.72	0.26	0.50	0.01
			2	0.05	0.02		
			3	0.00	0.00		
6	Language	Proficient	1	0.41	0.16	NA	NA
			2	0.27	0.11		
			3	0.27	0.11		
6	Math	Proficient	1	1.32	0.36	NA	NA
			2	0.67	0.19		
			3	0.00	0.00		
8	Reading	Proficient	1	0.55	0.13	0.70	0.02
			2	0.11	0.03		
			3	0.00	0.00		
8	Language	Proficient	1	0.56	0.18	0.09	0.00
			2	0.05	0.01		
			3	0.05	0.01		
8	Math	Proficient	1	0.89	0.23	0.81	0.10
			2	0.38	0.15		
			3	0.28	0.13		
4	Reading	Proficient	1	0.97	0.25	0.72	0.06
			2	0.32	0.13		
			3	2.07	0.56		
4	Writing	Proficient	1	1.52	0.69	0.16	0.04
			2	0.51	0.12		
			3	2.13	0.55		
4	Math	Proficient	1	2.52	0.52	0.63	0.08
			2	1.07	0.25		
			3	1.05	0.20		
8	Math	Proficient	1	2.37	0.44	0.65	0.08
			2	1.32	0.24		
			3	1.32	0.24		
10	Math	Proficient	1	1.33	0.28	0.73	0.02
			2	0.29	0.08		
			3	0.42	0.10		
3	ELA**	Proficient	1	0.89	0.25	1.00	0.03
			2	0.12	0.06		
			3	0.10	0.02		
6	ELA	Proficient	1	1.53	0.29	1.00	0.05
			2	0.18	0.08		
			3	0.17	0.07		
8	ELA	Proficient	1	2.66	0.56	0.94	0.14
			2	0.59	0.23		
			3	0.09	0.02		
10	ELA	Proficient	1	1.45	0.43	0.98	0.25
			2	1.13	0.43		
			3	1.05	0.34		
10	ELA	Proficient	1	1.74	0.41	0.60	0.08
			2	1.06	0.19		
			3	1.04	0.18		
10	Math	Proficient	1	1.54	0.34	0.41	0.06
			2	0.60	0.17		
			3	0.58	0.17		

* Values are in scale standard deviation units.

** ELA = English/Language Arts.

Table 3. Summary Statistics: Measure of Variability in Participants' Cut Score Judgments

	Standardized Standard Deviation				Standardized Standard Error				Intra Class Correlation			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Advanced												
Round 1	0.35	0.16	0.17	0.73								
Round 2	0.16	0.12	0.02	0.46	0.07	0.05	0.02	0.15	0.67	0.20	0.37	0.99
Round 3	0.15	0.15	0.00	0.51								
Proficient												
Round 1	0.32	0.16	0.11	0.69								
Round 2	0.14	0.10	0.01	0.43	0.08	0.07	0.00	0.25	0.69	0.27	0.09	1.00
Round 3	0.14	0.17	0.00	0.56								
Partially Proficient												
Round 1	0.27	0.20	0.05	0.68								
Round 2	0.16	0.14	0.03	0.53	0.07	0.04	0.03	0.13	0.70	0.30	0.11	1.00
Round 3	0.13	0.10	0.00	0.28								

Table 4. Summary Statistics: Difference Between Successive Round Medians

	Round 2 - Round 1				Round 3 - Round 2			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Advanced	0.22	0.26	-0.16	0.78	0.04	0.15	-0.11	0.52
Proficient	0.16	0.23	-0.13	0.81	0.00	0.22	-0.73	0.24
Partially Proficient	0.10	0.20	-0.11	0.66	0.04	0.16	-0.14	0.55

Note. Standardized scale score units are used.

Figure 1. Group 1 Proficient Cutscores for Rounds 1, 2, and 3

(Vertical axis in scale standard deviation units: Mean = 0, SD = 1.)

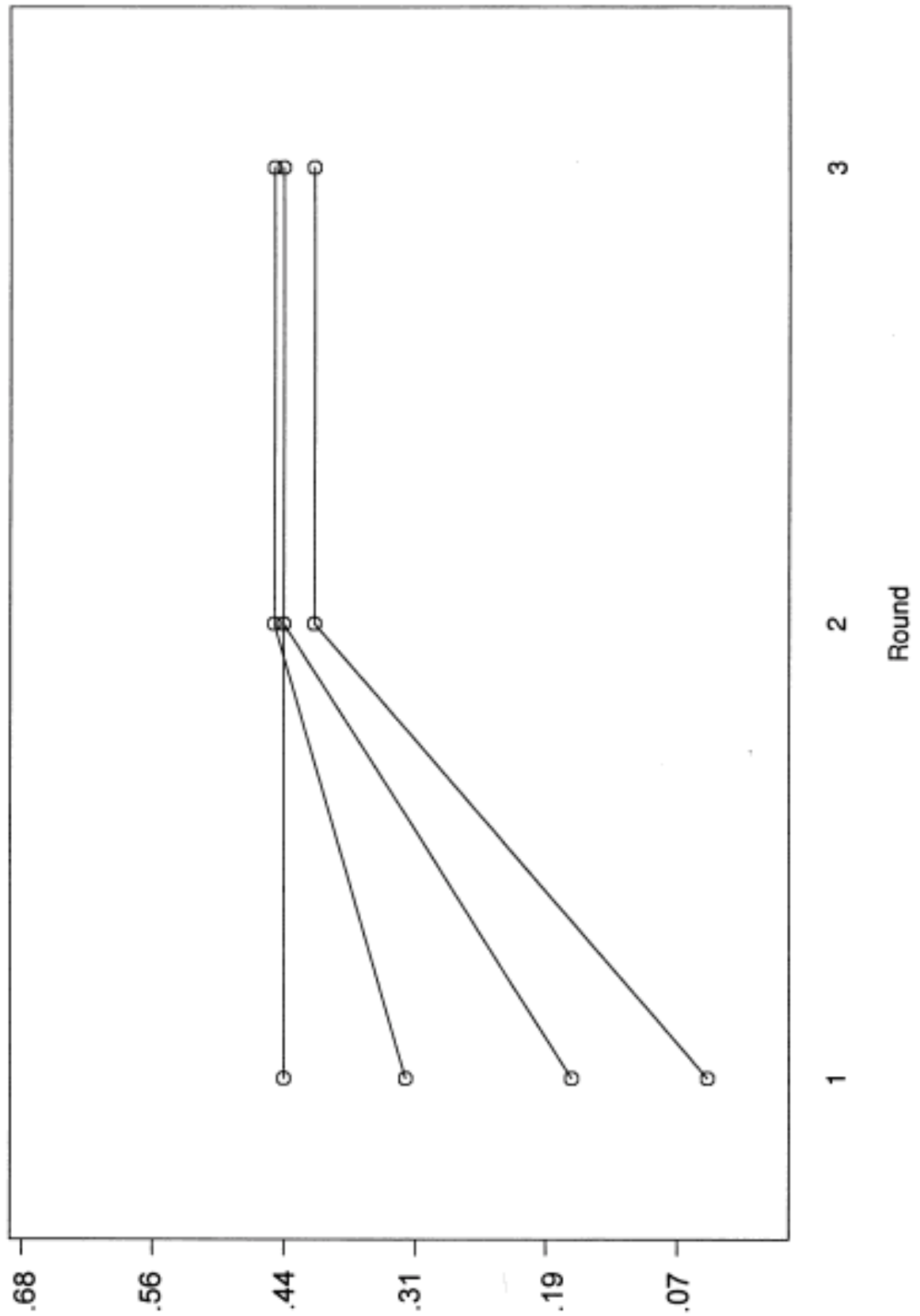


Figure 2. Group 2 Proficient Cutscores for Rounds 1, 2, and 3

(Vertical axis in scale standard deviation units: Mean = 0, SD = 1.)

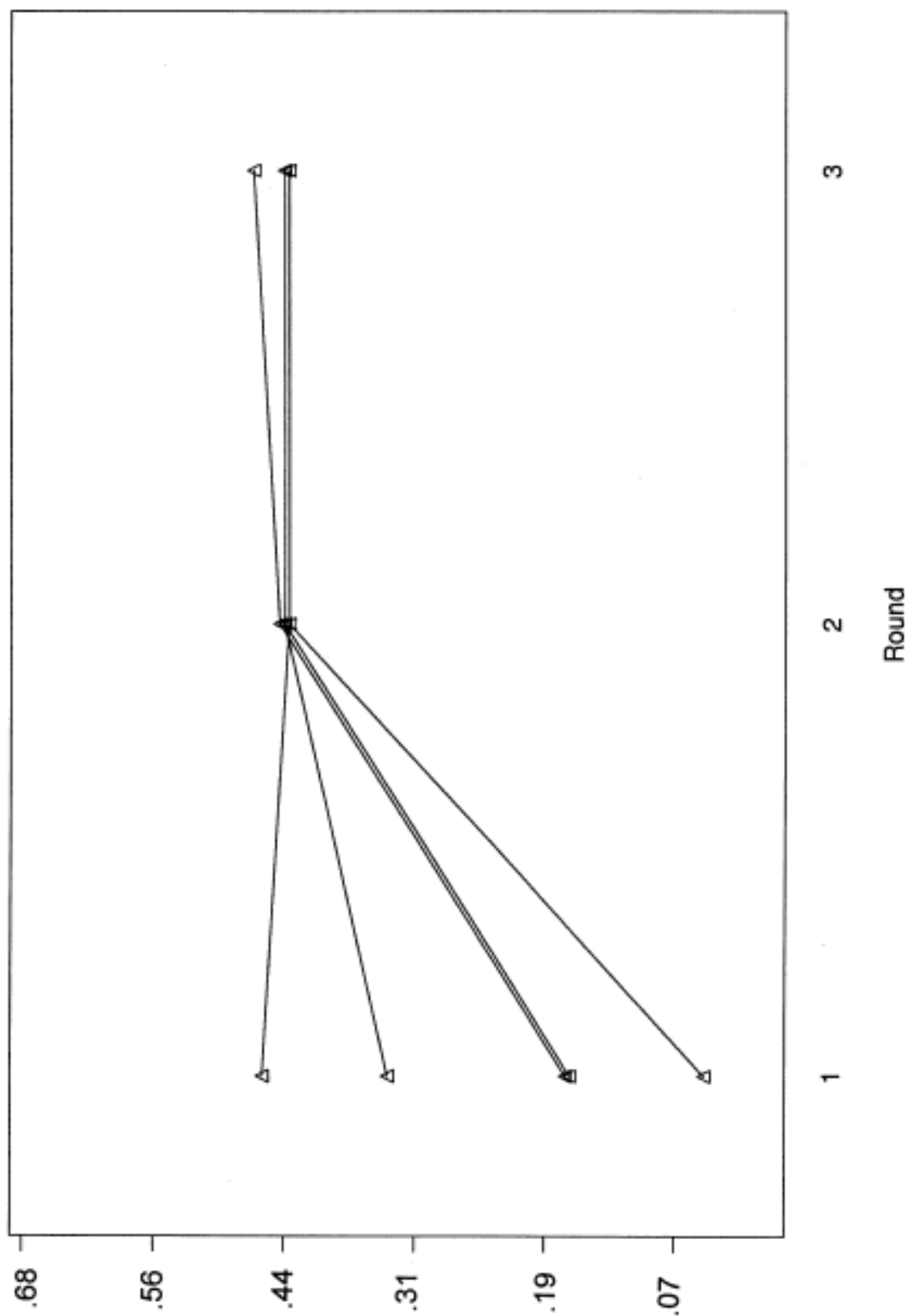


Figure 3. Group 3 Proficient Cutscores for Rounds 1, 2, and 3

(Vertical axis in scale standard deviation units: Mean = 0, SD = 1.)

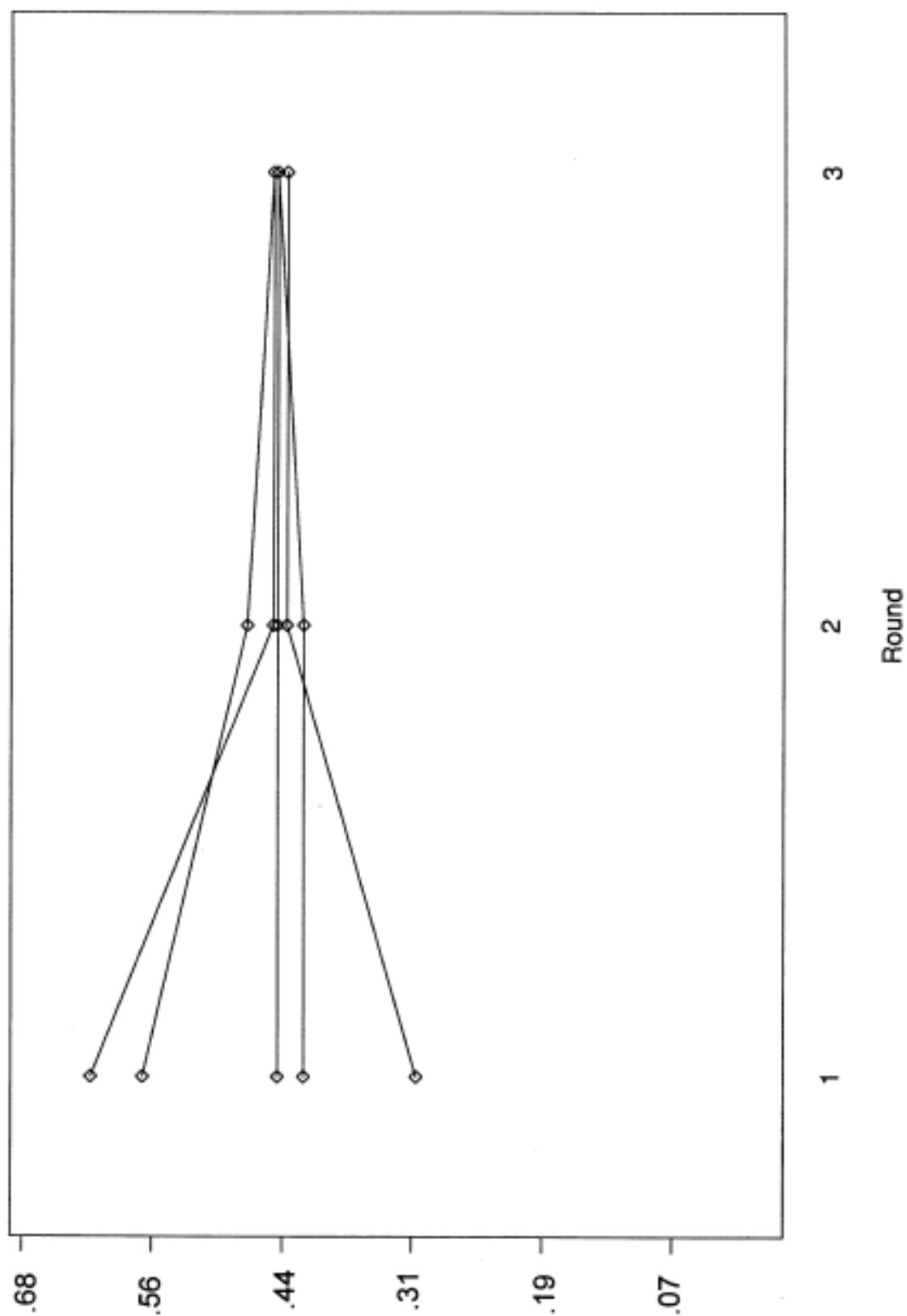


Figure 4. Advanced, Proficient, and Partially Proficient Cutscores of All Participants

