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State Board of Education
Department of Public Instruction

North Carolina General Education Mathematics Assessments

Standard Setting 2019 Final Technical Report

Prepared for the
North Carolina Department of Public Instruction

Data Recognition Corporation
Maple Grove, MN 55311



Table of Contents

A. Executive Summary	1
B. Standard Setting Methodology and Recommendations	4
C. Agenda.....	34
D. Training Presentation and Materials	49
E. Achievement Level Descriptors (ALDs)	86
F. Detailed Reports of Participants' Judgments	142
G. Graphical Representation of Participants' Judgments	263
H. Standard Errors Associated with Cut Scores	288
I. Participant Evaluations of the Workshop	313

A

Executive Summary

Executive Summary

On July 8–11, 2019, a committee of 59 North Carolina educators participated in a multi-phase standard setting for the North Carolina tests of general education mathematics in grades 3–8, NC Math 1, and NC Math 3. The goal of the workshop was to identify cut scores that divide students into four achievement levels for general mathematics (*Not Proficient* through *Level 5*).

In school year 2018–19, the North Carolina tests of mathematics transitioned to measuring students' command of the North Carolina Standard Course of Study (NCSCOS). Accordingly, the North Carolina Department of Public Instruction (NCDPI) sponsored a standard setting for the general tests of mathematics, as facilitated by Data Recognition Corporation (DRC).

The standard setting took place in three parts over a four-day period: achievement level descriptor development, standard setting, and across-grade articulation. Participants used the Bookmark Standard Setting Procedure to recommend cut scores for the general mathematics tests. The Bookmark Standard Setting Procedure has been used to establish achievement standards for educational assessments around the world.

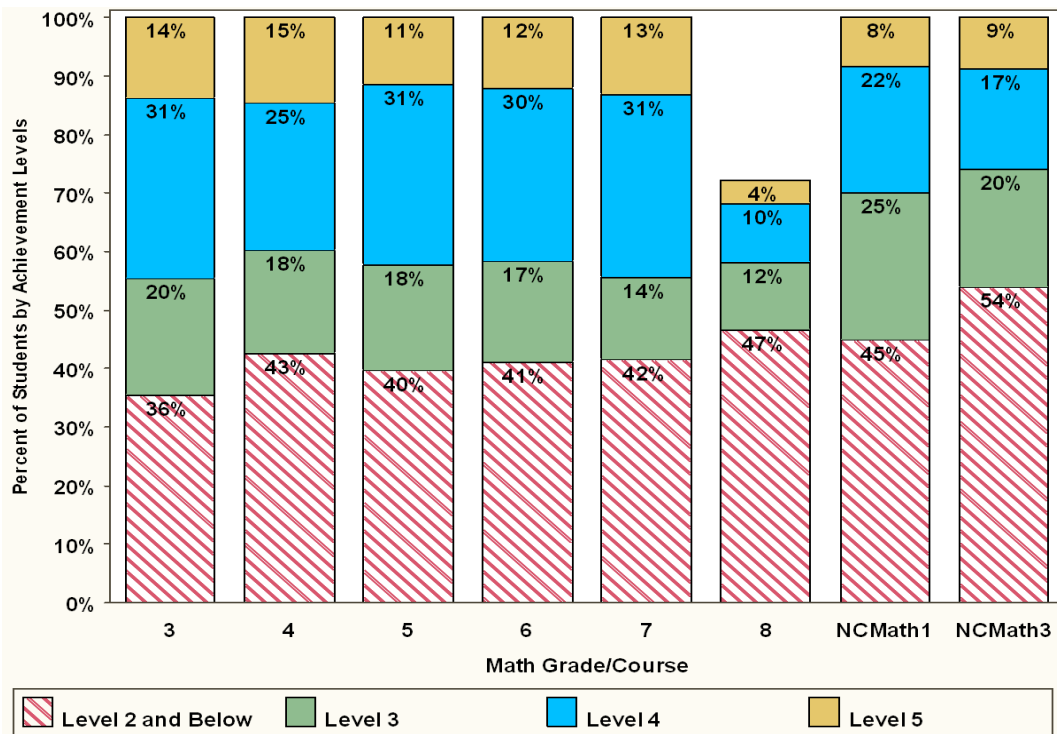
Table 1 shows the recommended cut scores (in terms of scale score) and associated impact data from the workshop. Impact data are the percentages of students who would be classified in each achievement level on the Spring 2019 administration of the assessments if the recommended cut scores were implemented. Figure 1 shows the graphical representation of the associated impact data for general math.

Table 1. Cut Scores and Associated Impact Data for General Math

Test	Grade	Recommended Cut Scores			Percent of Students in Each Achievement Level Based on Recommended Cut Scores			
		Level 3	Level 4	Level 5	Not Proficient	Level 3	Level 4	Level 5
Gen. Ed. Math	3	545	551	560	36%	20%	31%	14%
	4	547	552	560	43%	18%	25%	15%
	5	546	551	561	40%	18%	31%	11%
	6	546	551	561	41%	17%	30%	12%
	7	546	550	560	42%	14%	31%	13%
	8*	543	548	555	47%	12%	10%	4%
	NC Math 1	548	555	563	45%	25%	22%	8%
	NC Math 3	550	556	563	54%	20%	17%	9%

* Approximately 27% of students take the NC Math 1 assessment instead of the grade 8 assessment. These students, typically high-achieving, are not included in the grade 8 population. To help the reader see the trends in the data more easily, the impact data for grade 8 sum to 73%.

Figure 1. General Mathematics Impact Data Associated with Cut Scores*



* Approximately 27% of students take the NC Math 1 assessment instead of the grade 8 assessment. These students, typically high-achieving, are not included in the grade 8 population. To help the reader see the trends in the data more easily, the impact data for grade 8 sum to 73%.

B

Standard Setting Methodology and Recommendations

Standard Setting Methodology

On July 8–11, 2019, the North Carolina Department of Public Instruction (NCDPI) and Data Recognition Corporation (DRC) conducted a standard setting for the North Carolina tests of general-education mathematics in grades 3–8, NC Math 1, and NC Math 3.¹ The purpose of the standard setting was to develop achievement standards for the eight assessments, including achievement level descriptors (ALDs) and cut scores associated with four achievement levels: *Not Proficient*², *Level 3*, *Level 4*, and *Level 5*.

A total of 59 North Carolina educators and stakeholders worked individually and in committees to recommend achievement standards for the North Carolina tests of mathematics. The achievement standards were approved by the North Carolina State Board of Education (SBE) on August 8, 2019.

This section describes the standard setting process, the materials produced to implement the workshop, and the results of the standard setting. Selected materials used for the workshop and detailed data from the workshop are presented in subsequent sections of this report.

Background

In March 2018, the SBE adopted revised content standards for K–12 students regarding the North Carolina Standard Course of Study (NCSCOS). The state’s mathematics tests implemented the NCSCOS in school year 2018–19. In 2019–20, the state’s general and alternate (NCEXTEND1) assessments of English language arts/reading and science will implement the revised content standards.

Selecting the Standard Setting Methodology

The Bookmark Standard Setting Procedure (BSSP; Lewis, Mitzel, & Green, 1996; Lewis, Mitzel, Mercado, & Schulz, 2012) was implemented to recommend cut scores for the North Carolina general mathematics tests. This method has been used on assessments in North Carolina and across the nation (Karantonis & Sireci, 2006).

The BSSP has been well documented in the standard setting literature. Developed in 1996, the BSSP has been implemented in over half of the states in the U.S. and abroad by DRC and by other major testing firms, making it one of the most widely used standard setting procedure in K–12 education (Karantonis & Sireci, 2006).

¹ The standard setting described in this report focused on North Carolina’s tests of mathematics for students in general education. NCEXTEND1, the state’s alternate tests of mathematics for students with severe and profound cognitive disabilities, also underwent a standard setting in July 2019. The NCEXTEND1 mathematics standard setting is presented in a separate report.

² At the standard setting, the lowest achievement level was labeled *Level 2 & Below*. The current name, *Not Proficient*, was adopted by the SBE to promote simplicity and ease of interpretation. This section uses the term *Not Proficient* to refer to this level. Subsequent sections, containing materials seen and used by standard setting participants, use the term *Level 2 & Below*.

Achievement Level Descriptors

Achievement level descriptors (ALDs) are a key input into the standard setting process. ALDs summarize the knowledge, skills, and abilities expected of students in each achievement level. Egan, Schneider, and Ferrara (2012) suggest a framework of four types of ALDs, described here.

- 1) *Policy ALDs* summarize the state’s definition for each achievement level, providing information to stakeholders on the state’s suggested interpretation of each level. They are typically not specific to any given grade or content area. The policy ALDs are shown in Table 1.
- 2) *Range ALDs* summarize the knowledge, skills, and abilities expected of students in a given achievement level on a specific test. The range ALDs show the types of content, as informed by the state content standards, that should be mastered by students in each achievement level on the test at hand.
- 3) *Threshold ALDs* are based on the range ALDs and summarize the knowledge, skills, and abilities expected of students who are at the point-of-entry (the *threshold*) of each achievement level. For any given test, these descriptors show the types of skills needed just to be classified in a given achievement level (e.g., just to be classified in *Level 3*).
- 4) *Reporting ALDs* are the version of the ALDs used for score reporting. Typically, a version of the policy or range ALDs are used, and the language in the reporting ALDs is adjusted to be accessible to a wide audience that may not have in-depth content knowledge. (Reporting ALDs were not part of the scope of the standard setting.)

NCDPI provided policy ALDs for the general mathematics tests in advance of the standard setting workshop. At the standard setting, participants worked to develop formal range ALDs (on Day 1) and informal threshold ALDs (on Days 2–4). The range ALDs are shown in Section E of this report.

Table 1. Policy achievement level descriptors (ALDs) for general mathematics

Not Proficient	Level 3	Level 4	Level 5
Students at the Not Proficient level demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.

Data and Workshop Materials

All of the materials used at the standard setting workshop were based on test items and results from the school year 2018–2019 administrations of the North Carolina general mathematics assessment.

North Carolina Standard Course of Study (NCSCOS)

The NCSCOS formed the basis for all decisions at the standard setting. These content standards, as adopted by the North Carolina State Board of Education, detail the knowledge, skills, and abilities that students should be taught in each grade and subject. Copies of the content standards were distributed to workshop participants.

Achievement Level Descriptors (ALDs)

As described under the heading “Achievement Level Descriptors,” participants were provided with the North Carolina policy ALDs. Participants considered these descriptors to create formal range ALDs on Day 1 of the standard setting and informal threshold ALDs on subsequent days of the workshop.

Ordered Item Booklets (OIBs)

The ordered item booklet (OIB) is a key component of the BSSP. An OIB contains the items from a test, ordered by difficulty. A separate OIB was prepared for each of the grades at the standard setting.

Within each OIB, items are ordered by their difficulty on the test scale. Easier items appear earlier in the OIB, and harder items appear later. The ordering of the items is based on each item’s scale location, which is based on observed student performance.

Response Probability for the OIBs

Items are ordered in the OIB using a response probability (RP) criterion. An RP criterion specifies the probability with which a student with a given ability would be able to correctly answer an item of the same difficulty. For example, if the RP criterion is 0.50 (RP50), students with ability just at the cut score would have a 50% chance of correctly answering items with difficulty at the cut score.

In the BSSP, items are often ordered using an RP criterion of 0.67 with an adjustment for guessing (RP67GA; Lewis, Green, Mitzel, Baum, & Patz, 1998). For example, at the 2013 North Carolina standard setting for the End-of-Course and End-of-Grade tests, a guess-adjusted RP criterion of 0.67 was used: the location for each item is defined as the IRT scale value associated with a 0.67 chance of answering the item correctly after guessing is factored out (Clark & Murphy, 2013). This criterion, often abbreviated as RP67GA, is most closely associated with the Bookmark Procedure (e.g., Lewis, Mitzel, & Green, 1996). However, the choice of RP criterion is a policy decision, and many other states have selected different RP criteria for different purposes, and other RP criteria are often used, including RP50 (Cizek & Bunch, 2007, p. 162; Mitzel, Lewis, Patz, & Green, 2001).

In advance of the standard setting, DRC analyzed the data from the tests and discussed possible RP criteria with NCDPI. NCDPI acknowledged the importance of basing its decision on test data, especially concerning the relationship between (a) the observed difficulty of the test items, and (b) the

performance of students on the tests. To investigate this relationship, DRC created hypothetical OIBs for each grade using different RP values (i.e., RP50, RP50GA, RP67, RP67GA). DRC then calculated the percent of students who would fall below the cut score associated with each page in the hypothetical OIB. When RP67GA was applied to the hypothetical OIB for NC Math 3, approximately 65% of students would fall below a cut score associated with the sixth page in the OIB. Similarly, for grade 8, approximately 55% of students would fall below a cut score associated with the 12th page in the OIB. This pattern was concerning, as it limited the types of cut scores that standard setting participants could recommend. Moreover, using a stringent RP criterion in these cases could promote cognitive dissonance among standard setting participants: participants might struggle to use OIBs created using RP67GA as they recommend cut scores associated with their content-based expectations for students (as listed in the ALDs).

However, application of a different RP criteria (such as RP50) changes this relationship. For example, for NC Math 3, fewer than 5% of students would fall below the cut score associated with the sixth page in a hypothetical OIB where RP50 was applied.

The implications of each potential RP criterion were then considered. An RP criterion that was used in the past was first considered; however, the data for the present assessments did not support the use of RP67 or RP67GA. It was also noted that the same RP criterion should be used for all grades of mathematics, simply because the training messages delivered to standard setting participants would need to be tailored to the exact RP criterion selected. Ultimately, RP50 was applied to the OIBs for the general mathematics tests, as this criterion (a) could be applied well to grade 8 and NC Math 3; (b) could also be applied to the remaining grades; and (c) allowed for OIBs to be constructed that included a selection of easy, medium, and difficult items.

Item Maps

The item map summarizes information about the items in an OIB. For each item, the item map indicates: the order of difficulty, standard, and score key.

The operational item maps incorporate secure test information and are not included in this report. However, Figure 1 shows the item map that was used during the participant training session and is included for illustration.

Figure 1. Item map used to train participants on the Bookmark Standard Setting Procedure

Participant Number: _____ Name: _____

North Carolina Math Standard Setting
Training Item Map for Grade 6 Math

Order of Difficulty	Standard	Score Key	What does this item or score point measure? What do you know about a student who can answer this item or score point correctly?
1	NC.6.RP.4	C	
2	NC.6.EE.9	D	
3	NC.6.NS.7.a	C	
4	NC.6.EE.8	D	
5	NC.6.EE.1	C	
6	NC.6.NS.8	D	
7	NC.6.SP.5.b	D	
8	NC.6.G.3	B	

Benchmarks

Benchmarks comprised an important component of the standard setting process. Benchmarks refer to any external content- or policy-based information that is presented to participants to help them make their cut score recommendations. The use of benchmarks at achievement level setting is well established (Phillips, 2012; McClarty, Way, Porter, Beimers, & Miles, 2013), especially in the Bookmark Procedure (Lewis, Mitzel, Mercado, & Schulz, 2012). Many states have used benchmarks to provide actionable, policy-based information to achievement level setting participants. Participants can then bring their content-based expertise to bear, joining it with the benchmarks. Thoughtful use of benchmarks can bring policy- and content-based information together in a meaningful way.

In advance of the workshop, NCDPI noted that the state expected there to be a general correspondence between the 2019 performance of North Carolina students on its mathematics tests and the year prior. However, NCDPI did not expect there to be an *exact* alignment between the performance of North Carolina students on the mathematics assessments from school years 2017–18 and 2018–19. Most saliently, NCDPI noted that the content standards did not shift significantly between these school years; however, there were some changes. In addition, four achievement levels were used in 2019 (as opposed to five levels used in previous years), and the NC Math 3 assessment was administered for the first time in 2019. Lastly, NCDPI noted that *Level 3* was created statistically after the last standard setting: participants at the present standard setting may well wish to expand the percentage of students classified in this level (when compared with 2018). For these reasons, NCDPI expected there to be good,

albeit imperfect, correspondence between the percentage of students classified in each achievement level between 2018 and 2019.

NCDPI wanted to make sure (a) standard setting participants would make content-based recommendations that linked the cut scores to the North Carolina state content standards, and (b) standard setting participants were not unduly influenced by the benchmarks. Accordingly, NCDPI chose to present the benchmarks based on the 2018 test results for North Carolina general mathematics after Round 1 of the Bookmark Procedure. The process used to present the benchmarks is shown later in this chapter.

Calculating the Benchmarks for the BSSP

At the standard setting, the 2018 impact data for the North Carolina general mathematics assessment was presented as benchmarks for participants' consideration. Benchmarks took the form of benchmark-linked bookmarks, termed at the workshop simply as *benchmarks* or *OIB benchmarks*. To calculate these OIB benchmarks, the cut scores on the 2019 assessments were found that most closely mirrored the percentages of students classified in each achievement level in 2018. The OIB pages associated with these *benchmark cut scores* were then identified and termed *OIB benchmarks*.

The OIB benchmarks and associated impact data are presented in Tables 2 and 3, respectively. Impact data are the percentages of students that would be classified in each achievement level if the cut scores were applied.

Table 2. OIB Benchmarks

Grade	Level 3	Level 4	Level 5
3	34	38	45
4	34	36	40
5	26	30	38
6	34	35	43
7	26	30	42
8	22	24	36
NC Math 1	21	25	42
NC Math 3	21	25	37

Table 3. Associated Benchmark Impact Data

Grade	<i>Not Proficient</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	35.0%	12.1%	34.2%	18.7%
4	42.0%	7.2%	32.3%	18.5%
5	40.1%	6.3%	33.2%	20.4%
6	47.1%	7.7%	26.8%	18.3%
7	48.2%	6.9%	25.5%	19.4%
8	70.2%	6.9%	20.0%	2.9%
NC Math 1	41.8%	11.0%	35.5%	11.8%
NC Math 3	41.8%	11.0%	35.5%	11.8%

Participant Instructions for Interpreting the Benchmarks

As part of the training presentation, participants were instructed that they would see the 2018 impact data represented as OIB benchmarks after Round 1 of the modified BSSP, and that they should consider the OIB benchmarks during Round 2. Participants were asked to consider the knowledge, skills, and abilities measured by the items before each benchmark in the OIB, and then to compare them with the content-based expectations associated with each threshold student (as described by their informal threshold ALDs).

Participants were instructed to consider the relationship between their Round 1 bookmarks and the OIB benchmarks presented before Round 2. Participants were instructed that the OIB benchmarks were another piece of information to consider, and that additional information would be presented throughout the process to help them make their cut score recommendations.

Throughout the workshop, participants were asked to consider the benchmarks as they considered their bookmarks; however, participants were instructed that their judgments should be firmly based on the tested content and on the content-based expectations for students in each achievement level, as described in the ALDs and in North Carolina's content standards.

Standard Setting Staff and Participants

Staff members from NCDPI and DRC collaborated to conduct the standard setting workshop. These staff members worked in facilitative roles and did not contribute to the cut score recommendations during the workshop.

NCDPI Staff

NCDPI staff members attended the workshop to monitor the process, answer assessment and curriculum questions, and address NCDPI policy questions. NCDPI also monitored participants' cut score recommendations throughout the workshop.

NCDPI was represented at the workshop by Tammy Howard, Ph. D., Director of Accountability Services; Kristen Maxey-Moore, Section Chief; Kinge Mbella, Ph. D., Lead Psychometrician; and Joshua Griffin, Educational Testing/Accountability Consultant.

DRC Staff

The DRC Standard Setting Team was composed of Ricardo Mercado, Research Director; Jessalyn Smith, Ph. D., Research Scientist; Christie Plackner, Research Director; Pam Hermann, Ph. D., Research Vice President; Sara Kendall, Sr. Research Analyst; Ping Wan, Research Director; and Alassane Savadogo, Research Analyst. Prior to the standard setting, this team prepared the materials for the workshop. During the workshop, they were responsible for facilitating the workshop, training participants, entering participant results into a database, performing data analyses, and tracking secure materials. Following the workshop, the team prepared this report.

Content experts from DRC Test Development worked with each group at the workshop to provide content-based support. These content experts were Scott Woelber, Sr. Test Development Director; and Eric Jenson, Sr. Test Development Manager.

Project management for the workshop was provided by Julie Korts of DRC Psychometric Services.

Participants

All participants for the workshop committee were recruited, selected, and invited to the workshop by NCDPI. The recruitment process strived to empanel a sample of participants for the standard setting with diverse demographics (e.g., ethnicity, gender) and diverse points-of-view (e.g., geographic location).

The committee comprised a purposeful mix of educators with a variety of backgrounds. Special care was taken to promote geographic diversity among participants, with representation from across the state. Participants were asked to self-report their demographic characteristics (e.g., ethnicity, number of years in the profession) as part of the participant survey. The results of the participant survey can be found in Section I of this report.

Configuration of the Committee

The workshop committee was composed of a total of 59 educators. Three groups were convened for the standard setting, as listed here.

- Grades 3–5 (21 participants)
- Grades 6–8 (21 participants)
- NC Math 1 and NC Math 3 (17 participants)

Participants in each group were divided into four tables. One participant at each table served as the table leader. Table leaders moderated discussions at their tables and helped the workshop staff distribute and collect the secure workshop materials. The table leaders were not members of the workshop staff, and they contributed to their committees' recommendations.

Range ALDs Development

The standard setting workshop began with a one-day achievement level descriptor (ALD) writing activity.

Opening Session

All participants³ began the workshop with a single opening session led by NCDPI. During this session, Dr. Howard welcomed the participants to the workshop and described the purpose of the workshop. Dr. Howard and Ms. Moore described the recent changes to the tests, and they described how valuable the participating educators' recommendations would be in identifying new cut scores for the tests.

Achievement Level Descriptor Development Training

Mr. Woebler then greeted participants on behalf of DRC and led them through a training presentation on how they would use the North Carolina policy ALDs to construct range ALDs. During this presentation, DRC described the purpose of policy and range ALDs, how range ALDs could summarize the content-based expectations for students in each achievement level, and how the participating educators would construct range ALDs by using the state content standards and the policy ALDs.

At the end of this training session, participants were divided into groups by test. Approximately 7–10 participants focused on each of the eight tests. Within each group, participants were seated at a single table, and each participant was assigned a networked laptop for use during the ALD session.

Creation of Range ALD Drafts

To start the ALD development process, participants were provided with an *ALD template* that contained language from the state content standards. This template, created by DRC prior to the workshop, comprised a table containing one column for each achievement level. Mr. Jenson from DRC introduced the templates to participants and provided support throughout the day.

The content-based expectations from the state content standards were divided into bullet points and grouped by strand. This language was inserted into the template under the *Level 4* column. (Prior to the workshop, NCDPI reiterated that it was an expectation that students in *Level 4* should have a thorough understanding of the skills listed in the state content standards.)

Participants were told that the goal of the day's ALD development effort was to examine the language in the template (from the standards) and use it to describe the content-based expectations for students in the other levels. For example, participants were instructed to consider the core or prerequisite skills associated with each bullet, and to describe the expected performance of students in *Not Proficient* and *Level 3*; and to consider how a student in *Level 5* might fully demonstrate the skill associated with the bullet.

³ Participants from the NCEXTEND1 standard setting were present during the opening session and training on ALD writing. They then adjourned to a separate room to develop their own ALDs. The two groups did not interact with each other in an official capacity for the remainder of the workshop.

Participants worked in their groups to add information to the ALD templates, all as informed by the language from the state content standards. Participants used the networked computers to contribute collaboratively and to see the edits made by their peers. At the end of this session, participants had a set of draft ALDs they could discuss with their colleagues at the standard setting.

Discussion of Range ALD Drafts

Participants then discussed their range ALD drafts with participants focused on different grades. For example, participants in the grade 3 group welcomed participants from the grade 4 group, and participants in the grade 6 group welcomed participants from the grades 5 and 7 groups. During these discussions, participants shared their work on their draft ALDs. This discussion had two primary goals: (a) to promote across-grade articulation among the content-based expectations in the ALDs; and (b) to promote a common look and feel to the ALDs. After these discussions, the groups made edits to their drafts.

After participants edited their range ALD drafts, Mr. Jenson facilitated a discussion across groups about the range ALD drafts. The goal of this discussion again was to promote articulation across grades. Participants had an opportunity to comment on other groups' drafts and to adjust their own.

After the ALD Development Session

DRC thanked participants for their time and expertise during the ALD development session. After the session, DRC and NCDPI reviewed the ALDs for vertical articulation and for style. As needed, the range ALDs were revised by NCDPI Standards and Curriculum team members to promote consistency with the standards and across grades.

Physical copies of the ALDs were printed for participants during the standard setting. Throughout the standard setting process, participants were encouraged to make use of the ALDs and use them to inform their content-based recommendations.

Standard Setting

The standard setting workshop took place over a three-day period. The workshop agenda is included in Section C. Participants were given a Pre-Session Workshop Evaluation to complete before standard setting began to collect participants' demographic information and to learn more about their background.

Participant Training

Following the range ALD workshop on the first day, Mr. Mercado from DRC introduced the standard setting methodology. Participants were introduced to the materials that would be used during the rest of the workshop. The training presentation and selected materials are included in Section D of this report.

Participants were instructed that their goal for the workshop was to set cut scores for the North Carolina mathematics assessments. Participants understood that they would consider the knowledge and skills expected of students in each achievement level, and they would engage in the Bookmark Procedure to make cut score judgments. However, participants were reminded that although they would be given benchmarks that represented the 2018 test results, they should make cut score recommendations that were consistent with the state content standards, with the content-based expectations for students in each achievement level, and with their experience with students.

Following the training session, participants were divided into their pre-assigned groups and tables. Each grade range convened in a separate breakout room. Participants in these groups began the standard setting process focused on either Grade 4, Grade 7, or NC Math 1. By doing so, participants could consider the articulation of the achievement standards between these 2–3 grades, if needed, setting the stage for articulation discussions throughout the workshop. After these three grades, participants then repeated the process for Grade 3, Grade 6, and NC Math 3, respectively. To complete their work, participants in the first two groups repeated the process once more for Grades 5 and 8. Participants in the high school group divided their time between NC Math 1 and NC Math 3.

Discussion of the Standards and the Threshold Students

The group leaders instructed participants to read the content standards and policy ALDs, and to consider the knowledge, skills, and abilities (KSAs) that students were expected to demonstrate at the threshold of each achievement level. Specifically, participants were asked to use the range ALDs, they had constructed at the beginning of the workshop, and content standards to develop informal threshold ALDs.

Participants engaged in structured discussions about the KSAs they expected to be demonstrated by each of the three threshold students. The three threshold students were just barely *Level 3*, just barely *Level 4*, and just barely *Level 5*. To engage in these discussions, participants referred to the policy and range ALDs, the content standards, and their knowledge of students.

As a group, participants discussed the ALD for each achievement level and the differences between them. During this discussion, participants considered the overall level of rigor implied by each range ALD. To focus participants on the lines of demarcation between the achievement levels, participants were asked to discuss the KSAs that separated students in one achievement level from those in another. For example, participants were asked to discuss the KSAs that separated the highest performing *Level 4* from the lowest performing *Level 5*. All participants were instructed to refer to the content standards during this discussion.

Participants recorded their expectations for students at the thresholds of each achievement level on large pieces of paper that were hung around the room conspicuously. The note paper remained on the walls through the duration for participants to refer to during the workshop.

By the end of this discussion, participants had thoroughly considered the policy ALDs, range ALDs, content standards, and threshold students, and they reached an understanding of the types of skills that the threshold student for each achievement level should have.

Study of the OIBs and Item Maps

Participants at each table examined the items in the OIB in terms of what each item measured and why it was more difficult than the items preceding it. Participants were instructed to take notes on the item maps about the knowledge, skills, and abilities required to answer the items correctly.

Secondary Training on Placing Bookmarks

Mr. Mercado provided the participants with additional training for placing bookmarks. Participants were reminded how cut score recommendations could be represented by bookmarks. Participants were instructed that all items preceding the bookmark contain the knowledge, skills, and abilities that a student who is just barely in *Level 4*, for example, is expected to know. The training presentation and training materials are included in Section D.

Participants were informed that they should have a content-based rationale for each of their bookmarks, and that these rationales should refer to the alignment between the content-based expectations for students in each achievement level and the content measured by the items before their bookmarks. Participants were instructed that they would share these rationales verbally with their tables after Round 1.

Following training, participants were tested on their understanding of bookmark placement with a short quiz, termed a *mid-process evaluation*. Afterwards, participants were provided the correct answers for the mid-process evaluation, as well as explanations of those answers. The mid-process evaluation and results are presented in Section D of this report and under the heading "Committee Training."

Round 1 Bookmarks

Participants then made their Round 1 bookmark judgments. Participants were informed that bookmark placement is an individual activity. They referred to their OIBs, item maps, ALDs, benchmarks, and content standards.

Participants recorded their bookmark placements on a form, along with a few words about their content-based rationale for doing so. Participants were instructed that they should have a content-based rationale for each bookmark placement that linked the content measured by the items before their bookmark and the content-based expectations for the threshold student. These content-based rationales were solely for participants' reference during their table's discussion before Round 2. Participants then completed Round 1 by recording their bookmark placements on a secure web-based survey platform.

Participants were handed a Post-Round Survey for them to complete while they waited for their fellow participants to complete their bookmark judgments. In this survey, participants indicated which

elements of the standard setting (e.g., items, ALDs) were particularly influential. Results of these surveys were shown in combined grade-range in Section I of this report.

Presentation of Round 1 Recommendations

Following Round 1 bookmark placements, DRC calculated the bookmark recommendations for each group. Participants were presented with a summary of their Round 1 recommendations. Specifically, participants were shown the median bookmark placements for each table, as well as the overall median bookmark for the group. Participants were also shown a histogram of the group's Round 1 ratings. Detailed participant judgments and graphical representation of participant judgments are presented in Sections F and G of this report, respectively.

Presentation of Benchmarks

In each group, the benchmarks were shown to participants in terms of OIB position. Participants were reminded that they would consider the OIB benchmarks during their Round 2 deliberations, so they should pay special attention to the items around each benchmark.

Round 2 Bookmarks

For each achievement level, participants discussed the rationales behind their Round 1 bookmark placements. Participants were instructed to engage in a content-based discussion by focusing on the items in the OIB between the lowest and highest bookmarks for Round 1. Participants were also informed that they could discuss items outside the range of their bookmarks. These content-based discussions took place at each table. Participants referred to their OIBs, item maps, benchmarks, ALDs, and the content standards throughout the discussions.

Following this discussion, participants placed their Round 2 bookmarks. Participants were reminded that bookmark placement is an individual activity. Participants were also reminded that they would be free to retain their bookmarks from Round 1 or to change one or more of them; however, in either case, participants would need to have content-based rationales for their decisions.

Participants were handed a Post-Round Survey for them to complete while they waited for their fellow participants to complete their bookmark judgments. Results of these surveys are shown in combined grade-range in Section I of this report.

Presentation of Round 2 Recommendations

Following Round 2 bookmark placements, DRC calculated the bookmark recommendations for each group. Participants were presented with a summary of their Round 2 recommendations and histogram representation of their ratings. DRC also presented the impact data for their test. Impact data are the percentages of students that would be classified in each achievement level if the median cut score recommendations were applied. Impact data for grades 3–8 mathematics were based on the Spring 2019 administration of the tests; for Math 1 and 3, impact data were based on the Fall 2018 and Spring 2019 test administrations.

When inspecting the impact data, participants were given two caveats to remember. First, participants were cautioned that grade 8 students enrolled in a NC Math 1 course did *not* take the grade 8 test: instead, these students took the End-of-Course (EOC) NC Math 1 test. Accordingly, these students—approximately 30% of the grade 8 population, most of whom were likely high-achieving—were not represented in the impact data for grade 8, which may make the impact data for grade 8 look artificially low. Second, participants were cautioned that the NC Math 3 test was new, and that students who took the test either knew (or could have known) that their performance on the test would not have an impact on their course grade: accordingly, the impact data for NC Math 3 might also look somewhat low. Participants were reminded of these caveats whenever they were shown impact data across grades.

Round 3 Bookmarks

For each achievement level, participants discussed the rationales behind their Round 2 bookmark placements. Participants were instructed to engage in a content-based discussion by focusing on the items in the OIB between the lowest and highest bookmarks for Round 2. Participants were also informed that they could discuss items outside the range of their bookmarks. These content-based discussions took place as a group. Participants referred to their OIBs, item maps, benchmarks, ALDs, and the content standards throughout the discussions.

Following this discussion, participants placed their Round 3 bookmarks. Participants were reminded that bookmark placement is an individual activity. Participants were also reminded that they would be free to retain their bookmarks from Round 2 or to change one or more of them; however, in either case, participants would need to have content-based rationales for their decisions.

Participants were given a Post-Round Survey for them to complete while they waited for their fellow participants to complete their bookmark judgments. Results of these surveys are shown in combined grade-range in Section I of this report.

Presentation of Round 3 Recommendations

Following Round 3 bookmark placements, DRC calculated the bookmark recommendations for each group. Participants were presented with a summary of their Round 3 recommendations and histogram representation of their ratings. DRC also presented the impact data for their test.

Repeating the Process for Remaining Grades

Participants then repeated the BSSP for Grade 3, 6, or NC Math 3, starting with a study of the ALDs for that grade. Participants were encouraged to consider the articulation between the achievement standards for their 2–3 grades, and they were reminded that there would be an opportunity at the end of the process to suggest adjustments to the cut scores, if needed, to promote better articulation across the grades.

After they completed the BSSP for Grades 3 and 6, participants in the first two groups then completed the BSSP for Grades 5 and 8.

Review of Recommendations

In their groups, participants were presented with the cut score recommendations for all grades and courses, from grade 3 through NC Math 3. Participants were informed that they could recommend adjustments to the cut scores, if needed, to promote better articulation across grades. However, participants were cautioned against suggesting adjustments which were inconsistent with the content: any adjusted bookmarks should still link the ALDs, tested content, and content standards.

Participants were reminded that the table leaders would participate in the across-grade articulation discussion. Accordingly, all participants were encouraged to inform their table leaders about their opinions regarding the articulation of the achievement standards and any proposed cut score adjustments.

Workshop Evaluation

All participants were thanked for their time and effort during the standard setting. To conclude the workshop, participants were asked to complete a written evaluation. Participants not taking part in the table leader discussion were welcomed to leave after completing the workshop evaluation.

Selected results are presented later in this section. The complete results of the evaluations are included in Section I of this report.

Across-Grade Articulation Discussion

The 12 table leaders then convened in a single breakout room to inspect their cut score recommendations together. DRC then presented table leaders with their median Round 3 recommendations. The impact data associated with their median cut score recommendations were presented graphically. Table leaders were asked to share any concerns or recommendations their tables had had for their grades.

DRC reminded participants that no group reached consensus on their cut score recommendations: all groups had a diversity of cut score recommendations, even at the end of Round 3. Although the median cut score recommendations were used to calculate the impact data for presentation, any cut scores within the range of cut score recommendations made by participants would still reflect the voice of the participating educators.

Mr. Mercado of DRC facilitated a wide-ranging discussion on the articulation of the cut scores. The table leaders were then shown how the cut scores could be adjusted—within the range of participants-recommended cut scores—to improve the across-grade articulation associated with the cut scores and still reflect the content-based expectations of students in each achievement level. The table leaders examined the adjusted cut scores and voted to make them their final recommendations. Table leaders were reminded that these recommendations would then go to NCDPI for consideration.

Workshop Security

Throughout the workshop, security was of paramount importance. Secure test materials used during the workshop were numbered and assembled into packets. Each participant signed out a specific packet and was given an associated number to be used on their materials throughout the duration. At all times, DRC staff monitored the meeting rooms to prevent the removal of secure materials. At the end of each day, each participant's materials were collected and inventoried against a master list. The secure materials were stored overnight in a secure room. At the end of the workshop, the secure materials were collected and inventoried against the sign-out lists for a final time.

In addition, participants were required to sign non-disclosure agreements to participate in the workshop. These agreements were signed by participants and were collected by the DRC staff at the beginning of the workshop.

Results

The standard setting was conducted according to the plans created by NCDPI and DRC prior to the workshop. The results of the workshop are presented in this section.

Participants' Recommendations After Round 1

Tables 4 and 5 show participants' recommendations from Round 1 of the BSSP. All of the impact data shown in Table 5 and in this section are based on North Carolina students' performance in Spring 2019.

Table 4. Cut score recommendations from Round 1 of the standard setting

Grade	Level 3	Level 4	Level 5
3	529	544	562
4	538	551	565
5	543	561	572
6	538	546	556
7	546	551	563
8	545	558	571
NC Math 1	546	555	571
NC Math 3	540	553	569

Table 5. Associated impact data from Round 1 of the standard setting

Grade	<i>Not Proficient</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	1.4%	31.5%	57.3%	9.7%
4	17.2%	39.2%	38.7%	4.8%
5	31.2%	57.3%	11.5%	0.0%
6	18.1%	22.8%	34.6%	24.4%
7	41.5%	16.9%	33.7%	7.9%
8	72.8%	24.7%	2.5%	0.0%
NC Math 1	39.0%	30.4%	29.0%	1.5%
NC Math 3	16.7%	46.9%	34.1%	2.2%

Participants' Recommendations After Round 2

Tables 6 and 7 show participants' recommendations from Round 2 of the BSSP. When considering impact data, participants were instructed to think about the proportions of students in each achievement level for the grade at hand, plus the impact data.

Participants' individual recommendations from all rounds may be found in Section F of this report. During the workshop, participants were shown their recommendations in terms of OIB pages.

Table 6. Cut score recommendations from Round 2 of the standard setting

Grade	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	540	549	562
4	538	547	565
5	543	561	572
6	538	546	556
7	546	550	562
8	541	558	571
NC Math 1	546	554	571
NC Math 3	540	552	569

Table 7. Associated impact data from Round 2 of the standard setting

Grade	<i>Not Proficient</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	21.1%	28.2%	41.0%	9.7%
4	17.2%	25.2%	52.7%	4.8%
5	31.2%	57.3%	11.5%	0.0%
6	18.1%	22.8%	34.6%	24.4%
7	41.5%	13.9%	34.7%	9.9%
8	58.0%	39.6%	2.5%	0.0%
NC Math 1	39.0%	28.0%	31.3%	1.5%
NC Math 3	16.7%	44.4%	36.6%	2.2%

Participants' Recommendations After Round 3

Tables 8 and 9 show participants' recommendations from Round 3 of the BSSP. When considering impact data, participants were instructed to think about the proportions of students in each achievement level for the grade at hand, plus the impact data.

Participants' individual recommendations from all rounds may be found in Section F of this report. During the workshop, participants were shown their recommendations in terms of OIB pages.

Table 8. Cut score recommendations from Round 3 of the standard setting

Grade	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	540	550	562
4	539	547	563
5	543	552	561
6	542	547	563
7	546	550	562
8	540	552	568
NC Math 1	545	554	565
NC Math 3	543	552	563

Table 9. Associated impact data from Round 3 of the standard setting

Grade	<i>Not Proficient</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
3	21.1%	31.2%	38.0%	9.7%
4	19.5%	22.9%	49.1%	8.4%
5	31.2%	29.8%	27.5%	11.5%
6	28.2%	15.2%	48.9%	7.6%
7	41.5%	13.9%	34.7%	9.9%
8	54.5%	35.2%	10.3%	0.1%
NC Math 1	35.2%	31.9%	26.7%	6.2%
NC Math 3	29.4%	31.7%	29.9%	8.9%

Recommendations from the Articulation Discussion

Throughout the standard setting process, participants were informed they would have an opportunity at the end of the workshop to consider the across-grade articulation of the achievement standards. Participants were told that achievement standards were well-articulated when the impact data associated with a set of cut scores formed a reasonable, explainable pattern across grades.

The table leaders were reminded about the caveats regarding the impact data: (a) that 30% of high-achieving 8th graders took the NC Math 1 test instead of the Grade 8 test, and (b) that the NC Math 3 test was new and students likely knew it did not count for or against their course grades.

As part of a wide-ranging discussion, the table leaders noted several trends in the impact data:

- *Inconsistent percentages of students classified as Not Proficient.* The table leaders noted that the percentage of students classified as *Not Proficient* (labeled during the workshop as *Level 2 & Below*) varied from less than 20% to more than 50%. The table leaders expressed surprise at this trend: they expected there to be more consistency across grades. At the same time, participants indicated that they expected the percentage of students classified as *Not Proficient* to reflect the challenging nature of the standards; and for percentage of *Not Proficient* to rise across the progression grades, reflecting the increasing complexity of the standards. (Participants also expected the percentage of students classified as *Not Proficient* in Grade 8 to be markedly high, simply because of the population of students who took that test.)
- *General satisfaction with Level 4 and above.* The table leaders noted that the percentages of students classified as *Level 4* and above were relatively consistent across grades; however, the articulation across grades for this important level could be improved. The committee noted that the policy ALD for *Level 4* specified that students must have a “thorough understanding” of the grade-level content, and they considered how well the cut scores for each grade reflected this expectation. The table leaders noted they were generally satisfied with the *Level 4* cut scores for Grades 3 and 7, but favored adjustments to the intervening grades to promote articulation.

- *Unsettled satisfaction with Level 5.* The table leaders were satisfied that their cut score recommendations for *Level 5* reflected the “comprehensive understanding” described in the policy ALDs. However, they also noted that the percentages of students classified in *Level 5* was markedly lower than that observed in previous years, and that the articulation across grades was sometimes inconsistent. During the discussion, the table leaders did not come to consensus on any adjustments to these cut scores.

Working in front of the committee of table leaders, DRC examined the ranges of cut score recommendations made by participants during the standard setting. Although participants saw feedback based on the median cut score recommendations for each round of the main standard setting process, participants recognized that there was a range of cut scores recommended for each cut score. (In fact, participants saw histograms showing their various bookmark placements after each round of the Bookmark Procedure.) During the articulation discussion, table leaders were instructed that cut scores adopted within these ranges can be considered as reflecting the voice of the standard setting committee.

To honor the group’s discussion, the following cut score adjustments were proposed *en masse* for the table leaders’ consideration. Each adjusted cut score falls within the range of cut scores recommended by participants during the Bookmark Procedure.

- *Level 3:* Grade 3 from 540 to 545; Grade 4 from 539 to 545; Grade 5 from 543 to 546; Grade 6 from 542 to 546; Grade 8 from 540 to 541; NC Math 1 from 545 to 547; and NC Math 3 from 543 to 547.
- *Level 4:* Grade 4 from 547 to 552; Grade 5 from 552 to 551; Grade 6 from 547 to 551; Grade 8 from 552 to 548; and NC Math 1 from 554 to 552.
- *Level 5:* None.

DRC presented the adjusted cut scores and associated impact data to the table leaders. The group saw how the adjustments reflected their opinions about the articulation of the students in *Not Proficient* and in *Level 4* and above. DRC asked the group whether it felt comfortable making this set of adjusted cut scores its recommendation: the table leaders assented.

DRC and NCDPI thanked the table leaders for their time and expertise. DRC reminded the table leaders that NCDPI and its advisors would be reviewing their cut score recommendations, and that adjustments may be made to the cut scores by NCDPI for policy-related reasons.

Tables 10 and 11 show participants’ recommendations from the across-grade articulation discussion BSSP. These cut scores are considered to be the standard setting committee’s final recommendations from the Bookmark Procedure.

Table 10. Cut score recommendations from the across-grade articulation discussion

Grade	Level 3	Level 4	Level 5
3	545	550	562
4	545	552	563
5	546	551	561
6	546	551	563
7	546	550	562
8	541	548	568
NC Math 1	547	552	565
NC Math 3	547	552	563

Table 11. Impact data associated with the cut score recommendations from the across-grade articulation discussion

Grade	Not Proficient	Level 3	Level 4	Level 5
3	35.5%	16.8%	38.0%	9.7%
4	35.8%	24.3%	31.5%	8.4%
5	39.5%	18.2%	30.8%	11.5%
6	41.0%	17.2%	34.3%	7.5%
7	41.5%	13.9%	34.7%	9.9%
8	58.0%	22.4%	19.6%	0.1%
NC Math 1	41.6%	16.5%	35.7%	6.1%
NC Math 3	43.8%	17.5%	29.9%	8.8%

After the Standard Setting

After the standard setting, NCDPI reviewed the recommendations from the standard setting participants, including the table leaders' across-grade articulation discussion. To do so, the Department used data from each round of the Bookmark Procedure and from the articulation discussion to interpret the recommendations of the standard setting committee throughout the process.

Levels 3 and 4. During the across-grade discussion, the table leaders inspected the cut scores for articulation using content and impact data as guides. The cut scores recommended by the committee of table leaders were better articulated than the cut scores from Round 3 (in terms of impact data).

The table leaders had a very limited amount of time during the across-grade discussion to review the cut scores across grades and to consider adjustments. Had table leaders had additional time, it is likely they would have made further adjustments to the cut scores to promote even better articulation across grades. NCDPI, in consultation with DRC, accordingly reserved the right to make small adjustments to these cut scores to promote articulation across grades.

Level 5. During the across-grade articulation discussion, the committee of table leaders could not come to immediate consensus on how to adjust the *Level 5* cut scores. The table leaders—reporting opinions from the larger standard setting committee—were concerned that the percentage of students classified as *Level 5* were lower than had been observed in previous years. Specifically, the percentage of students classified in *Level 5* in 2018 (as shown in Table 3) was typically around 20%; however, participants at the 2019 standard setting recommended cut scores associated with about 10% of students in this top achievement level.

NCDPI again noted that table leaders had limited time during the articulation discussion, and that they likely would have recommended additional adjustments to the cut scores had they more time. NCDPI also appreciated participants’ work to identify cut scores which reflected “comprehensive understanding” of the state content standards. Lastly, NCDPI and participants noted the value in sending consistent signals to students and school systems across years, especially because of the small amount of changes to the content standards across these two years.

Accordingly, participants’ *Level 5* cut score recommendations were reexamined after the standard setting. *Level 5* cut scores were identified such that 10–15% of students were classified as *Level 5* in lower grades, with the percentage declining over the grades to reflect the rising complexity of the underlying content standards. Such a declining trend mirrored the expectations of the table leader committee, and it continued to reflect an expectation of “comprehensive understanding” of the content.

To make the cut score adjustments, the minimum, median, and maximum cut score recommendations made by participants in Rounds 1, 2, and 3 of the Bookmark Procedure were identified. When needed, the cut scores were adjusted using values that fell within the range of cut score recommendations made by participants during the standard setting.

Table 12 shows the minimum, median, and maximum cut score recommendations made by participants in the three rounds of the standard setting. Table 13 shows the final, adjusted cut scores for the general-education tests of mathematics, along with their associated impact data. To promote ease of interpretation, the impact data for Table 13 *do not reflect* the 27% of Grade 8 students who take the NC Math 1 test instead of the Grade 8 assessment. These impact data are also reflected Figure 2.

On August 7, 2019, the North Carolina State Board of Education (SBE) considered the cut score recommendations shown in Table 13. After deliberation, the SBE approved the cut scores on August 8, 2019. NCDPI intends to apply these cut scores to the next operational administration of the assessments.

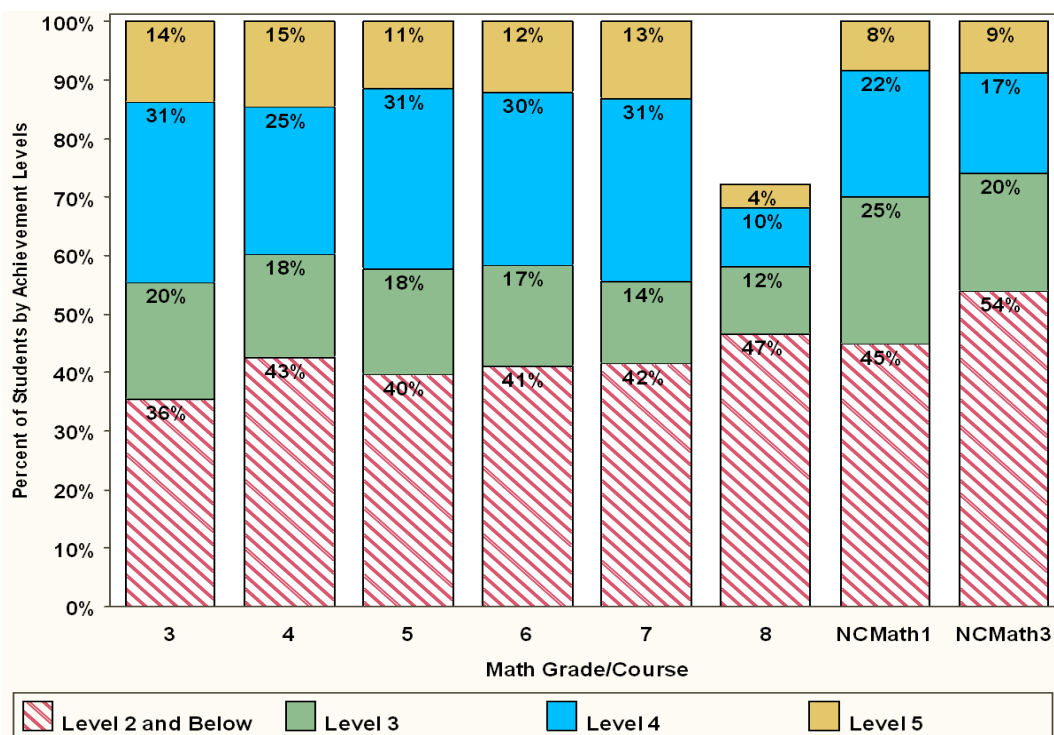
Table 12. Minimum, median, and maximum cut score recommendations made during the Bookmark Procedure, by round and test

		Round 1			Round 2			Round 3		
Test		Min.	Med.	Max.	Min.	Med.	Max.	Min.	Med.	Max.
3	Level 3	496	529	540	515	540	542	533	540	550
	Level 4	506	544	555	534	549	550	544	550	551
	Level 5	536	562	582	551	562	571	559	562	571
4	Level 3	521	538	547	528	538	545	532	539	545
	Level 4	537	551	560	538	547	554	542	547	554
	Level 5	554	565	575	560	565	566	560	563	566
5	Level 3	539	543	552	541	543	547	539	543	547
	Level 4	543	561	562	547	561	561	546	552	556
	Level 5	561	572	575	561	572	572	551	561	572
6	Level 3	537	538	544	537	538	542	538	542	546
	Level 4	543	546	551	543	546	548	545	547	551
	Level 5	548	556	566	553	556	564	556	563	568
7	Level 3	531	546	551	539	546	547	539	546	547
	Level 4	546	551	562	546	550	558	546	550	551
	Level 5	550	563	588	557	562	568	557	562	563
8	Level 3	540	545	557	540	541	545	532	540	544
	Level 4	552	558	564	549	558	559	545	552	558
	Level 5	571	571	582	559	571	571	555	568	571
NC Math 1	Level 3	532	546	550	537	546	550	545	545	546
	Level 4	550	555	582	546	554	555	553	554	555
	Level 5	563	571	616	563	571	582	563	565	571
NC Math 3	Level 3	532	540	551	538	540	543	538	543	543
	Level 4	549	553	559	551	552	559	551	552	553
	Level 5	553	569	575	560	569	569	560	563	569

Table 13. Final, approved cut scores and associated impact data for the North Carolina general-education mathematics assessments

Test	Grade	Recommended Cut Scores			Percent of Students in Each Achievement Level Based on Recommended Cut Scores			
		Level 3	Level 4	Level 5	Not Proficient	Level 3	Level 4	Level 5
Gen. Ed. Math	3	545	551	560	36%	20%	31%	14%
	4	547	552	560	43%	18%	25%	15%
	5	546	551	561	40%	18%	31%	11%
	6	546	551	561	41%	17%	30%	12%
	7	546	550	560	42%	14%	31%	13%
	8*	543	548	555	47%	12%	10%	4%
	NC Math 1	548	555	563	45%	25%	22%	8%
	NC Math 3	550	556	563	54%	20%	17%	9%

Figure 2. Impact data associated with the final, approved cut scores for the North Carolina general-education mathematics assessments



* For general mathematics, approximately 27% of students take the NC Math 1 assessment instead of the Grade 8 assessment. These students, typically high-achieving, are not included in the Grade 8 population. To help the reader see the trends in the data more easily, the impact data for Grade 8 sum to 73%.

Evidence of Procedural Validity

The standard setting was conducted using a diverse, well-trained committee, and was perceived as valid by participants. This section supports these claims.

Committee Diversity

As part of the pre-session workshop survey, participants were asked about their backgrounds. The self-reported demographic characteristics of the participants are documented in this section. Initially, 60 participants started in the standard setting committee, all 60 responded to a request on the first day of the workshop to share background and demographic information. After the pre-session training, one participant left the workshop. Later, all 59 remaining participants responded to the post-session workshop evaluation administered on the last afternoon of the workshop.

Participants were asked to report their gender, race, and ethnicity. As shown in Table 14, 85% of the participants were female; and Table 15 shows just under 70% of participants were white and non-Hispanic.

Participants were asked to report their years of experience in education and their current position. As shown in Table 16, approximately 11% of participants indicated they had taught for over 25 years and approximately 49% reported they had worked for 16 years or longer in education. Table 17 shows that 48% of participants were currently general education teachers, 26% were curriculum staff, and 10% were English language learner (ELL) teachers.

In addition, participants responded whether they had experience with students in special education, English language learners, alternate education, vocational education, and others. Participants were asked to select all that applied. As shown in Table 18, a large majority of the committee had experience teaching special education students, ELLs, or both, as well as gifted and talented education.

In Tables 14 through 18, the percentages may not sum to 100% due to rounding and due to individual participants omitting their responses to certain questions. The full results of the participant pre-session survey, including participants' self-reported demographic and background information, may be found in Section I of this report.

Table 14. Participants' self-reported gender

N	Female	Male
60	85%	15%

Table 15. Participants' self-reported race and ethnicity

N	White	Black	Hispanic	American Indian/Alaska Native	Mixed
60	68%	21%	5%	3%	2%

Table 16. Participants' self-reported years in education

N	1–5	6–10	11–15	16–20	21–25	Over 25	No Response
60	6%	18%	23%	15%	23%	11%	2%

Table 17. Participants' self-reported current position

N	General Education Teacher	Special Education Teacher	ELL Teacher	Curriculum Staff	Higher Education	Teacher on Special Assignment	Administrator	No Response
60	48%	5%	10%	26%	3%	2%	3%	2%

Table 18. Participants' self-reported experience teaching special populations

N	Special ed. in a self-contained classroom	Special ed. in a mainstream classroom	English language learners	Gifted and talented ed.	Vocational ed.	Alternative ed.	Adult ed.	No Response
60	6%	63%	56%	61%	3%	2%	11%	13%

Committee Training

During the standard setting workshop, it was clear to the facilitators that participants understood how to make judgments as part of the standard setting methodology (e.g., setting bookmarks). To confirm participants' knowledge of the methodology, they were given a short quiz, termed a *mid-process evaluation*, after training. The mid-process evaluation and detailed results are shown in Section D. Of the standard setting committee participants, 58 submitted completed mid-process evaluations.

Participants answered items 1–5 on the mid-process evaluation correctly most of the time. This indicates that, on the whole, participants were well prepared to make judgments and that the training was effective. To reinforce the concepts covered during training, the correct answers to the questions were covered at the end of the training session; special emphasis was paid to the third question. Results of the mid-process evaluation are shown in Table 19. All questions on the mid-process evaluation were scored dichotomously.

Table 19. Participants answering each item correctly on the training mid-process evaluation

N	#1	#2	#3	#4	#5
58	100%	86%	70%	96%	100%

Participants' Perceived Validity of the Workshop

Participants indicated their perceived validity of the workshop and their recommendations as part of the post-session workshop evaluation. Hambleton (2001) noted that evaluations are important evidence for establishing the validity of performance levels.

Satisfaction with Workshop and Recommendations

Generally, participants were satisfied with their recommendations and with the workshop as a whole. Table 20 shows participants' level of satisfaction with their recommendations. Particularly, participants understood the connection between the benchmarks and their cut score recommendations, and participants generally agreed that the final recommendations reflected the work of the standard setting committee.

Table 20. Participants' agreement with various statements on the post-session workshop evaluation regarding their satisfaction with the process and the final recommendations

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Agree + Strongly Agree
The training provided a clear description of the workshop goals.	1%	1%	45%	50%	95%
I understood how to make my bookmarks.	0%	1%	35%	62%	97%
I considered the threshold students when making my bookmarks.	0%	0%	31%	69%	100%
Discussing the threshold students helped me make my bookmarks.	0%	0%	46%	54%	100%
My group's work was reflected in the presentation of recommendations across grades.	2%	0%	47%	51%	98%
Overall, I valued the workshop as a professional development experience.	0%	2%	13%	85%	98%

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C

Agenda



Public Schools of North Carolina

State Board of Education
Department of Public Instruction

Workshop Agenda

North Carolina General and NCEXTEND1 Mathematics
Grades 3–8, NC Math 1 and NC Math 3

Standard Setting Workshop
Raleigh, NC
July 8–11, 2019



Welcome to the standard setting workshop for the North Carolina general and NCEXTEND1 mathematics assessments! This agenda is for the participants in the general mathematics groups. If you are in an NCEXTEND1 group, please ask a facilitator for the proper agenda.

The North Carolina Department of Public Instruction (DPI) and Data Recognition Corporation (DRC) would like to 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 facilitator.

Monday, July 8

Welcome!

- | | |
|---------------------|---|
| 7:30–8:15 AM | Participant Registration
Participants register at the reception table to sign the confidentiality agreement, receive a nametag, and collect additional workshop materials. |
| 8:30 AM | Opening Session
DPI welcomes participants, overviews the testing program, discusses the reasons for the standard setting, and describes the desired outcome of the workshop. |
| 9:00 AM | Achievement Level Descriptor (ALD) Development Training
DRC describes how achievement level descriptors (ALDs) summarize the content-based expectations for students in each achievement level, and the committee will develop them based on the North Carolina Standard Course of Study (NCSCOS). |
| 9:45 AM | Break and Adjournment to Tables by Grade |
| 10:00 AM | Study Content Standards and Policy ALDs
After brief introductions, participants study the content standards and policy ALDs for their assigned grade. <ul style="list-style-type: none">• Each participant will be assigned a computer with an electronic template containing the policy ALDs.• All participants should consider the knowledge, skills, and abilities that are expected of students in the content standards; and begin to consider the content-based expectations for students in each achievement level. |

10:15 AM Draft Range ALDs as a Table

In tables, participants use the content standards and electronic template to record the knowledge, skills, and abilities expected of students in each achievement level.

- Participants collaborate at their grade-level table on these range ALDs using the networked computers.
- The ALDs should reflect the content-based expectations of students in each achievement level, and the ALDs should be consistent with the content standards.
- Each group should use the template's format and style so the range ALDs can be easily compared later in the day.

12:00 PM Lunch

The group breaks for 45 minutes.

12:45 PM Review the Across-Grade Articulation of the Range ALDs

Working in grade bands to support articulation across grades, participants examine the progression of knowledge and skills expected of students in each achievement level across grades.

- There are three grade bands: grades 3–4, grades 5–7, and grade 8–NC Math 3.
- Be sure the articulation for each achievement level (e.g., *Level 3*) progresses across grades in a reasonable and explainable way.

2:30 PM Refine the Draft ALDs

Back in their grade-level table clusters, participants refine the range ALDs for their assigned grade.

- Refinements should promote the articulation of the ALDs across grades.
- Each group should use the template's format and style so the range ALDs can be easily compared later in the day.

3:30 PM Review the ALDs as a Group

DRC helps participants review the ALDs across grades once again to share the progression of knowledge, skills, and abilities of students in each achievement level across grades.

- Refinements should promote the articulation of the ALDs across grades.
- Each group should use the template's format and style.

4:25 PM Secure Materials Collection

Facilitators lead the collection of the secure materials from all participants. All participants return their secure materials to the facilitator for safekeeping.

4:30 PM Dismissal

Threshold Students for Grade 4, 7, or NC Math 1

- 7:30–8:15 AM** **Participant Sign-In**
Please be sure to sign in for the day.
- 8:30 AM** **Participant Training**
DRC introduces participants to the Bookmark Standard Setting Procedure and shows how a cut score can be represented in an ordered item booklet (OIB) as a bookmark.
- 9:30 AM** **Break and Adjournment into Breakout Rooms**
- 9:45 AM** **Discuss the Threshold Students in Tables for Grade 4, 7, or NC Math 1**
In tables, participants discuss the content-based expectations for each of the three threshold students, starting with the threshold *Level 4* student.
- Each table should consider the knowledge, skills, and abilities expected of the *Level 4* threshold student; that is, a student who is just entering *Level 4*.
 - The table should create a brief, bulleted list that describes the skills expected of the threshold *Level 4* student.
 - Participants should then continue by discussing the content-based expectations of the threshold *Level 5* student, followed by the threshold *Level 3* student.
 - To engage in this discussion, participants refer to the ALDs, the content standards, and their knowledge of students.
- 10:45 AM** **Discuss the Threshold Students as a Group for Grade 4, 7, or NC Math 1**
The facilitator asks each table to share their threshold student descriptions, starting with threshold *Level 4* and continuing with threshold *Level 5* and threshold *Level 3*.
- A spokesperson from each table should be prepared to report some of the highlights from the table’s discussion of the threshold students.
 - Each table should take notes during the discussion and update their bulleted lists of the skills expected of each of the three threshold students.
- 11:30 AM** **Examine Items from the Student Test for Grade 4, 7, or NC Math 1**
Participants examine the test items from the student’s perspective.
- Participants should briefly review these items to get a general sense of what is measured by the test and how it is measured.
 - If needed, participants should use the provided index cards to record comments and suggestions about the test items.
- 12:00 PM** **Lunch**
The group breaks for 45 minutes.

- 12:45 PM** **Discuss the Ordered Item Booklet (OIB) for Grade 4, 7, or NC Math 1**
The facilitator introduces this task by inviting participants to find the item map in their secure materials. The facilitator leads the group in a review of each column on the item map. Participants then examine the items in the OIB.
- Each participant should briefly examine the items in the OIB, as ordered by students' performance on the test.
 - All participants are encouraged to take notes on the item map, focusing on the knowledge and skills measured by each item.
 - Facilitators remind participants to use the index cards, as needed, to record comments and suggestions about the test items.
- 3:00 PM** **Break**
- 3:15 PM** **Bookmark Placement Training**
DRC introduces bookmark placement, explaining and illustrating how bookmarks are placed and what bookmarks mean.
- DRC explains how participants make cut score recommendations by placing bookmarks in the OIB.
 - After the training, a brief evaluation is administered and discussed.
- 4:00 PM** **Round 1 Bookmark Placement for Grade 4, 7, or NC Math 1**
Facilitators direct all participants to place their Round 1 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.
- 4:25 PM** **Secure Materials Collection**
Facilitators lead the collection of the secure materials from all participants. All participants return their secure materials to the facilitator for safekeeping.
- 4:30 PM** **Dismissal**

Rounds 2 and 3 for Grade 4, 7, or NC Math 1

- 7:30–8:15 AM** **Participant Sign-In**
Please be sure to sign in for the day.
- 8:30 AM** **Presentation of Feedback from Round 1 for Grade 4, 7, or NC Math 1**
The facilitator presents feedback from Round 1, including *benchmarks* based on well-respected measures of student performance.
- 8:40 AM** **Discuss Round 1 as a Table for Grade 4, 7, or NC Math 1**
Participants discuss their Round 1 judgments in their tables.
- The table leader should lead the discussion at each table.
 - Starting with *Level 4*, participants should share where they placed their bookmark, and why they placed it there. Participants should refer to the items in the OIB, the ALDs, and the threshold student descriptions.
 - The table should start with the participant with the lowest bookmark, and then progress upward to the participant with the highest bookmark.
 - After *Level 4*, the discussion should continue with *Level 5* and *Level 3*.
- 9:45 AM** **Round 2 Bookmark Placement for Grade 4, 7, or NC Math 1**
Facilitators direct all participants to place their Round 2 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.
- 10:00 AM** **Break**
- 10:15 AM** **Discuss Round 2 as a Group for Grade 4, 7, or NC Math 1**
The facilitator presents a summary of the Round 2 judgments to the entire group. Afterwards, the facilitator leads a discussion of each bookmark with all the tables, similar to the table-level discussions of Round 1.
- 10:45 AM** **Round 3 Bookmark Placement for Grade 4, 7, or NC Math 1**
Facilitators direct all participants to place their Round 3 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.

- 11:00 AM** **Discuss the Threshold Students in Tables for Grade 3, 6, or NC Math 3**
In tables, participants discuss the content-based expectations for each of the three threshold students, starting with the threshold *Level 4* student, and then continuing with the threshold *Level 5* student and threshold *Level 3* student.
- The table should create brief, bulleted lists that describe the skills expected of each threshold student.
- 11:30 PM** **Discuss the Threshold Students as a Group for Grade 3, 6, or NC Math 3**
The facilitator asks each table to share their threshold student descriptions, starting with threshold *Level 4* and continuing with threshold *Level 5* and threshold *Level 3*.
- 12:00 PM** **Lunch**
The group breaks for 45 minutes.
- 12:45 PM** **Study of the Ordered Item Booklet (OIB) for Grade 3, 6, or NC Math 3**
Participants examine the ordered items in the OIB.
- All participants are encouraged to take notes on the item map, focusing on the knowledge and skills measured by each item.
 - Facilitators remind participants to use the index cards, as needed, to record comments and suggestions about the test items.
- 2:15 PM** **Round 1 Bookmark Placement for Grade 3, 6, or NC Math 3**
Facilitators direct all participants to place their Round 1 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.

Rounds 2 and 3 for Grade 3, 6, or NC Math 3

- 2:30 PM Break**
- 2:45 PM Presentation of Feedback from Round 1 for Grade 3, 6, or NC Math 3**
The facilitator presents feedback from Round 1, including benchmarks.
- 2:50 PM Discuss Round 1 as a Table for Grade 3, 6, or NC Math 3**
Participants discuss their Round 1 judgments in their tables.
- The table leader should lead the discussion at each table.
 - Starting with *Level 4*, participants should share where they placed their bookmark, and why they placed it there. Participants should refer to the items in the OIB, the ALDs, and the threshold student descriptions.
 - The table should start with the participant with the lowest bookmark, and then progress upward to the participant with the highest bookmark.
 - After *Level 4*, the discussion should continue with *Level 5* and *Level 3*.
- 3:15 PM Round 2 Bookmark Placement for Grade 3, 6, or NC Math 3**
Facilitators direct all participants to place their Round 2 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.
- 3:30 PM Discuss Round 2 as a Group for Grade 3, 6, or NC Math 3**
The facilitator presents a summary of the Round 2 judgments to the entire group. Afterwards, the facilitator leads a discussion of each bookmark with all the tables, similar to the table-level discussions of Round 1.
- 4:15 PM Round 3 Bookmark Placement for Grade 3, 6, or NC Math 3**
Facilitators direct all participants to place their Round 3 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.
- 4:25 PM Secure Materials Collection**
Facilitators lead the collection of the secure materials from all participants. All participants return their secure materials to the facilitator for safekeeping.
- 4:30 PM Dismissal**

7:30–8:15 AM **Participant Sign-In**
Please be sure to sign in for the day.

NOTE **High School Group Continues Work for NC Math 3**
It is expected the high school group will need additional time to complete its work for NC Math 3. The group should continue its work on that test.

8:30 AM **Discuss the Threshold Students in Tables for Grade 5 or 8**
In tables, participants discuss the content-based expectations for each of the three threshold students, starting with the threshold *Level 4* student, and then continuing with the threshold *Level 5* student and threshold *Level 3* student.

- The table should create brief, bulleted lists that describe the skills expected of each threshold student.

9:15 AM **Discuss the Threshold Students as a Group for Grade 5 or 8**
The facilitator asks each table to share their threshold student descriptions, starting with threshold *Level 4* and continuing with threshold *Level 5* and threshold *Level 3*.

9:45 AM **Begin Study of the Ordered Item Booklet (OIB) for Grade 5 or 8**
Participants examine the ordered items in the OIB.

- All participants are encouraged to take notes on the item map, focusing on the knowledge and skills measured by each item.
- Facilitators remind participants to use the index cards, as needed, to record comments and suggestions about the test items.
- Participants mark their bookmark placements on their bookmark worksheets.
- Then participants transfer their bookmark placements into the *kiosk* system.

10:00 AM **Break**

10:15 AM **Complete Study of the OIB for Grade 5 or 8**

- 11:45 AM Round 1 Bookmark Placement for Grade 5 or 8**
Facilitators direct all participants to place their Round 1 bookmarks.
- Bookmark placement is always an individual activity.
- 12:00 PM Lunch**
The group breaks for 45 minutes.
- 12:45 PM Presentation of Feedback from Round 1 for Grade 5 or 8**
The facilitator presents feedback from Round 1, including benchmarks.
- 1:00 PM Discuss Round 1 as a Table for Grade 5 or 8**
Participants discuss their Round 1 judgments in their tables.
- The table leader should lead the discussion at each table.
 - Starting with *Level 4*, participants should share where they placed their bookmark, and why they placed it there. Participants should refer to the items in the OIB, the ALDs, and the threshold student descriptions.
 - The table should start with the participant with the lowest bookmark, and then progress upward to the participant with the highest bookmark.
 - After *Level 4*, the discussion should continue with *Level 5* and *Level 3*.
- 1:45 PM Round 2 Bookmark Placement for Grade 5 or 8**
Facilitators direct all participants to place their Round 2 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.
- 2:00 PM Discuss Round 2 as a Group for Grade 5 or 8**
The facilitator presents a summary of the Round 2 judgments to the entire group. Afterwards, the facilitator leads a discussion of each bookmark with all the tables, similar to the table-level discussions of Round 1.
- 2:30 PM Break**
- 2:45 PM Round 3 Bookmark Placement for Grade 5 or 8**
Facilitators direct all participants to place their Round 3 bookmarks.
- Bookmark placement is always an individual activity.
 - Participants mark their bookmark placements on their bookmark worksheets.
 - Then participants transfer their bookmark placements into the *kiosk* system.

3:15 PM Presentation of Recommendations

The facilitator presents a summary of the recommendations from all grades. Participants are encouraged to consider whether the recommendations form a clear, explainable pattern across grades.

- Participants are encouraged to share their thoughts about the recommendations with their table leaders.
- Table leaders should take notes about their participants' views for use during the across-grade discussion.

3:30 PM Break

During the break, table leaders should proceed to the across-grade articulation discussion. All other participants will evaluate the workshop, return their secure materials, and leave the workshop.

3:40 PM Across-Grade Discussion for Table Leaders

In a general session, the table leaders from each group discuss their groups' recommendations and the consistency across grades. If needed, the table leaders recommend adjustments to their recommendations to improve across-grade consistency (*articulation*).

- All participants who are not table leaders will instead proceed with the workshop evaluation, followed by dismissal from the workshop.

4:20 PM Workshop Evaluation

Each participant completes an evaluation of the standard setting.

4:25 PM Secure Materials Collection

Facilitators lead the collection of the secure materials from all participants. All participants return their secure materials to the facilitator.

4:30 PM Dismissal

All participants are dismissed with the thanks of NCDPI and DRC.

Agenda at a Glance

North Carolina Mathematics Standard Setting



Public Schools of North Carolina
State Board of Education
Department of Public Instruction

Monday, July 8

7:30–8:15 AM	Participant Registration
8:30 AM	Opening Session
9:00 AM	Achievement Level Descriptor (ALD) Development Training
9:45 AM	Break and Adjournment to Tables by Grade
10:00 AM	Study Content Standards and Policy ALDs
10:15 AM	Draft Range ALDs as a Table
12:00 PM	Lunch
12:45 PM	Review the Across-Grade Articulation of the Range ALDs
2:30 PM	Refine the Draft ALDs
3:30 PM	Review the ALDs as a Group
4:25 PM	Secure Materials Collection
4:30 PM	Dismissal

Tuesday, July 9

7:30–8:15 AM	Participant Sign-In
8:30 AM	Participant Training
9:30 AM	Break and Adjournment into Breakout Rooms
9:45 AM	Discuss the Threshold Students in Tables for Grade 4, 7, or NC Math 1
10:45 AM	Discuss the Threshold Students as a Group for Grade 4, 7, or NC Math 1
11:30 AM	Examine Items from the Student Test for Grade 4, 7, or NC Math 1
12:00 PM	Lunch
12:45 PM	Discuss the Ordered Item Booklet (OIB) for Grade 4, 7, or NC Math 1
3:00 PM	Break
3:15 PM	Bookmark Placement Training
4:00 PM	Round 1 Bookmark Placement for Grade 4, 7, or NC Math 1
4:25 PM	Secure Materials Collection
4:30 PM	Dismissal

Wednesday, July 10

7:30–8:15 AM	Participant Sign-In
8:30 AM	Presentation of Feedback from Round 1 for Grade 4, 7, or NC Math 1
8:40 AM	Discuss Round 1 as a Table for Grade 4, 7, or NC Math 1
9:45 AM	Round 2 Bookmark Placement for Grade 4, 7, or NC Math 1
10:00 AM	Break
10:15 AM	Discuss Round 2 as a Group for Grade 4, 7, or NC Math 1
10:45 AM	Round 3 Bookmark Placement for Grade 4, 7, or NC Math 1
11:00 AM	Discuss the Threshold Students in Tables for Grade 3, 6, or NC Math 3
11:30 PM	Discuss the Threshold Students as a Group for Grade 3, 6, or NC Math 3
12:00 PM	Lunch
12:45 PM	Study of the Ordered Item Booklet (OIB) for Grade 3, 6, or NC Math 3
2:15 PM	Round 1 Bookmark Placement for Grade 3, 6, or NC Math 3
2:30 PM	Break
2:45 PM	Presentation of Feedback from Round 1 for Grade 3, 6, or NC Math 3
2:50 PM	Discuss Round 1 as a Table for Grade 3, 6, or NC Math 3
3:15 PM	Round 2 Bookmark Placement for Grade 3, 6, or NC Math 3
3:30 PM	Discuss Round 2 as a Group for Grade 3, 6, or NC Math 3
4:15 PM	Round 3 Bookmark Placement for Grade 3, 6, or NC Math 3
4:25 PM	Secure Materials Collection
4:30 PM	Dismissal

Thursday, July 11

7:30–8:15 AM	Participant Sign-In
8:30 AM	Discuss the Threshold Students in Tables for Grade 5 or 8
9:15 AM	Discuss the Threshold Students as a Group for Grade 5 or 8
9:45 AM	Begin Study of the Ordered Item Booklet (OIB) for Grade 5 or 8
10:00 AM	Break
10:15 AM	Complete Study of the OIB for Grade 5 or 8
11:45 AM	Round 1 Bookmark Placement for Grade 5 or 8
12:00 PM	Lunch
12:45 PM	Presentation of Feedback from Round 1 for Grade 5 or 8
1:00 PM	Discuss Round 1 as a Table for Grade 5 or 8
1:45 PM	Round 2 Bookmark Placement for Grade 5 or 8
2:00 PM	Discuss Round 2 as a Group for Grade 5 or 8
2:30 PM	Break
2:45 PM	Round 3 Bookmark Placement for Grade 5 or 8
3:15 PM	Presentation of Recommendations
3:30 PM	Break
3:40 PM	Across-Grade Discussion for Table Leaders
4:20 PM	Workshop Evaluation
4:25 PM	Secure Materials Collection
4:30 PM	Dismissal

D

Training Presentation and Materials



North Carolina Mathematics Standard Setting

Grades 3–8, Math 1, and Math 3
Bookmark Training Session
July 9, 2019



Training Session

Rick Mercado
Director, Research
Data Recognition Corporation

Workshop Goal

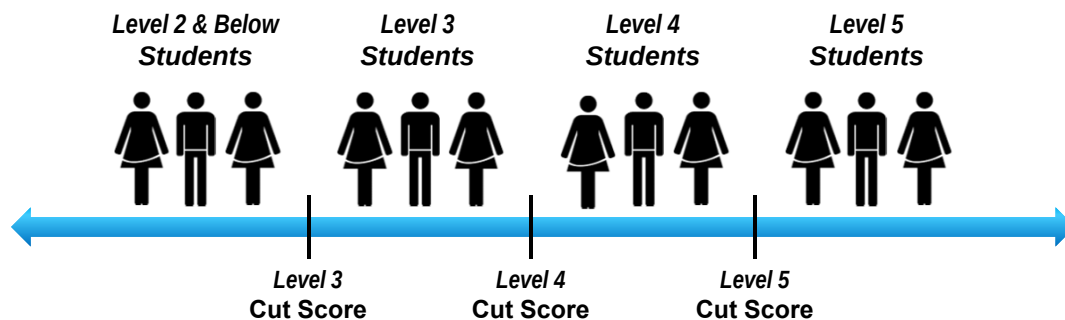


- To recommend cut scores that categorize students into one of four achievement levels:
 - *Level 2 & Below*
 - *Level 3*
 - *Level 4*
 - *Level 5*

Cut Scores & Achievement Levels



- Three cut scores classify students into four achievement levels.



Bookmark Procedure



**Item-centered
method**



**Content-based
decisions**



Iterative process

Process Overview



Today

- Discuss the threshold students for grade 4, grade 7, or Math 1
- Study the ordered item booklet
- **Round 1:** Make cut score recommendations on your own

Tomorrow and Thursday

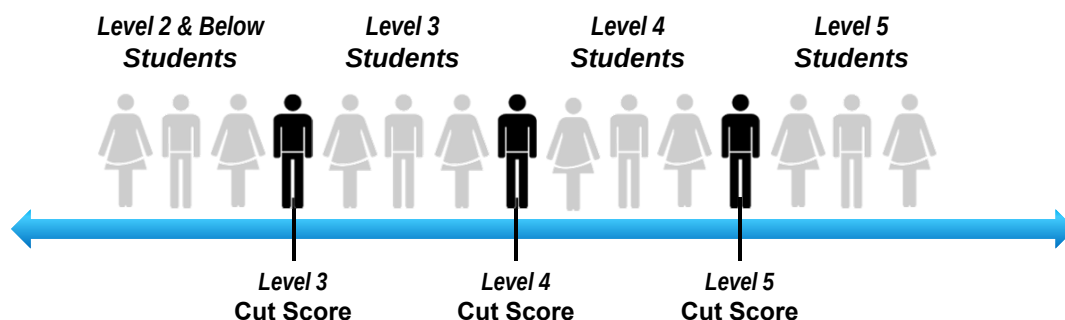
- **Round 1:** Make cut score recommendations on your own
- Discuss recommendations with your table
- **Round 2:** Make cut score recommendations on your own
- Discuss your recommendations with your group
- **Round 3:** Make cut score recommendations on your own
- Repeat the process for remaining grades
- Review the group's recommendations
- Evaluate the workshop

Achievement Level Descriptors (ALDs)

- ALDs describe the knowledge, skills, and abilities expected of students in each achievement level.
 - They are linked to the content standards.
 - ALDs describe students in the middle of each level, not on the *thresholds*.

ALDs and Achievement Levels

- ALDs describe the student in the middle of each achievement level.



Three Threshold Students



- Threshold students are those just barely leaving one level and entering the next level.
 - The ALDs do *not* describe these students directly.
 - There are three threshold students.

Threshold
Level 2 & Below/Level 3
Student



Threshold
Level 3/Level 4
Student



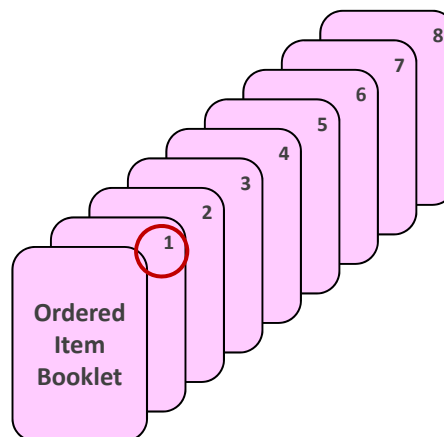
Threshold
Level 4/Level 5
Student



Ordered Item Booklet (OIB)

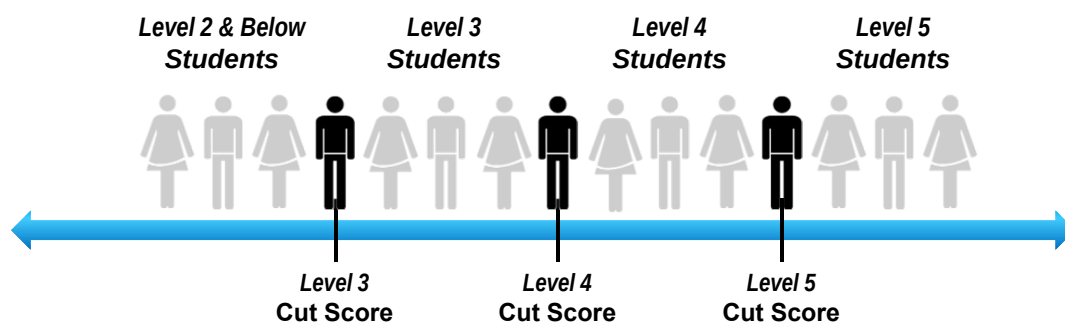


- The OIB comprises items from the spring test.
 - One item per page
 - Easiest item first
 - Hardest item last
 - Items ascend in difficulty as based on student performance



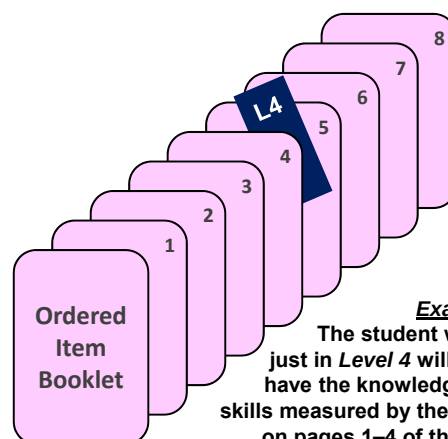
Three Threshold Students

- Bookmark judgments and cut scores are linked to the student *just* in each level.



Threshold Students and the OIB

- You will consider the three threshold students.
- You will make statements in the OIB using *bookmarks*.
- These bookmarks are linked to cut score recommendations.



Example:
The student who is just in *Level 4* will likely have the knowledge and skills measured by the items on pages 1–4 of the OIB.

Three Rounds



Round 1

Study OIB and
make your own
bookmark
judgments

Discuss your
ratings with
your
tablemates

Round 2

On your own,
make your own
bookmark
judgments

See feedback
and discuss
your ratings
with your group

Round 3

On your own,
make your own
bookmark
judgments

Then review
recommended
cut scores

Roles and Responsibilities



- You will recommend achievement standards to DPI.
- During the workshop, remember to:
 - Contribute to discussions at your table
 - Participate in group-wide discussions
 - Place your bookmarks independently
 - Ask a member of staff any questions
 - Use workshop materials only in meeting rooms
 - Keep workshop conversations confidential

Workshop Security

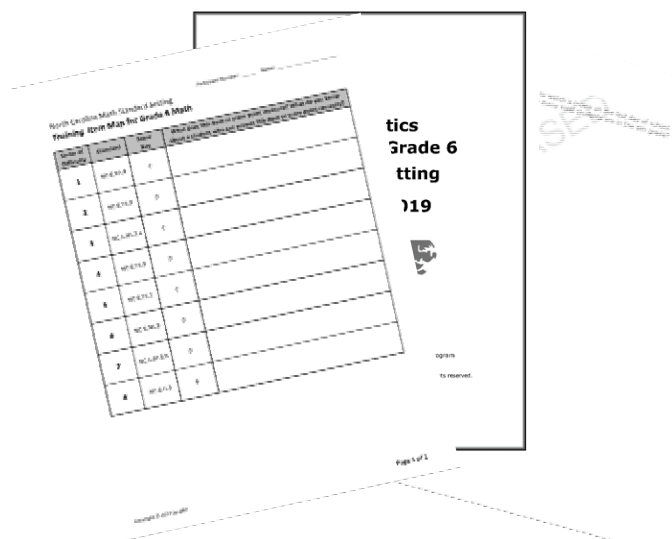


- Your facilitators will collect your materials each afternoon in a structured way.
- Always leave the workshop materials in the meeting rooms. Do not discuss the contents of the materials outside your meeting room.
- You are welcome to use phones, tablets, and laptops in the lunchroom and hallways, but never in the meeting rooms.

Training Materials



- Item map
- Training ordered item booklet (OIB)



Item Map

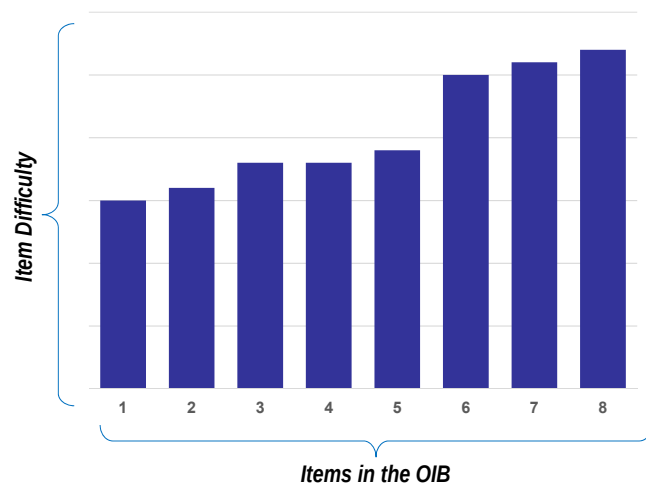


Participant Number: _____ Name: _____

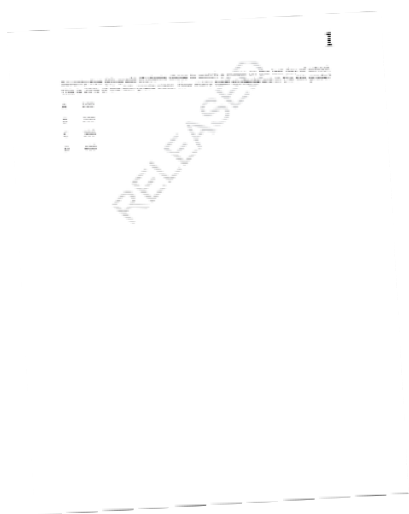
North Carolina Math Standard Setting
Training Item Map for Grade 6 Math

Order of Difficulty	Standard	Score Key	What does this item or score point measure? What do you know about a student who can answer this item or score point correctly?
1	NC.6.RP.4	C	
2	NC.6.EE.9	D	
3	NC.6.NS.7.a	C	
4	NC.6.EE.8	D	
5	NC.6.EE.1	C	

Illustration: Item Separation Chart



Examining an Item

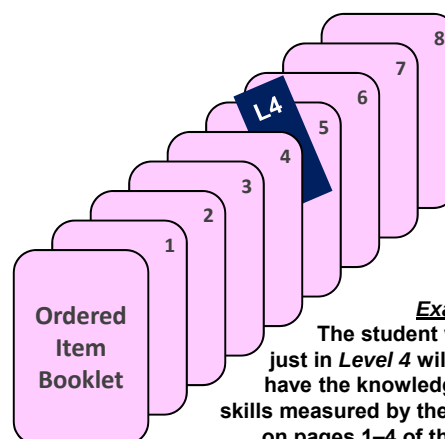


- Make a brief note to yourself about what the item measures.
 - What knowledge and skills does a student need to have in order to answer the item correctly?
 - If a student answers the item correctly, what do you know about the student?

Finding a Possible Bookmark Range



- You will consider the three threshold students.
- You will make statements in the OIB using *bookmarks*.
- These bookmarks are linked to cut score recommendations.



Example:
The student who is just in *Level 4* will likely have the knowledge and skills measured by the items on pages 1–4 of the OIB.

Possible Bookmark Range

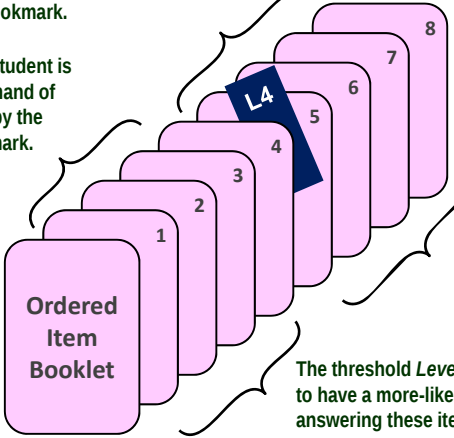


- You will find a range of items where you could set your bookmark.
 - The possible bookmark range may be a couple of items wide, or may be more than that.
 - Do not get stuck on a single item.

Finding the Possible Bookmark Range



- Progress through the OIB until you reach an item that the threshold student would not have a more-likely-than-not chance of answering correctly.
 - This is the start of your possible bookmark range.
- Keep going until you have reached the last item that a student would have a more-likely-than-not chance of answering correctly.
 - The possible bookmark range ends after that page.



The threshold *Level 4* student is not expected to have command of the skills measured by items after the bookmark.

The threshold *Level 4* student is expected to have command of the content measured by the items before the bookmark.

Some students in *Level 4* may have some of the skills measured by items after the bookmark.

The threshold *Level 4* student is expected to have a more-likely-than-not chance of answering these items correctly.

Ordered Item Booklet

1 2 3 4 5 6 7 8

L4

Recording Your Bookmark

- Place your bookmark within your possible bookmark range.
 - Use the ALDs, the threshold students, the test items, and your professional judgment as guides.
- Record the page number **after** your bookmark.



Bookmark Worksheet

- Write your bookmarks on the *Bookmark Worksheet*.
 - You will place three bookmarks.
 - Write a few words to help you remember why you placed your bookmarks where you did.

Recording Your Bookmarks

- In the actual workshop, you will then record your bookmarks in an online system.
 - You will record your bookmarks online, *not* your rationales.

Pacing



- Some people will take longer than others to study the test items and place their Round 1 bookmarks.
 - Today, completing Round 1 is the last activity for the day. Please be considerate of others as you leave the workshop.
 - Tomorrow, before Round 2, please be considerate of others at your table and in the room.



Practice Exercise

North Carolina Mathematics Standard Setting
Bookmark Training Session
July 9, 2019

Consider the Threshold Student

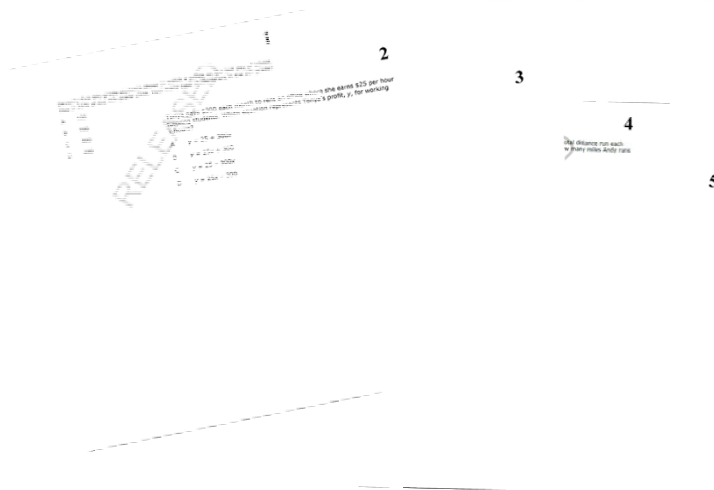


- Review these policy ALDs for *Level 4* and *Level 5*.
 - Consider the student who is just barely in *Level 4*.
 - What knowledge, skills, and abilities would you expect of this threshold student?

Level 4	Level 5
Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.

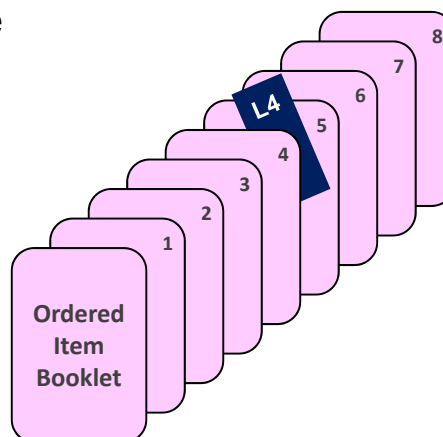
Study the Test Items

- For each question, ask yourself:
 - what does the item measure?
 - if a student can answer the item correctly, what do we know he or she can do?



Place Your Bookmark

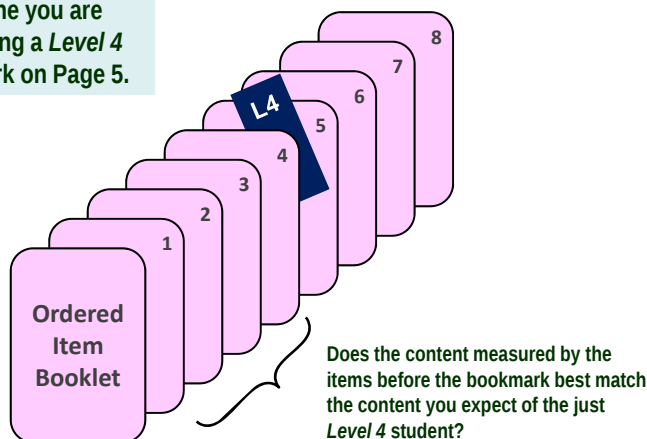
- Consider the *Level 4* threshold student.
- The student is expected to have at least a more-likely-than-not chance of answering items correctly before the bookmark.
- The probability after the bookmark is less than half, but not zero.



Evaluating a Bookmark Holistically



Imagine you are
evaluating a *Level 4*
bookmark on Page 5.



Write a Rationale



- Good rationales link the content of the items in front of the bookmark to the content-based expectations for the threshold student.
 - For example, “Students must apply algebraic strategies in a real-world, multi-step problem, as expected of the threshold student.”
 - Or, “Students have to calculate simple descriptives on data provided explicitly, as listed in ALDs.”
- Not-so-good rationales don’t make reference to the content of the items.
 - For example, “The first grid question is just after the bookmark.”

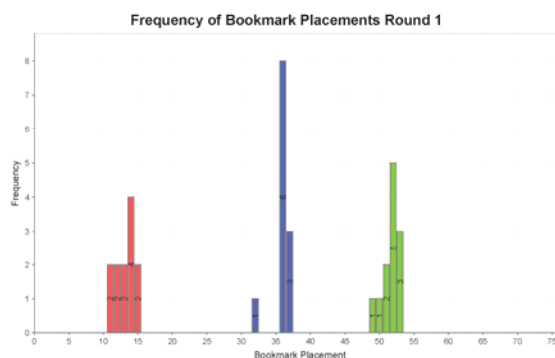
Make Your Bookmark Placements



- Write your bookmark placement on your training Bookmark Worksheet.
- Turn your Worksheet over when you're done.

After Round 1

- After Round 1, you will see:
 - the medians from the group's Round 1 bookmarks
 - a histogram of the recommended bookmarks
 - *benchmarks*, based on last year's test results
- The benchmarks are provided as contextual information for you to consider.



Discussion of Round 1 Ratings



- In the actual workshop, you will discuss your Round 1 bookmarks at your table.
- Feel free to discuss:
 - Your bookmarks
 - Your possible bookmark ranges (and any overlaps)
- After discussion, you will have a second opportunity to make bookmark judgments.
 - You can change any, all, or none of your bookmarks.
 - Bookmark placement is always an individual activity.

Suggestions for Discussions



- Practice active listening.
- Be open to changing your mind.
- Work to understand your colleagues' rationales for their bookmark placements.
- In a respectful manner, feel free to ask questions of your colleagues.
- Do not discuss your bookmarks until everyone at the table has placed theirs.
- Keep the contents of your discussions private.

After Round 2



- After Round 2, you will see:
 - the medians and histogram from the group's Round 2 bookmarks
 - *benchmarks*, based on last year's test results
 - *impact data*, the percent of students that would be classified in each achievement level if the Round 2 cut scores were implemented

Round 3



- After Round 2, you will discuss your bookmark placements *across tables*.
 - Again, you will share where you placed your bookmarks and why you placed them there.
- Then you will place your Round 3 bookmarks.
 - Bookmark placement is always an individual activity.

Repeat the Process



- After Round 3, you will see the impact data for your grade *plus* the other grades.
- Then you will repeat the process.
 - The group will likely pick up speed as it goes.

Grades 3-5 Group	Grades 6-8 Group	High School Group
Grade 4	Grade 7	Math 1
Grade 3	Grade 6	Math 3
Grade 5	Grade 8	

Reviewing the Recommendations



- After the Bookmark Procedure is complete for the final grade, your facilitator will show you a presentation of the Round 3 recommendations from all eight tests.
 - You will be asked to look at the articulation of the achievement standards across grades.
 - You may wish to consider adjustments to your recommendations to improve the articulation across grades.
 - The table leaders will convene in a special session to look over the recommendations and, if needed, recommend adjustments to promote better across-grade articulation.

After the Workshop



- Your recommendations will be considered by DPI.
 - The recommendations from all groups will be considered by DPI and its advisors.

Workshop Structure



- Discuss threshold students
- Study OIB and make Round 1 ratings
- Discuss Round 1 at tables
- Make Round 2 ratings
- Discuss Round 2 as a group
- Make Round 3 ratings
- Repeat the process for remaining grades
- Review recommendations

Questions



- Do you have any questions?
 - If questions come up later, ask your facilitator, or write them on an index card.

Room Assignments



- **Grade 4:** Willow
- **Grade 7:** Sycamore
- **Math 1:** Magnolia
- *Note:* These breakout rooms are all part of the City of Oaks ballroom on the other side of the hotel.

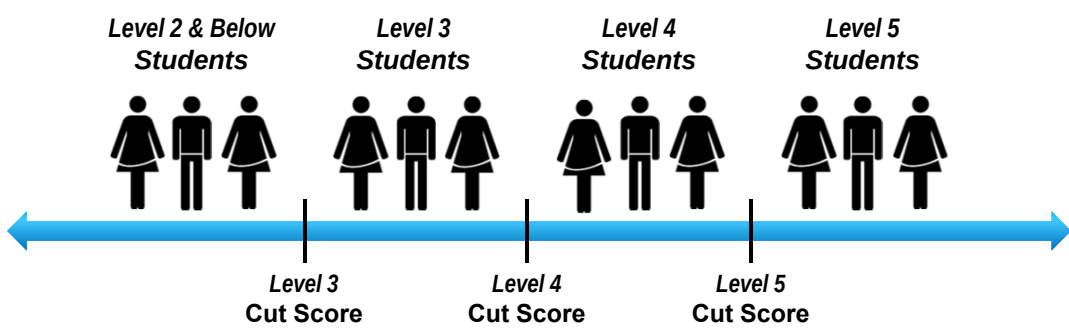


Bookmark Refresher Training

North Carolina Mathematics Standard Setting
July 9, 2019

Cut Scores & Achievement Levels

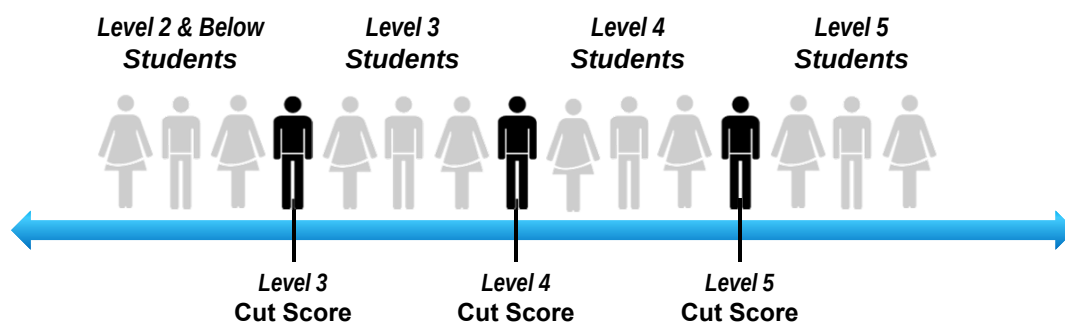
- Three cut scores classify students into four achievement levels.



The diagram illustrates the relationship between achievement levels and cut scores. A horizontal blue double-headed arrow represents the score scale. Three vertical lines mark the cut scores: Level 3 Cut Score, Level 4 Cut Score, and Level 5 Cut Score. Above the arrow, four groups of student icons represent the achievement levels: Level 2 & Below Students (to the left of the Level 3 cut score), Level 3 Students (between Level 3 and Level 4 cut scores), Level 4 Students (between Level 4 and Level 5 cut scores), and Level 5 Students (to the right of the Level 5 cut score).

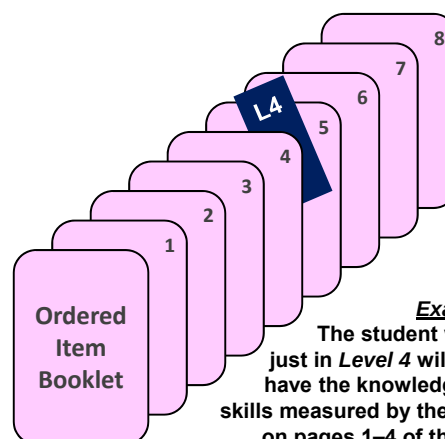
Three Threshold Students

- Bookmark judgments and cut scores are linked to the student *just* in each level.



Threshold Students and the OIB

- You will consider the three threshold students.
- You will make statements in the OIB using *bookmarks*.
- These bookmarks are linked to cut score recommendations.



Example:
The student who is just in *Level 4* will likely have the knowledge and skills measured by the items on pages 1–4 of the OIB.

Possible Bookmark Range

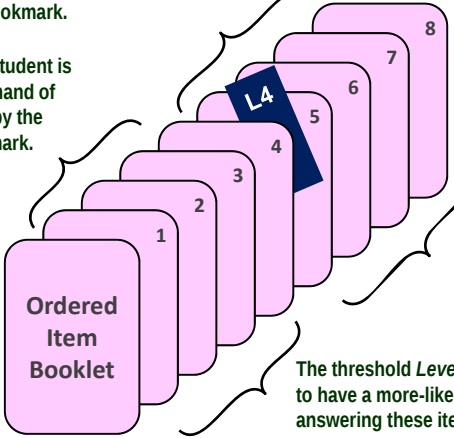


- You will find a range of items where you could set your bookmark.
 - The possible bookmark range may be a couple of items wide, or may be more than that.
 - Do not get stuck on a single item.

Finding the Possible Bookmark Range



- Progress through the OIB until you reach an item that the threshold student would not have a more-likely-than-not chance of answering correctly.
 - This is the start of your possible bookmark range.
- Keep going until you have reached the last item that a student would have a more-likely-than-not chance of answering correctly.
 - The possible bookmark range ends after that page.



The threshold *Level 4* student is not expected to have command of the skills measured by items after the bookmark.

The threshold *Level 4* student is expected to have command of the content measured by the items before the bookmark.

Some students in *Level 4* may have some of the skills measured by items after the bookmark.

The threshold *Level 4* student is expected to have a more-likely-than-not chance of answering these items correctly.

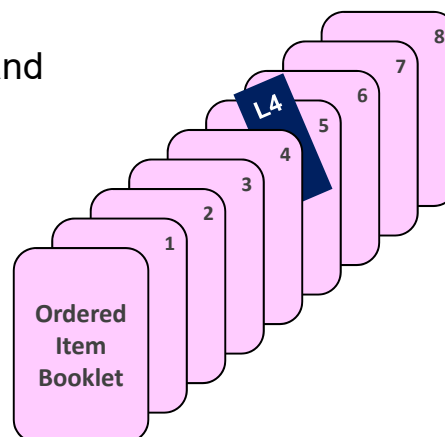
Ordered Item Booklet

1 2 3 4 5 6 7 8

L4

Recording Your Bookmark

- Place your bookmark within your possible bookmark range.
 - Use the ALDs, the benchmarks, and your professional judgment as guides.
- Record the page number **after** your bookmark.



Bookmark Worksheet

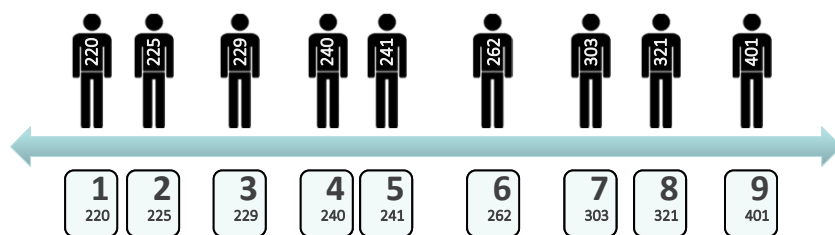
- Write your bookmarks on the *Bookmark Worksheet*.
 - You will place three bookmarks.
 - Write a few words to help you remember why you placed your bookmarks where you did.

Not “Number Correct”

- Your bookmark placement does ***not*** correspond directly with the number of points a student needs to earn to be classified in an achievement level.
 - For example, if you place your *Level 4* bookmark on Page 10, this does *not* mean a student needs to get 10 points on the test to be in *Level 4*.
- Instead, your cut score recommendations are made on the test scale.

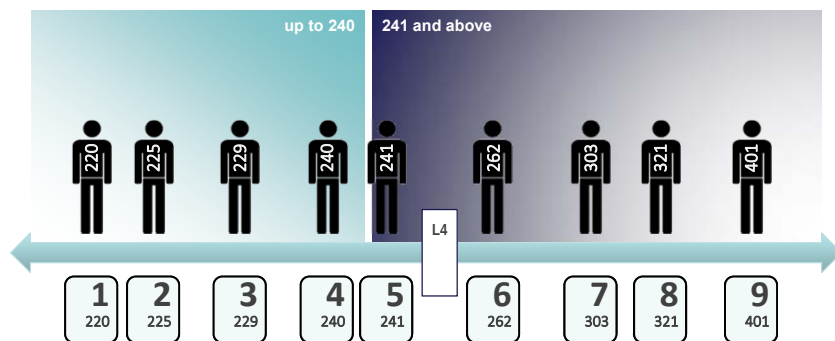
Test Scale

- Items are ordered by difficulty, easy to hard.
- Students are ordered by performance, low to high.



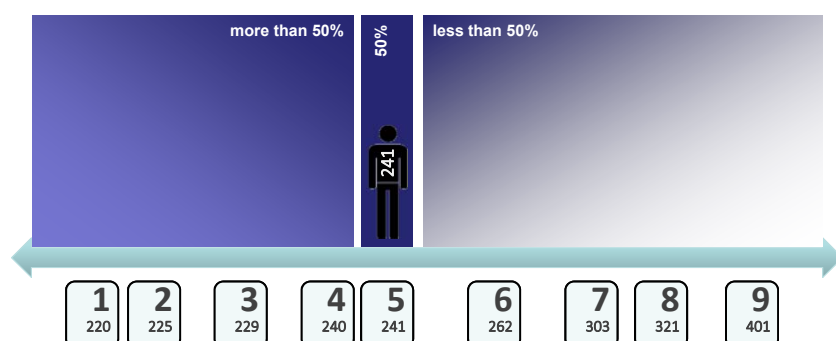
Cut Score

- The bookmark separates items.
- The cut score separates students.



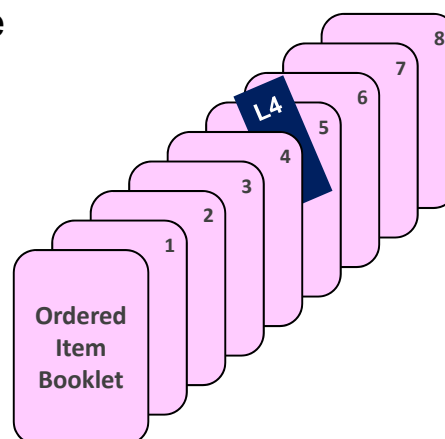
Threshold Student

- The threshold student has a 50% chance of answering the item just before the bookmark.



Place Your Bookmark

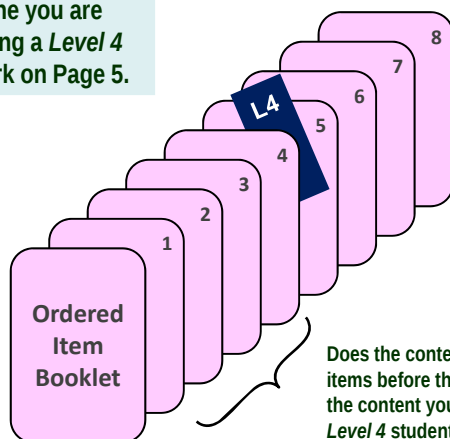
- Consider the *Level 4* threshold student.
- The student is expected to have at least a more-likely-than-not chance of answering items correctly before the bookmark.
- The probability after the bookmark is less than half, but not zero.



Evaluating a Bookmark Holistically



Imagine you are
evaluating a *Level 4*
bookmark on Page 5.

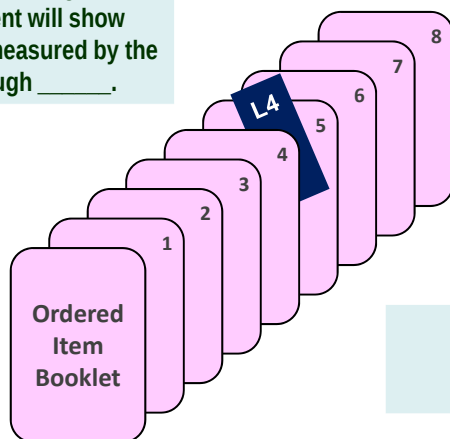


Does the content measured by the
items before the bookmark best match
the content you expect of the just
Level 4 student?

Bookmark on Page 5



If the *Level 4* bookmark is on Page 5, the
threshold *Level 4* student will show
command of the content measured by the
items on Pages 1 through ____.

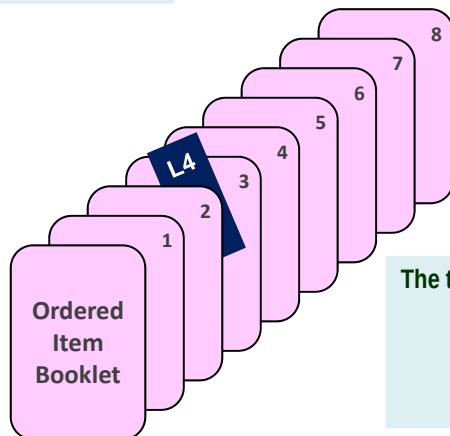


Item 2 is ____ than Item 7.
a) Easier
b) Harder

Bookmark on Page ____



This is a bookmark on Page ____.



The threshold *Level 4* student would have
a ____ chance of answering
Items 1–2 correctly.
a) More likely than not
b) Nearly 100% chance

Write a Rationale



- Good rationales link the content of the items in front of the bookmark to the content-based expectations for the threshold student.
 - For example, “Students must apply algebraic strategies in a real-world, multi-step problem, as expected of the threshold student.”
 - Or, “Students have to calculate simple descriptives on data provided explicitly, as listed in ALDs.”
- Not-so-good rationales don’t make reference to the content of the items.
 - For example, “The first grid question is just after the bookmark.”

Rounds



- **Round 1:** Place bookmarks on your own
- **Round 2:** See feedback and benchmarks, discuss with your tablemates, place bookmarks on your own
- **Round 3:** See feedback and impact, discuss with the group, place bookmarks on your own

Mid-Process Evaluation

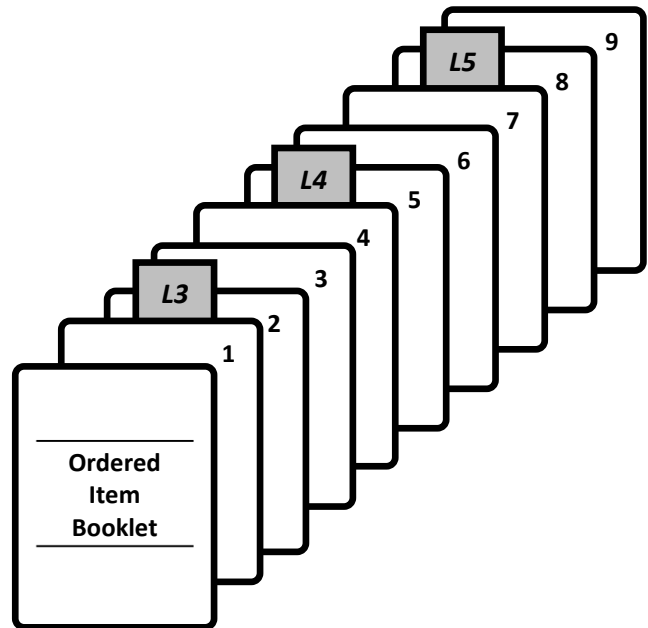


- Before we continue, let's complete the mid-process evaluation.

Mid-Process Evaluation

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

Cut Score	Bookmark on Page
Level 3	2
Level 4	5
Level 5	8



- Of which items does a student need to have command to just make it into *Level 4*?

1 to 4	1 to 5	1 to 7
☐	☐	☐
- If a student has command of the content in only items on Pages 1 through 3 (and nothing else), in which achievement level would this student be?

Level 3	Level 4	Level 5
☐	☐	☐
- Suppose a student has command of the content in Items 1 through 7. In which achievement level is this student?

Level 3	Level 4	Level 5
☐	☐	☐
- For the *Level 3* threshold student, will the items before the *Level 3* bookmark be easier, about the same, or harder to answer correctly than the items after the bookmark?

Easier to answer	About the same	Harder to answer
☐	☐	☐
- What does a *Level 5* bookmark placed on Page 8 represent?

☐ Students must have command of the content measured by the items on Pages 1–7 to be in <i>Level 5</i> .	☐ Students must answer <u>all</u> of the items before Page 8 correctly to be in <i>Level 5</i> .	☐ Students must have command of the content measured by the items on Pages 8–9 to be in <i>Level 5</i> .
--	--	--
- Are you ready to proceed?

Yes, I am ready.	Not yet; I have questions that I have written on the back of this form.
☐	☐

6: If you are not ready to proceed, please write your questions below.

1. Of which items does a student need to have command to just make it into Level 4?

Response	Frequency	Percent	Mean: 1.00
1 to 4	58	100.00	
1 to 5	0	0.00	
1 to 7	0	0.00	

3. Suppose a student has command of the content in Items 1 through 7. In which achievement level is this student?

Response	Frequency	Percent	Mean: 2.71
Level 3	0	0.00	
Level 4	17	29.31	
Level 5	41	70.69	

5. What does a Level 5 bookmark placed on Page 8 represent?

Response	Frequency	Percent	Mean: 1.00
Students must have command of the content measured by the items on Pages 1-7 to be in Level 5.	58	100.00	
Students must answer all of the items before Page 8 correctly to be in Level 5.	0	0.00	
Students must have command of the content measured by the items on Pages 8-9 to be in Level 5.	0	0.00	

2. If a student has command of the content in only items on Pages 1 through 3 (and nothing else), in which achievement level would this student be?

Response	Frequency	Percent	Mean: 1.16
Level 3	50	86.21	
Level 4	7	12.07	
Level 5	1	1.72	

4. For the Level 3 threshold student, will the items before the Level 3 bookmark be easier, about the same, or harder to answer correctly than the items after the bookmark?

Response	Frequency	Percent	Mean: 1.05
Easier to answer	56	96.55	
About the same	1	1.72	
Harder to answer	1	1.72	

6. Are you ready to proceed?

Response	Frequency	Percent	Mean: 1.02
Yes I am ready	57	98.28	
Not yet I have questions	1	1.72	

E

Achievement Level Descriptors (ALDs)

North Carolina Grade 3 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Operations and Algebraic Thinking			
Represent and solve problems involving multiplication and division.	- Identify and solve problems with factors, quotients, and divisors up to 10. - Represent problems with illustrations to solve a one-step multiplication problem.	- Represent and interpret products and quotients of two whole numbers with factors, quotients, and divisors up to 10. - Solve one-step word problems involving multiplication and division with factors, quotients, and divisors up to 10.	- Interpret and illustrate products and quotients of two whole numbers with factors, quotients, and divisors up to 10. - Solve and interpret one-step multiplication and division word problems with factors, quotients, and divisors up to 10.	- Interpret and apply the properties of multiplication and division to solve real-world problems. - Solve and interpret one-step real-world problems with unknowns involving addition, subtraction, and multiplication.
Understand properties of multiplication and the relationship between multiplication and division.	Determine an unknown in a multiplication equation.	Determine an unknown in multiplication and division equations.	Determine an unknown in multiplication and division in real-world problems.	
Multiply and divide within 100.	Multiply with factors 0, 1, 2, 5, and 10.	Multiply and divide with factors 0–5 and 10.	Multiply and divide with factors, quotients, and divisors up to and including 10.	Multiply and divide with factors, quotients, and divisors up to and including 10, using the relationship between multiplication and division.

North Carolina Grade 3 Mathematics Achievement Level Descriptors

Solve two-step problems.	Solve two-step word problems using addition and subtraction.	Solve two-step word problems using addition, subtraction, and multiplication with unknowns.	Interpret two-step word problems using addition, subtraction, and multiplication operation with a symbol to represent unknown quantities.	Interpret and represent two-step real-world problems using equations with unknowns involving addition, subtraction, and multiplication.
Explore patterns of numbers.	Identify patterns of multiplication with factors of 2, 5, or 10 using a hundreds board.	Identify patterns of multiplication using a hundreds board and/or multiplication table.	Identify and interpret patterns of multiplication using a hundreds board and/or multiplication table.	Interpret and apply patterns of multiplication using a hundreds board and/or multiplication table.
Number and Operations in Base Ten				
Use place value to add and subtract.	Add whole numbers up to 1,000.	Add and subtract whole numbers up to 1,000.	Add and subtract whole numbers up to 1,000 using a variety of strategies.	Add and subtract whole numbers up to 1,000 using a variety of strategies to solve two-step real-world problems.
Generalize place value understanding for multidigit numbers.	Use models to find the product of a one-digit whole number and a multiple of 10 in the range 10–50.	Use place value to find the product of a one-digit whole number and a multiple of 10 in the range 10–90.	Interpret the product of a one-digit whole number and a multiple of 10 in the range 10–90 using place value or properties of operation.	Apply place value understanding and properties of operation to find the product of a one-digit whole number in the range 10–90 in the context of real-world problems.

Number and Operations – Fractions				
Understand fractions as numbers.	Identify unit fractions with denominators of 2, 3, and 4 with area models.	Use models to represent fractions with denominators of 2, 3, 4, 6, and 8.	Use models to interpret fractions with denominators of 2, 3, 4, 6, and 8, and explain the meaning of numerators in the context of real-world problems.	Use models to interpret fractions with denominators of 2, 3, 4, 6, and 8, and explain the meaning of numerators in the context of real-world problems.
	Recognize equivalent fractions that are displayed with models.	Represent equivalent fractions using area models.	Represent equivalent fractions by decomposing area and length models.	Represent equivalent fractions by composing and decomposing related fractions using area and length model.
	Describe one whole as two halves, three thirds, and four fourths.	Recognize that a fraction with the same numerator and denominator equals one whole.	Recognize and represent fractions as whole numbers less than 4.	Express whole numbers as fractions and fractions as whole numbers using area and length models.
	Use models to compare two fractions with the same denominator using $>$, $<$, and $=$ symbols.	Compare two fractions with the same denominator using $>$, $<$, and $=$ symbols.	Compare two fractions with the same denominator or the same numerator using $>$, $<$, and $=$ symbols.	Compare two fractions with the same denominator or the same numerator using $>$, $<$, and $=$ symbols by reasoning about their size.

Measurement and Data				
Solve problems involving measurement.	Tell and write time to the nearest 5 minutes.	Tell and write time to the nearest minute, and measure time intervals in minutes within the same hour.	Solve one-step word problems involving the addition and subtraction of time intervals within the same hour using a variety of models.	Solve two-step word problems involving the addition and subtraction of time intervals within the same hour using a variety of models.
	Estimate and measure length to the nearest half-inch.	Estimate and measure capacity, length (nearest quarter-inch, half-inch, feet and yards to the whole unit), and weight to the nearest whole unit.	Add and subtract to solve one-step word problems involving whole-number measurements of length, weight, and capacity in the same customary units.	Add, subtract, multiply, or divide to solve one-step word problems involving whole-number measurements of length, weight, and capacity in the same customary units.
Represent and interpret data.	Interpret data and answer questions about a scaled picture graph or scaled bar graph.	Represent and interpret data in a frequency table, scaled picture graph, or scaled bar graph.	Solve one-step problems from a created frequency table, scaled picture graph, or scaled bar graph involving “how many more” and “how many less.”	Solve two-step problems from a created frequency table, scaled picture graph, or scaled bar graph involving “how many more” and “how many less.”
Understand the concept of area.	Find the area of a rectangle using an array model and repeated addition.	Find the area of a rectangle by tiling or by multiplying the side lengths.	Find the area of a rectangle with whole-number side lengths by multiplying the side lengths.	Find the area of a rectangle by partitioning it into two smaller rectangles, and recognize that the area of the large rectangle is the sum of the two smaller rectangles.
Understand the concept of perimeter.	Distinguish the difference between area and perimeter.	Determine the perimeter of a polygon with given side lengths.	Solve problems involving the perimeter of polygons given a context.	Solve problems involving the perimeter of a polygon with an unknown side length.

Geometry				
Reason with shapes and their attributes.	• Recognize two-dimensional shapes.	• Describe quadrilaterals and rectangles using attributes.	• Describe and compose quadrilaterals and triangles using attributes.	• Compose and decompose quadrilaterals and triangles using attributes.

North Carolina Grade 4 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Operations and Algebraic Thinking			
Represent and solve problems involving multiplication and division.	- Solve additive comparison problems. - Solve multiplication problems involving equal groups.	- Solve multiplicative comparison (unknown product) word problems. - Use models to solve a multiplicative comparison word problem.	- Solve multiplicative comparison (group size unknown) word problems. - Interpret models, and use them to solve multiplicative comparative word problems. - Interpret multiplication equations as comparisons, and use them to solve word problems. - Distinguish between additive and multiplicative comparison situations to solve word problems.	- Solve multiplicative comparison (number of groups unknown) word problems. - Translate multiplicative comparison situations with multiplier unknown into equations using symbols for the unknown, and use them to solve word problems. - Distinguish between additive and multiplicative comparison situations to determine a matching equation.

North Carolina Grade 4 Mathematics Achievement Level Descriptors

Use the four operations with whole numbers to solve problems.	Solve one-step word problems involving the four operations with whole numbers.	Solve two-step word problems involving the four operations with whole numbers (including division problems with remainders as leftovers) using estimation strategies to assess reasonableness of answers.	Solve two-step word problems involving the four operations with whole numbers, and use a letter to represent the unknown quantity.	Solve two-step word problems involving the four operations with whole numbers, interpret the meaning of remainders, and use a letter to represent the unknown quantity.
Gain familiarity with factors and multiples.	Identify a factor pair for any given number up to and including, 50.	Find all factor pairs for whole numbers up to 25.	Find all factor pairs for whole numbers up to 50, and determine which numbers are prime or composite.	Apply understanding of prime and composite numbers to solve contextual, real-world problems.
Generate and analyze patterns.	Identify the next term in a number or shape pattern.	- Find the next set of terms in a pattern. - Determine the next term in a repeating pattern given a sequence of numbers or shapes, and describe the features of the pattern.	- Determine the next term in a growing pattern given a sequence of numbers or shapes, and describe the features of the pattern. - Generate a number or shape pattern that follows a given rule.	Analyze a number pattern and describe the rule.

Number and Operations in Base Ten				
Generalize place value understanding for multidigit whole numbers.	Read and write multidigit whole numbers up to 10,000 using numerals and number names.	- Explain that a digit in one place represents 10 times as much as it represents one place to the right for whole numbers up to 1,000. - Read and write multidigit whole numbers up to 100,000 using numerals, number names, or expanded form.	Read and write multidigit whole numbers up to 100,000 using numerals, number names, and expanded form.	Decompose numbers to 100,000 using nontraditional forms.
	Compare two multidigit whole numbers up to 10,000 using $>$, $=$, and $<$ symbols.	Compare two multidigit whole numbers up to 100,000 using $>$, $=$, and $<$ symbols.	Compare two multidigit whole numbers up to 100,000 using $>$, $=$, and $<$ symbols given in two different forms.	Compare two multidigit whole numbers up to 100,000 using $>$, $=$, and $<$ symbols given in two different forms and grouped nontraditionally.
	Add and subtract multidigit whole numbers up to 10,000 using a strategy based on place value.	Add and subtract multidigit whole numbers up to 100,000 with place value understanding.	Add and subtract multidigit whole numbers up to 100,000 using the standard algorithm.	- Add and subtract multidigit whole numbers using the standard algorithm with unknown values or errors. - Solve real-world multistep addition and subtraction word problems.
Use place value understanding and properties of operations to perform multidigit arithmetic.				

North Carolina Grade 4 Mathematics Achievement Level Descriptors

	• Multiply a two-digit number by a one-digit number using any method. • Find whole-number quotients with up to two-digit dividends and one-digit divisors using any method.	• Multiply a two-digit number by a two-digit number, or a one-digit number by a three-digit number, using area models, partial products, or properties of operations. • Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors using multiple methods (rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division).	• Analyze and interpret models for multiplication, and solve real-world multiplication word problems. • Analyze and interpret models for division, solve real-world division word problems, and interpret remainders in context when needed.	• Make connections between multiplication models, and solve real-world multiplication word problems. • Make connections between division models, and solve real-world division word problems.
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Number and Operations – Fractions			
Extend understanding of fractions.	- Use models to identify equivalent fractions (denominators of 2, 3, 4, 6, and 8). - Compare two fractions with like numerators or denominators (denominators of 2, 3, 4, 6, and 8).	- Identify fraction equivalence (denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). - Compare two fractions with different numerators and different denominators (2, 3, 4, 6, and 8) using $>$, $=$, and $<$ symbols.	Apply knowledge of equivalent fractions to solve multistep word problems.
	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	- Compare two fractions with different numerators and different denominators (2, 3, 4, 5, 6, 8, 10, 12, and 100) using $>$, $=$, and $<$ symbols. - Apply knowledge of comparing fractions to solve a word problem. - Decompose fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100 in more than one way. - Justify decompositions using area models, length models, and equations. - Solve word problems involving addition and subtraction of fractions, including mixed numbers with like denominators.	- Apply knowledge of comparing fractions to compare multiple fractions within contexts. - Apply knowledge of decomposing fractions to solve word problems using mixed numbers. - Solve multistep word problems involving addition and subtraction of fractions, including mixed numbers with like denominators.

North Carolina Grade 4 Mathematics Achievement Level Descriptors

Use unit fractions to understand operations of fractions.	• Use repeated addition as a strategy to multiply a whole number by a unit fraction. • Multiply a whole number by a unit fraction. • Represent tenths and hundredths with models.	• Multiply a whole number by a fraction between 0 and 1. • Represent tenths and hundredths with models to make connections between fractions and decimals. • Compare two decimals to tenths using $>$, $=$, and $<$ symbols.	• Solve word problems involving the product of a whole number and a fraction. • Model and explain the equivalence between fractions with denominators of 10 and 100. • Compare two decimals, one represented as a tenth and the other as a hundredth, using $>$, $=$, and $<$ symbols.	• Solve multistep word problems involving multiplication of a whole number by a fraction from 0 to 1. • Use equivalent fractions to add two fractions with denominators of 10 and 100 to solve single-step word problems. • Apply knowledge of comparing decimals to compare multiple decimals within contexts.
Understand decimal notation for fractions, and compare decimal fractions.				

Measurement and Data				
Solve problems involving measurement.	• Select appropriate units of measurement for a given attribute.	• Use the four operations to solve one-step word problems involving metric units.	• Use the four operations to solve one-step word problems involving metric units, including conversion from a larger unit to a smaller unit.	• Solve multistep word problems involving addition and subtraction of time intervals that cross the hour.
	• Solve word problems involving addition of time intervals within the hour.	• Solve word problems involving addition of time intervals that cross the hour.	• Solve word problems involving addition and subtraction of time intervals that cross the hour.	
Solve problems involving area and perimeter.	• Determine the area and perimeter of rectangles.	• Determine the area and perimeter of rectilinear figures with given side lengths.	• Apply formulas to solve real-world and mathematical problems, including problems with a fixed area and varying perimeters or a fixed perimeter and varying areas.	• Solve multistep word problems involving the area and perimeter of rectilinear figures.
Represent and interpret data.	• Make a representation in a frequency table, scaled bar graph, or scaled picture graph.	• Make a representation in a frequency table, scaled bar graph, or line plot.	• Interpret data represented in a frequency table, scaled bar graph, or line plot.	• Determine whether a survey question will yield categorical or numerical data.
Understand concepts of angles, and measure angles.	• Use 90- and 180-degree angles to benchmark the measurement of other angles.	• Solve addition and subtraction problems to find unknown angles.	• Apply strategies for addition and subtraction of angles to solve real-world, contextual problems.	• Solve multistep problems involving the addition and subtraction of angle measurements.

Geometry			
Classify shapes based on lines and angles in two-dimensional figures.	- Identify points, lines, line segments, rays, and angles. - Draw and identify parallel or perpendicular lines. - Identify quadrilaterals (rhombuses, rectangles, squares, parallelograms, and trapezoids).	- Describe attributes of different quadrilaterals and triangles. - Recognize lines of symmetry in two-dimensional figures.	Classify quadrilaterals and triangles based on angle measures, side lengths, and the absence or presence of parallel or perpendicular lines.
			Compare and contrast attributes of two quadrilaterals or triangles.

North Carolina Grade 5 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Operations and Algebraic Thinking			
Write and interpret numerical expressions.	Evaluate numerical expressions that involve the four operations to solve one-step problems.	Write, explain, and evaluate numerical expressions that involve the four operations to solve up to two-step problems.	Write, explain, and evaluate numerical expressions with parentheses using the order of operations and commutative, associative, and distributive properties that involve the four operations to solve up to two-step problems.	Apply the order of operations and the commutative, associative, and distributive properties to solve two-step word problems using a variety of number sentences.
Analyze patterns and relationships.	Generate a number pattern that follows a given rule.	Generate two numerical patterns using two given rules.	Form ordered pairs of corresponding terms from the patterns that can be graphed on the first quadrant of a coordinate plane.	Analyze the relationship between the two sets of data solving real-world word problems by extending and continuing the pattern.

Number and Operations in Base Ten				
Understand the place value system.	Read and write multidigit whole numbers up to and including 100,000 using numerals, number names, and expanded form.	Read, write, and compare decimals using base-ten numerals, number names, and expanded form.	Read, write, and compare decimals and fractional notation for tenths, hundredths, and thousandths using base-ten numerals, number names, and expanded form.	Compare more than two decimals to the thousandths based on the value of the digits in each place, using $>$, $=$, and $<$ symbols in multistep real-world problems.
	Perform operations with multidigit whole numbers. - Use models to multiply a whole number up to three digits by a one-digit whole number, and multiply up to two two-digit numbers. - Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using one of the following methods: rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, or the relationship between multiplication and division.	- Multiply a two-digit number by a two-digit number using the standard algorithm. - Find quotients with remainders when dividing whole numbers with up to four-digit dividends and two-digit divisors using any method.	- Multiply a three-digit number by a two-digit number using the standard algorithm in real-world word problems. - Interpret remainders when dividing whole numbers with up to four-digit dividends and two-digit divisors using multiple methods in real-world word problems.	- Multiply two multidigit whole numbers using the standard algorithm while making a connection using models with unknown values, and solve real-world multistep word problems. - Interpret the remainder when dividing whole numbers with up to four-digit dividends and two-digit divisors using multiple methods in real-world multistep word problems.

North Carolina Grade 5 Mathematics Achievement Level Descriptors

Perform operations with decimals.	• Add and subtract decimals to hundredths using any method based on place value.	• Add, subtract, and multiply decimals to thousandths using any method based on place value.	• Add, subtract, and multiply decimals to thousandths using multiple methods based on place value in a word problem using estimation to assess reasonableness of answers. • Divide a whole number by a decimal and divide a decimal by a whole number to the hundredths in a word problem using repeated subtraction or area models.	• Add, subtract, and multiply decimals to thousandths using multiple methods based on place value in multistep word problems using estimation to assess reasonableness of answers. • Solve multistep word problems using at least two of the four operations and using decimal numbers.
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Number and Operations – Fractions				
Use equivalent fractions as a strategy to add and subtract fractions.	Add and subtract fractions with like denominators using area and length models and equations.	Add and subtract related fractions with unlike denominators in one-step word problems using benchmark fractions and area and length models.	Add and subtract related fractions, including mixed numbers (including regrouping), with unlike denominators in two-step word problems using area and length models, and use estimation to determine the reasonableness of an answer.	Apply multiple strategies to add and subtract fractions, including mixed numbers, with unlike denominators to solve real-world multioperational word problems.
	Demonstrate an understanding that fractions are an equal sharing context where a quantity is divided into equal parts.	Interpret and model a fraction as a division problem.	Solve one-step word problems involving division of whole numbers leading to answers that are fractions and mixed numbers using area, length, and set models or equations.	Solve one-step word problems involving division of whole numbers leading to answers that are fractions and mixed numbers using more than one strategy.
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	Multiply a fraction by a whole number.	Multiply a fraction by a fraction using area and length models.	Multiply a fraction by a fraction, including a mixed number, and solve one-step word problems involving multiplication of fractions.	Explain why multiplying a given number by a fraction greater than 1 or less than 1 results in a product greater than or less than the given number when solving one-step word problems.
	Use area or length models to divide whole numbers by fractions.	Use area and length models to divide unit fractions by whole numbers and whole numbers by unit fractions.	Solve one-step word problems involving division of unit fractions by nonzero whole numbers as well as whole numbers by unit fractions.	

Measurement and Data	
Convert like measurement units within a given measurement system.	• Demonstrate knowledge of customary and metric units of measurement.
Represent and interpret data.	• Convert one-step conversion problems within a given measurement system when given a chart. • Use multiplicative reasoning to solve one-step conversion problems within a given measurement system when given a chart. • Solve one-step conversion problems within a given measurement system when given a chart in a multistep real-world word problem.
Understand concepts of volume.	• Organize data in a table. • Interpret data on a line graph, and determine whether a survey question will yield categorical or numerical data, or data that changes over time. • Solve one- and two-step word problems, and formulate questions that will yield data that changes over time.
	• Find volume by counting unit cubes, and find the volume of rectangular prisms in cubic units with whole-number edge lengths. • Solve problems involving rectangular prisms with whole-number edge lengths, and find the volume of solid figures with one-digit dimensions composed of two nonoverlapping rectangular prisms. • Solve multistep word problems when unknown dimensions are included.

Geometry				
Understand the coordinate plane.	Identify points on a number line.	Identify graph points with whole numbers in the first quadrant of the coordinate plane.	Interpret x- and y-coordinates of points plotted in the first quadrant of the coordinate plane to solve problems.	Solve multistep real-world word problems, including traveling from one point to another and identifying the coordinates of missing points in geometric figures.
	Name quadrilaterals based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines.	Recognize that the attributes that belong to a category of quadrilaterals also belong to all subcategories of that category.	Classify quadrilaterals in a hierarchy based on properties, and label quadrilaterals using all of the other names of quadrilaterals based on their attributes.	Determine quadrilaterals in a hierarchy based on congruence and similarity, and apply knowledge of the hierarchy in a word-problem context.

North Carolina Grade 6 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Ratio and Proportional Relationships			
Understand ratio concepts and use ratio reasoning to solve problems.	- Identify a ratio relationship from a visual representation. - Identify equivalent ratios. - Solve ratio problems using additive reasoning.	- Identify the multiplicative relationship of a ratio from a variety of representations. - Determine unit ratios and ratios within the context. - Solve mathematical problems involving equivalent whole-number ratios using tables and pairs of values on the coordinate grid.	- Model a ratio relationship using a variety of representations (tables, tape diagrams, double number lines, and the coordinate plane). - Interpret unit ratio and ratios within the context. - Apply ratio concepts and use multiplicative reasoning to solve ratio problems. - Solve real-world problems involving equivalent whole-number ratios using tables and pairs of values on the coordinate grid.	- Apply use of scale factor to solve multistep real-world ratio problems in context. - Solve multiple unit conversions of different quantities in the ratio (converting and manipulating measurements).

North Carolina Grade 6 Mathematics Achievement Level Descriptors

	Identify benchmark percentages.	- Solve mathematical problems involving percentages. - Understand and find a percentage of a quantity as a ratio per 100.	Solve real-world problems involving percentages in context.	Create and use a table to solve real-world problems using pairs of values from a coordinate grid.
The Number System				
Apply and extend previous understandings of multiplication and division to divide fractions by fractions. Compute fluently with multidigit numbers, and find common factors and multiples.	Use physical and visual models to divide a whole number by a unit fraction or a unit fraction by a whole number.	Compute and interpret quotients of fractions using models and common denominators.	Solve mathematical and real-world problems involving the quotients of fractions.	Solve multistep real-world problems involving the quotients of fractions in context.
	Use a variety of visual methods or the standard algorithm to divide a maximum of three-digit whole-number dividends.	Divide with long division involving four-digit dividends using the standard algorithm.	Divide with long division involving a minimum of four-digit dividends, and interpret the meaning of remainders within a context.	Solve real-world multistep problems using long division involving a minimum of four-digit dividends, and interpret the meaning of remainders in context.
	In one-step mathematical problems, add and subtract decimals using place value reasoning and the standard algorithms.	In one-step mathematical problems, add, subtract, multiply, and divide decimals using the standard algorithms.	In one-step real-world mathematical word problems, add, subtract, multiply, and divide decimals using the standard algorithms.	In multistep real-world mathematical word problems, add, subtract, multiply, and divide decimals using the standard algorithms.
	- In one-step mathematical problems, multiply and divide decimals using models, repeated subtraction, and partial quotients. - Find factors and multiples up to 50.			

North Carolina Grade 6 Mathematics Achievement Level Descriptors

Apply and extend previous understandings of numbers to the system of rational numbers.	- When given a number, determine prime or composite. - Find and position whole numbers on the first quadrant of a coordinate plane. - Write statements of order or inequality for positive numbers in real-world contexts.	- Find the greatest common factor of two whole numbers less than or equal to 100. - Find the least common multiple of two whole numbers less than or equal to 12. - Represent real-world quantities, including opposites, and interpret the meaning of zero. - Find and position rational numbers on horizontal or vertical number lines. - Find and position pairs of rational numbers on a coordinate plane. - Write statements of order or inequality for rational numbers in real-world contexts.	- Find the greatest common factor of two whole numbers less than or equal to 100, and use the distributive property to rewrite the sum of two whole numbers. - Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators. - Interpret and compare the absolute value of rational numbers in a context. - Recognize that when two ordered pairs differ only by signs, the locations of the points are reflections across one or both axes. - Interpret or explain statements of order or inequality for rational numbers in real-world contexts.	- Find the greatest common factor in real-world context of two whole numbers less than or equal to 100, and use the distributive property to rewrite the sum of two whole numbers. - Find the least common multiple in real-world context of two whole numbers to add and subtract fractions with unlike denominators. - Interpret how ordered pairs relate to each other on the coordinate plane.
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North Carolina Grade 6 Mathematics Achievement Level Descriptors

	• Solve real-world and mathematical problems by graphing points in the same quadrant of the coordinate plane. • Use the coordinate plane or other strategy as a tool to find the distance between points with the same first coordinate or the same second coordinate using coordinates in different quadrants. • Use models to solve multistep addition and subtraction problems involving integers from -20 to 20.	• Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. • Use coordinates and absolute value to find the distance between points with the same first coordinate or the same second coordinate. • Use models to add and subtract integers from -20 to 20 in problems involving real-world contexts.	• Use coordinates and absolute value to find the distance between points with the same first coordinate or the same second coordinate using real-world situations (map). • Use models to add and subtract integers in multistep problems involving real-world contexts.
	Expressions and Equations		
Apply and extend previous understandings of arithmetic to algebraic expressions.	• Write and evaluate numerical expressions, without groupings, that involve whole numbers. • Identify parts of an algebraic expression. • Evaluate two-step numeric expressions.	• Write and evaluate numerical expressions, with or without groupings, that involve whole-number exponents. • Identify parts of an algebraic expression, and evaluate the expression in its entirety for specific values.	• Write and evaluate numerical expressions, with groupings, that involve whole number exponents. • Write and evaluate algebraic expressions that include whole numbers, fractions, exponents, and decimals.

North Carolina Grade 6 Mathematics Achievement Level Descriptors

Reason about and solve one-variable equations.	Use substitution to determine whether a number makes an equation true.	- Use substitution to determine whether a number makes an equation or inequality true. - Use variables to represent numbers and write expressions when solving a real-world or mathematical problem. - Solve equations of the form $x + p = q$ and $p \cdot x = q$ in which p, q, and x are nonnegative rational numbers.	- Apply properties of operations to generate equivalent expressions without exponents. - Evaluate formulas. - Use substitution to determine whether a number makes an equation or inequality true involving exponents.	to develop a proper sequence of steps. - Apply and describe properties of operations to generate equivalent expressions involving exponents from real-world situations. - Use multiple substitutions to determine whether a number makes an equation or inequality true involving exponents.
Reason about one-variable inequalities.	- Solve equations of the form $x + p = q$ in which p, q, and x are nonnegative rational numbers. - Recognize inequalities.	Write an inequality of the form $x > c$ or $x < c$.	- Write and solve equations of the form $x + p = q$ and $p \cdot x = q$ in which p, q, and x are nonnegative rational numbers. - Represent the solution of an inequality on a number line diagram.	Apply and use variables from real-world contexts to model and analyze the relationship between dependent variables and independent variables.
Represent and analyze quantitative relationships between dependent and independent variables.	Recognize that variables take the place of an unknown value.	Use variables to model the relationship between two quantities in a real-world or mathematical context that change in	Use variables to model and analyze the relationship between dependent variables and independent variables.	

North Carolina Grade 6 Mathematics Achievement Level Descriptors

		- relationship to one another. - Distinguish between a dependent variable and an independent variable.	Analyze the relationship between quantities in different representations (context, equations, tables, graphs).	
	Geometry			
Solve real-world and mathematical problems involving area, surface area, and volume.	- Solve mathematical problems involving rectangular prisms with whole-number edge lengths. - Recognize polygons on the first quadrant of a coordinate plane. - Match nets to their three-dimensional counterparts.	- Find the area of triangles and quadrilaterals by composing or decomposing into triangles or rectangles. - Solve mathematical problems involving rectangular prisms with fractional edge lengths. - Recognize polygons on a coordinate plane given the vertices of the coordinates. - Use nets to find the surface area of right prisms and right pyramids in mathematical problems.	- Solve real-world problems that involve decomposing to find the area of composite figures. - Solve real-world problems involving rectangular prisms with fractional edge lengths. - Recognize polygons on a coordinate plane given the vertices of the coordinates, and determine the side length between vertices with the same first coordinate or the same second coordinate. - Use nets to find the surface area of right prisms and right pyramids in real-world problems.	- Given three vertices and the perimeter of a polygon, determine the ordered pair of the missing vertex on the coordinate plane. - Use nets to find the surface area of right prisms and right pyramids with fractional or decimal side lengths in real-world problems.

	Statistics and Probability				
Develop understanding of statistical variability.	Determine the median of a data set given an ordered data set.	Determine the mean and median of a data set.	- Distinguish between the meanings of center, spread, and shape. - Interpret the mean and median of a data set. - Identify data sets that have similar measures of center but different spreads.	Analyze and compare attributes of different representations of the same data.	
	- Given a dot plot, identify the mode. - Identify the number of observations from dot plots.	- Display numerical data on a dot plot. - Identify the number of observations from dot plots and histograms.	- Display numerical data on a histogram or box plot. - Justify an appropriate measure of center using the shape of a data distribution.	Use data and graphical representations of data in real-world context to analyze measures of center and spread.	
Summarize and describe distributions.					

North Carolina Grade 7 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Ratio and Proportional Relationships			
Analyze proportional relationships, and use them to solve real-world and mathematical problems.	- Solve a percentage problem using a proportion. - Solve mathematical problems involving equivalent whole-number ratios using tables and pairs of values on a coordinate grid. - Identify and compute unit rates using tables and graphs.	- Determine a proportional relationship between quantities from tables, graphs, equations, and verbal descriptions. - Identify and compute unit rates involving fractions using tables and graphs. - Use unit rates and scale factors to solve ratio and percentage problems.	- Compare two different proportional relationships from tables, graphs, equations, or verbal descriptions. - Represent proportional relationships using equations and graphs. - Interpret the meaning of any point (x, y) of a graphical representation of a proportional relationship. - Recognize that the y-coordinate of the ordered pair $(1, r)$ corresponds to the unit rate.	- Interpret the meaning of the y-coordinate of the ordered pair $(1, r)$ as it corresponds to the unit rate. - Use scale factors and unit rates to solve multistep ratio and percentage problems involving fractions, decimals, and unit conversions.

North Carolina Grade 7 Mathematics Achievement Level Descriptors

				Interpret a circle graph relating angle measurements and percentages.	
	The Number System				
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	- Add, subtract, multiply, and divide integers. - Describe and solve real-world problems involving integers using various properties of operations.	- Add, subtract, multiply, and divide rational numbers. - Describe and solve real-world problems involving rational numbers using the properties of operations. - Use long division to convert a fraction to a decimal. - Recognize that all rational numbers will terminate or repeat.	- Solve real-world and mathematical problems that involve different forms of rational numbers. - Interpret and apply properties of operations as strategies, including the standard algorithms.	Solve real-world and multistep mathematical problems that involve different forms of rational numbers.	

Expressions and Equations			
Use properties of operations to generate equivalent expressions. Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.	• Add, subtract, and expand linear expressions involving integers. • Factor linear expressions with an integer as the greatest common factor. • Solve two-step real-world and mathematical problems with rational numbers in algebraic expressions. • Represent the solution set of an inequality from a two-step real-world or mathematical problem.	• Add, subtract, and expand linear expressions with rational coefficients. • Solve multistep real-world and mathematical problems with rational numbers in algebraic expressions. • Represent equations and inequalities with the variable on one side to solve multistep problems. • Represent and interpret the solution set of an inequality in context.	• Determine the most efficient expression or equation to solve a real-world mathematical problem.
	• Recognize that an inequality can lead to multiple solutions. • Add and subtract integers from -20 to 20.		

Geometry			
Draw, construct, and describe geometrical figures, and describe the relationships between them.	Identify triangles based on side lengths and the measures of the angles.	- Compute dimensions of actual lengths or scale drawings given scale factors. - Represent triangles from three measures of angles or three measures of sides.	- Compute areas from scale drawings. - Determine whether angle and side-length characteristics create a unique triangle, more than one triangle, or no triangle.
	Distinguish and convert between radius and diameter.	- Use the formulas for area and circumference of a circle to solve problems. - Identify unknown angle measures in a figure using facts about supplementary, complementary, vertical, and adjacent angles.	- Solve multistep real-world problems involving circumference and area of circles using π. - Solve multistep problems using supplementary, complementary, vertical, and adjacent angles.
Solve real-world and mathematical problems involving angle measure, area, surface area, and volume.	Find the area of basic polygons.	Solve mathematical problems involving the areas and perimeters of two-dimensional objects and the volumes and surface areas of three-dimensional objects.	Solve real-world problems involving volume and surface area of composite figures.
	Find the volume of right rectangular prisms.	Solve mathematical problems involving the areas and perimeters of two-dimensional objects and the volumes and surface areas of three-dimensional objects.	Solve real-world problems involving volume and surface area of composite figures.

Statistics and Probability			
Use random sampling to draw inferences about a population.	Determine whether a sample is representative of a general population.	Generate a random sample, and use it to draw inferences.	
Make informal inferences to compare two populations.	- Calculate the mean and median of a data set. - Create a box-and-whisker plot from a five-number summary.	Calculate the mean absolute deviation, range, and interquartile range of a data set.	Use measures of variability and measures of center to make comparative inferences about two populations.
Investigate chance processes, and develop, use, and evaluate probability models.		- Differentiate between experimental and theoretical probability. - Use data to calculate the experimental probability of a chance event. - Develop and use models to determine the probability of simple events.	- Use experimental probability to predict approximate relative frequency. - Compare and find the difference between experimental and theoretical probability. - Use a simulation to generate frequencies for compound events. - Use lists, tables, tree diagrams, and simulations to determine the probability of compound events.

North Carolina Grade 8 Mathematics Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
The Number System				
Know that there are numbers that are not rational, and approximate them by rational numbers.	- Determine the whole numbers that a square root or cube root falls between (including on a number line). - Recognize the digits of π to the hundredths.	- Estimate the values of square roots and cube roots to the tenths. - Identify the two integers that a square root or cube root falls between (including on a number line). - Recognize an irrational number as a nonrepeating, nonterminating decimal.	- Estimate the values of expressions involving square roots and cubed roots to the tenths and expressions involving π to the hundredths. - Locate rational approximations of irrational numbers on a number line.	Apply the values of expressions involving square roots and cubed roots to the tenths and expressions involving π to the hundredths to solve real-world problems.

	Expressions and Equations			
Work with radicals and integer exponents.	Find the value of an expression with a single whole-number exponent.	- Apply a single property of exponents to generate an equivalent expression. - Apply properties of whole-number exponents to generate equivalent expressions involving multiplication and division. - Use numbers expressed in scientific notation to estimate very large or very small numbers. - Evaluate square roots of perfect squares and cube roots of perfect cubes for positive numbers less than or equal to 400. - Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive, rational number.	- Apply properties of whole-number exponents to generate equivalent expressions involving power of power. - Perform multiplication and division with numbers expressed in scientific notation to solve real-world problems (including how many times one number is of another). - Use the definition of a perfect square to solve an equation with potentially two solutions.	- Apply properties of integer exponents to generate equivalent expressions. - Solve multistep equations involving square roots and cube roots.

North Carolina Grade 8 Mathematics Achievement Level Descriptors

Analyze and solve linear equations and inequalities.	• Solve multistep linear equations and inequalities with a variable on only one side.	• Solve multistep linear equations and inequalities involving integer coefficients with the same variable on both sides.	• Solve multistep linear equations and inequalities with benchmark fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$) or common denominators with the same variable on both sides. • Recognize linear equations and inequalities with one variable that have one solution, infinitely many solutions, or no solution. • Recognize linear systems of equations that have one solution, infinitely many solutions, or no solution. • Solve real-world and mathematical problems by writing and solving a system of linear equations by graphing.	• Solve multistep linear equations and inequalities involving complex fractions and decimals with the same variable on both sides.
Analyze and solve pairs of simultaneous linear equations.	• Identify the solution to a linear system of equations when given a graph.	• Solve a system of linear equations by graphing when given the equations in slope-intercept form.		

	Functions
Define, evaluate, and compare functions.	- Recognize dependent and independent variables. - Identify the proportional relationship (rate of change) of a linear relationship given a table or graph.
Use functions to model relationships between quantities.	- Identify a function given a table, graph, or set of ordered pairs. - Identify linear functions from tables, equations, and graphs. - Determine the rate of change and initial value of a linear relationship given at least two (x, y) values. - Determine the rate of change and initial value of a linear relationship given a graph. - Analyze the graph of a function to determine features such as increasing/decreasing and linear/nonlinear. - Write an equation in slope-intercept form given a graph.
	Compare properties of two linear functions that could be represented in a different way to solve real-world problems.
	- Compare properties of two linear functions that are each represented in a different way. - Interpret the rate of change and initial value of a linear function. - Identify a graph that represents qualitative features of a real-world function. - Write an equation in slope-intercept form given at least two (x, y) values.
	Write an equation in slope-intercept form to model a real-world situation.

Geometry				
Understand congruence and similarity using physical models, transparencies, or geometry software. Analyze angle relationships.	- Given a graph, identify a rotation, reflection, dilation, and/or translation. - Rotate, reflect, or translate a point on a graph.	- Given ordered pairs, identify a rotation, reflection, dilation, and/or translation. - Determine whether a rotation, reflection, dilation, and/or translation creates congruent or similar figures.	- Describe a sequence of transformations that can be used to exhibit congruence or similarity between two figures, limited to rotations about the origin in 90-degree increments and reflections across the x-axis and y-axis. - Apply a sequence of transformations to model congruence or similarity between two figures.	Solve multistep angle-relationship problems (for example: shapes involving expressions for angles or finding the value of the angle or angles after finding x).
		- Identify the angle-angle criterion for triangle similarity. - Identify the relationships between interior and exterior angles and between angles created by parallel lines cut by a transversal.	Solve real-world and mathematical problems involving angle relationships.	

North Carolina Grade 8 Mathematics Achievement Level Descriptors

Understand and apply the Pythagorean theorem.	Identify the legs and the hypotenuse of a right triangle.	- Apply the Pythagorean theorem to find the missing side of a right triangle. - Apply the Pythagorean theorem to find the distance between two points in a coordinate system.	Apply the Pythagorean theorem or its converse to solve real-world and mathematical problems in two dimensions.	Using the Pythagorean theorem, find the perimeter or area of a figure.
Solve real-world and mathematical problems involving volumes of cylinders, cones, and spheres.	- Use the formulas to find area or circumference of circles. - Identify parts of two- or three-dimensional figures.	Use the formulas for the volumes of cones, cylinders, and spheres to solve mathematical problems.	Use the relationship between the formulas for the volumes of cones, cylinders, and spheres to solve real-world problems.	- Find the volumes of composite figures. - Given a volume, find a missing dimension.

Statistics and Probability				
Investigate patterns of association in bivariate data.	Given a scatterplot, identify the type of association, clusters, or outliers.	- Construct a scatterplot for bivariate measurement data, and identify clusters, outliers, and associations. - Informally fit a straight line to a scatterplot that suggests linear association. - Construct a two-way table, and calculate relative frequencies.	- Construct and interpret a scatterplot for bivariate measurement data. - Interpret the slope and y-intercept of an equation that models bivariate quantitative data. - Interpret a two-way table and its relative frequencies.	- Predict (using interpolation and extrapolation) using the line of best fit. - Given a two-way table with relative frequencies (and table filled in with decimal values), determine the values that describe the real-world situation. - Given a real-world scenario in paragraph form, construct and interpret a two-way table and its relative frequencies.
	Construct a two-way table.			

North Carolina Math 1 Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Number and Quantity			
Extend the properties of exponents to rational exponents.	Rewrite algebraic expressions in one variable with whole-number exponents using one property of exponents.	Rewrite algebraic expressions in two or more variables with integer exponents using one property of exponents.	Rewrite algebraic expressions in two or more variables with integer exponents using any combination of exponent properties.	

Algebra				
Interpret the structure of expressions.	Identify parts of expressions.	Interpret expressions in terms of a context.	Interpret expressions and parts of expressions in terms of a context.	Analyze and interpret how changing the parameters of the expression impacts the contextual situation.
	Determine the zeros of a quadratic given a quadratic in factored form.	Use factoring, the quadratic equation, and graphing to reveal solutions and zeros of quadratic equations.	Use factoring to reveal solutions and zeros of quadratic equations in the form $ax^2 + bx + c$ where $a \neq 1$.	Use factoring to reveal solutions and zeros of quadratic equations, and analyze the relationship between the factors, zeros, and solution of a quadratic equation.
Perform arithmetic operations on polynomials.	Add and subtract linear expressions.	Add and subtract quadratic and linear expressions.	Add and subtract quadratic and linear expressions, and multiply linear expressions.	Add and subtract quadratic and linear expressions, and multiply linear expressions given a contextual situation.
Understand the relationship between zeros and factors of polynomials.	Determine the zeros of a quadratic equation by looking at a graph.	Determine the solutions of a quadratic equation given an equation in factored form.	Determine the solutions of a quadratic equation <i>not</i> given in factored form.	Compare zeros and solutions given an equation, table, or graph of a quadratic equation.
Create equations that describe numbers or relationships.	Use linear equations and inequalities to solve problems.	- Create and solve linear, quadratic, or exponential equations and inequalities in one variable. - Create and graph linear, quadratic, or exponential equations in two variables.		Create, solve, and analyze problems that require creating linear, quadratic, or exponential equations and inequalities in one or two variables in context.

North Carolina Math 1 Achievement Level Descriptors

Understand solving equations as a process of reasoning, and explain the reasoning. Solve equations and inequalities in one variable. Solve systems of equations. Represent and solve equations and inequalities graphically.	• Solve linear equations in one variable. • Solve systems of equations using tables and graphs. • Understand that the graph of a two-variable equation represents the set of all solutions to the equation.	• Identify graphs of systems of equations that model a context. • Use mathematical reasoning to justify all steps in solving linear equations. • Solve linear equations and inequalities in one variable. • Solve quadratic equations in one variable by taking square roots. • Solve systems of equations using tables and graphs, and interpret the solutions. • Justify how the graph of a two-variable equation represents the set of all solutions to the equation. • Graph the solutions to a linear inequality on a coordinate plane.	• Model situations by creating systems of linear equations or inequalities. • Solve formulas for a quantity of interest. • Use mathematical reasoning to justify all steps in solving linear and quadratic equations. • Solve quadratic equations in one variable by taking square roots and factoring. • Solve systems of equations using tables, graphs, and algebraic methods, and interpret the solutions. • Graph the solutions to a linear inequality or a system of linear inequalities on a coordinate plane.	• Justify why replacing one equation in a system of linear equations with the sum of that equation and a multiple of the other produces a system with the same solutions.
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	Functions		
Understand the concept of a function, and use function notation.	- Identify the domain and range of a function. - Evaluate functions for inputs in the domain. - Recognize recursively and explicitly defined sequences as functions with a domain that is a subset of the integers.	- Use the domain and range of a relation to determine whether the relation is or is not a function. - Evaluate functions for inputs in the domain and interpret statements that use function notation in terms of a context. - Recognize that arithmetic sequences have a range which is a subset of the range of a linear function and geometric sequences have a range which is a subset of the range of an exponential function.	Create and compare explicit and recursive forms of arithmetic and geometric sequences.
Interpret functions that arise in applications in terms of the context.	- Interpret representations of functions in terms of a context. - Calculate the average rate of change of any function over a specified interval.	- Interpret functions and key features of representations of functions in terms of a context. - Calculate and interpret the average rate of change of a function over a specified interval.	

Analyze functions using different representations.	Compare key features of two linear functions given the same type of representation.	- Analyze linear and exponential equations to show and identify key features. - Compare key features of two exponential or quadratic functions given the same type of representation. - Build linear and exponential equations from a mathematical or real-world context. - Represent situations with recursive and explicit forms of arithmetic sequences. - Identify situations that can be modeled by linear or exponential functions. - Interpret the parameters of linear functions in terms of a context.	- Analyze linear, exponential, and quadratic functions to show and identify key features. - Compare key features of two of the same functions given different representations. - Build linear and exponential equations from a mathematical or real-world context, including combining two functions. - Represent situations with recursive and explicit forms of arithmetic and geometric sequences, and translate between the two forms. - Identify situations that can be modeled by linear and exponential functions, and justify the choice of function type to model the situation. - Interpret the parameters of linear and exponential functions in terms of a context.	Compare key features of two different linear, exponential, or quadratic functions given different representations.
Build a function that models a relationship between two quantities.				
Construct and compare linear and exponential models, and solve problems.	Identify situations that can be modeled by linear functions.			
Interpret expressions for functions in terms of the situation they model.				

	Geometry			
Use coordinates to prove simple geometric theorems algebraically.	Determine the distance between two points on a line.	- Use coordinates to compute perimeters of polygons and areas of triangles and rectangles. - Use coordinates to determine whether two lines are parallel or perpendicular. - Use coordinates to find the midpoint of line segments.	- Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, and verify when a set of points produces a particular type of triangle or quadrilateral. - Use coordinates to determine whether two lines are parallel or perpendicular, and find the equation of parallel or perpendicular lines when given a line and a point not on the line. - Use coordinates to find the midpoint and endpoints of line segments.	Use coordinates to compute perimeters and areas of polygons, and verify when a set of points produces a particular type of polygon in context.

Statistics and Probability				
Summarize, represent, and interpret data on a single count or measurement variable.	Identify components of histograms and box plots.	Represent data with histograms and box plots using technology.	Represent data with histograms and box plots using technology, and interpret the data in context.	Determine and justify which representation best fits the data using residuals.
	Calculate the mean and median of a data set.	Compare the center and spread of different data sets.	Compare the center and spread of different data sets, and interpret differences in shape, center, and spread in context.	
	Identify extreme data points informally.	Examine the effects of extreme data points on shape, center, and/or spread.		

North Carolina Math 1 Achievement Level Descriptors

<i>Summarize, represent, and interpret data on two categorical and quantitative variables.</i>	Informally, find the line of best fit.	- Represent data on a scatterplot. - Fit a function to the appropriate model (linear/exponential) given a data set. - Interpret the rate of change and intercept of a linear model, and interpolate to predict values. - Analyze the relationship between two variables using correlation coefficients.	- Represent data on a scatterplot, and describe the relationship between the variables. - Fit a function to the appropriate model (linear/exponential) given a data set, and use fitted function to solve problems. - Interpret the rate of change and intercept of a linear model, and interpolate and extrapolate to predict values. - Analyze the relationship between two variables using correlation coefficients and residuals. - Distinguish between association and causation.	Determine and justify which function best illustrates the data (linear/exponential).
<i>Interpret linear models.</i>				

North Carolina Math 3 Achievement Level Descriptors

	Level 2 and Below	Level 3	Level 4	Level 5
	Students at Level 2 and below demonstrate inconsistent understanding of grade level content standards and will need support at the next grade/course.	Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.	Students at Level 4 demonstrate a thorough understanding of grade level content standards and are on track for career and college.	Students at Level 5 demonstrate comprehensive understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.
	Number and Quantity			
Use complex numbers in polynomial identities and equations.	Determine the number of real solutions for polynomial functions from a graph.	Determine the number of solutions for polynomial functions.	Determine the number and potential types of solutions for polynomial functions.	Apply the fundamental theorem of Algebra to justify the number and types of solutions for polynomial functions.

Algebra				
Interpret the structure of expressions.	Identify piecewise, absolute value, polynomial, exponential, and rational expressions.	Interpret piecewise, absolute value, polynomial, exponential, and rational expression in terms of a context.	Interpret piecewise, absolute value, polynomial, exponential, and rational expressions and parts of these expressions in terms of a context.	Rewrite piecewise, absolute value, polynomial, exponential, and rational expressions to interpret terms, factors, coefficients, and exponents in context.
	Write equivalent expressions.	Write equivalent expressions for piecewise, absolute value, polynomial (degree 3 or higher), and rational expressions (with linear denominator).	Use equivalent forms of exponential expressions to reveal rates based on different intervals of the domain.	
	Find factors, find zeros, or find solutions of quadratic expressions.	Determine factors of polynomial expressions, solutions of polynomial equations, and zeros of polynomial functions.	Apply the remainder theorem.	Apply the relationship among factors of polynomial expressions, solutions of polynomial equations, and zeros of polynomial functions using the remainder theorem.
Understand the relationship between zeros and factors of polynomials.				

North Carolina Math 3 Achievement Level Descriptors

	• Rewrite simple rational expressions in different forms where the simplified form has a remainder of zero. • Add and subtract rational expressions with linear denominators. • Multiply rational expressions. • Create absolute value, polynomial, exponential, and rational equations and inequalities in one variable.	• Rewrite simple rational expressions in different forms. • Divide rational expressions. • Solve problems that require creating absolute value, polynomial, exponential, and rational equations and inequalities in one variable. Justify solution methods and steps of the solving process.	• Rewrite rational expressions requiring more than one arithmetic operation.
Rewrite rational expressions.	• Add and subtract rational expressions with common linear denominators. • Create and solve linear and quadratic equations and inequalities in one variable.		
Create equations that describe numbers or relationships.	• Create and graph exponential equations in two variables. • Identify systems of equations and inequalities that model a context.	• Create and graph absolute value and exponential equations in two variables. • Create systems of equations and inequalities that model a context.	• Create and graph absolute value, polynomial, and exponential equations in two variables. • Create and graph rational equations in two variables. • Represent contextual situations by creating a system of equations, and approximate solutions using technology.

Understand solving equations as a process of reasoning, and explain the reasoning.		• Use mathematical reasoning to justify all steps in solving equations. • Solve and interpret one-variable rational equations, and explain extraneous solutions.	
Represent and solve equations and inequalities graphically.	• Find the points of intersection of the graphs of two equations.	• Use mathematical reasoning to justify all value, polynomial, and exponential equations. • Solve and interpret one-variable rational equations. • Approximate solutions using graphing technology or a table of values.	

Functions			
Understand the concept of a function, and use function notation.		• Understand trigonometric ratios as functions of angle measure. • Interpret statements that use function notation in terms of a context.	
Interpret functions that arise in applications in terms of the context.	• Interpret key features of functions given a graph in context.	• Evaluate piecewise functions for inputs in the domain. • Interpret key features of functions given various representations in context.	• Interpret functions and key features, including periodicity or discontinuities, given various representations in context.

North Carolina Math 3 Achievement Level Descriptors

Analyze functions using different representations.	- Analyze graphs of absolute value, polynomial, and exponential functions to identify key features. - Compare key features of two functions of the same type given with the same representation. - Build a quadratic function with real solutions from a mathematical or real-world context.	- Analyze absolute value, polynomial, exponential, and trigonometric functions to identify key features. - Compare key features of two functions of the same type given with different representations. - Build polynomial and exponential functions with real solutions from a mathematical or real-world context. - Recognize the effect of replacing $f(x)$ with $kf(x)$, $f(x) + k$, and $f(x + k)$ for absolute value, polynomial, exponential, and trigonometric functions. - Find the inverse function for a linear or quadratic equation.	- Analyze continuous piecewise functions to identify key features. - Compare key features of two different functions given with different representations. - Build polynomial and exponential functions with real solutions from a mathematical or real-world context, including combining standard function types with arithmetic. - Recognize the effect of replacing $f(x)$ with $kf(x)$, $f(x) + k$, $f(x + k)$, and $f(kx)$. - Find the inverse function for linear, quadratic, and exponential equations.	- Analyze noncontinuous functions to identify key features. - Justify the effect of replacing $f(x)$ with $kf(x)$, $f(x) + k$, $f(x + k)$, and $f(kx)$. - Justify why two functions are inverses.
Build a function that models a relationship between two quantities.				
Build new functions from existing functions.	Find the inverse of a function represented by a table or set of ordered pairs.			

North Carolina Math 3 Achievement Level Descriptors

Construct and compare linear and exponential models, and solve problems.	• Compare end behavior of the same function types.	• Compare end behavior of different function types.	• Compare end behavior of functions, and show that a quantity increasing exponentially eventually exceeds a quantity increasing as a polynomial function.
Extend the domain of trigonometric functions using the unit circle.	• Evaluate logarithms using technology.	• Use logarithms to express solutions to equations, and evaluate logarithms using technology.	• Interpret the relationship between sine and cosine and radian measure of an angle.
Model periodic phenomena with trigonometric functions.	• Identify the parameters of a sine function.	• Find radian measure. • Interpret the parameters of a sine function. • Interpret key features of the function in terms of a context.	

	Geometry
Prove geometric theorems.	• Arrange statements and reasons of a parallelogram proof to create a logical order of statements.
Understand and apply theorems about circles.	• Find the centers of triangles. • Provide statements or reasons to complete parallelogram proofs. • Solve problems about parallelograms and other two-dimensional figures. • Provide statements or reasons to complete circle proofs. • Solve problems about circles. • Find arc lengths and areas of sectors of circles in mathematical problems.
	• Complete a proof of theorems about parallelograms. • Complete a proof of a theorem about circles in different formats (flow chart, t-chart, paragraph). • Interpret the relationship between arc length and central angle measure as the radian measure of an angle. • Find arc lengths and areas of sectors of circles in contextual problems.
	• Use different centers of triangles in contextual situations. • Construct a proof of a theorem about parallelograms in different formats. • Construct a proof of a theorem about circles in different formats (flow chart, t-chart, paragraph). • Interpret the radian measure of an angle as a unitless measure and use linear measures to find angle measures.

North Carolina Math 3 Achievement Level Descriptors

Translate between the geometric description and the equation for a conic section.	Derive the equation of a circle given the center and the radius.	Determine the radius given the equation of a circle.	Find the center and radius of a circle given in standard form.	Recognize any equation of a circle, and find the center and radius and other points on the circle.
Explain volume formulas, and use them to solve problems.	Calculate the volumes of prisms and cylinders.	Calculate the volumes of prisms, cylinders, pyramids, cones, and spheres to solve problems.	Use volume formulas to solve multistep problems in context.	
Visualize relationships between two-dimensional and three-dimensional objects.		Identify cross sections of three-dimensional objects.	Identify cross sections of three-dimensional objects and three-dimensional objects formed by rotating two-dimensional objects.	
Apply geometric concepts in modeling situations.	Use geometric shapes, measures, and properties to model real-life objects.	Use geometric concepts to model situations.	Apply geometric concepts to model and solve contextual problems.	Apply geometric concepts to model and solve design and optimization modeling problems.

Statistics and Probability				
Understand and evaluate random processes underlying statistical experiments. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	Recognize the difference between sample surveys, experiments, and observational studies.	Identify when to use sample surveys, experiments, and observational studies.	Identify when to use sample surveys, experiments, and observational studies and how randomization applies in each.	Determine how changes in sample size or population parameters can affect the margin of error and differences between distinct populations.
	Use simulation to estimate population means or proportions.	Use simulation to estimate proportions and margins of error.	Use simulations to estimate margins of error and to analyze differences between samples from distinct populations.	Make appropriate judgments on the context of graphical displays of data.
	Identify sources of data.	Identify sources of data and the ways data are displayed in articles and websites.	Identify sources of data, designs of studies, and the ways data are graphically displayed in articles and websites.	

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Detailed Reports of Participants' Judgments

North Carolina Grade 3 Math R1
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	30	40	52
1	219	30	39	54
1	220	19	34	48
1	221	26	36	50
2	212	24	38	50
2	213	20	30	50
2	214	20	39	53
2	215	22	33	53
2	216	20	30	41
2	217	21	41	50
3	206	11	31	50
3	207	16	30	52
3	208	19	34	48
3	209	8	11	26
3	210	20	39	49
3	211	27	37	50
4	201	9	19	39
4	202	14	32	43
4	203	20	44	56
4	204	12	25	41
4	205	19	32	50

Overall	Median	20	34	50
	25th %ile	15	30	45.5
	75th %ile	23	39	52
	Minimum	8	11	26
	Maximum	30	44	56

North Carolina Grade 3 Math R1
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	540	550	570
1	219	540	550	575
1	220	528	544	561
1	221	536	548	562
2	212	533	549	562
2	213	529	540	562
2	214	529	550	571
2	215	529	542	571
2	216	529	540	551
2	217	529	551	562
3	206	506	540	562
3	207	524	540	570
3	208	528	544	561
3	209	496	506	536
3	210	529	550	561
3	211	538	548	562
4	201	499	528	550
4	202	520	540	552
4	203	529	555	582
4	204	512	534	551
4	205	528	540	562

Overall	Median	529	544	562
	25th %ile	522	540	557
	75th %ile	531	550	570
	Minimum	496	506	536
	Maximum	540	555	582

North Carolina Grade 3 Math R1
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	28	37.5	51
Median	2	20.5	35.5	50
Median	3	17.5	32.5	49.5
Median	4	14	32	43
Median	Overall	20	34	50
25th %ile	1	20.75	34.5	48.5
25th %ile	2	20	30	47.75
25th %ile	3	10.25	25.25	42.5
25th %ile	4	10.5	22	40
25th %ile	Overall	15	30	45.5
75th %ile	1	30	39.75	53.5
75th %ile	2	22.5	39.5	53
75th %ile	3	21.75	37.5	50.5
75th %ile	4	19.5	38	53
75th %ile	Overall	23	39	52
Minimum	1	19	34	48
Minimum	2	20	30	41
Minimum	3	8	11	26
Minimum	4	9	19	39
Minimum	Overall	8	11	26
Maximum	1	30	40	54
Maximum	2	24	41	53
Maximum	3	27	39	52
Maximum	4	20	44	56
Maximum	Overall	30	44	56

Overall	Median	20	34	50
	25th %ile	15	30	45.5
	75th %ile	23	39	52
	Minimum	8	11	26
	Maximum	30	44	56

North Carolina Grade 3 Math R1
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	538	549	566
Median	2	529	545	562
Median	3	526	542	561
Median	4	520	540	552
Median	Overall	529	544	562
25th %ile	1	530	545	561
25th %ile	2	529	540	559
25th %ile	3	504	531	555
25th %ile	4	505	531	550
25th %ile	Overall	522	540	557
75th %ile	1	540	550	574
75th %ile	2	530	550	571
75th %ile	3	531	549	564
75th %ile	4	528	548	572
75th %ile	Overall	531	550	570
Minimum	1	528	544	561
Minimum	2	529	540	551
Minimum	3	496	506	536
Minimum	4	499	528	550
Minimum	Overall	496	506	536
Maximum	1	540	550	575
Maximum	2	533	551	571
Maximum	3	538	550	570
Maximum	4	529	555	582
Maximum	Overall	540	555	582

Overall	Median	529	544	562
	25th %ile	522	540	557
	75th %ile	531	550	570
	Minimum	496	506	536
	Maximum	540	555	582

North Carolina Grade 3 Math R1

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	28	37.5	51
2	20.5	35.5	50
3	17.5	32.5	49.5
4	14	32	43
Overall	20	34	50

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	1.4	31.5	57.3	9.7

North Carolina Grade 3 Math R2
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	33	39	52
1	219	33	39	53
1	220	33	39	48
1	221	33	39	53
2	212	30	38	45
2	213	30	34	50
2	214	30	35	50
2	215	30	33	50
2	216	30	33	50
2	217	30	37	50
3	206	25	39	50
3	207	20	30	48
3	208	24	34	48
3	209	13	25	41
3	210	24	39	48
3	211	28	37	48
4	201	31	39	50
4	202	25	38	47
4	203	30	40	46
4	204	25	39	53
4	205	31	39	50

Overall	Median	30	38	50
	25th %ile	25	34	48
	75th %ile	31	39	50
	Minimum	13	25	41
	Maximum	33	40	53

North Carolina Grade 3 Math R2
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	542	550	570
1	219	542	550	571
1	220	542	550	561
1	221	542	550	571
2	212	540	549	558
2	213	540	544	562
2	214	540	547	562
2	215	540	542	562
2	216	540	542	562
2	217	540	548	562
3	206	534	550	562
3	207	529	540	561
3	208	533	544	561
3	209	515	534	551
3	210	533	550	561
3	211	539	548	561
4	201	540	550	562
4	202	534	549	559
4	203	540	550	558
4	204	534	550	571
4	205	540	550	562

Overall	Median	540	549	562
	25th %ile	534	544	561
	75th %ile	540	550	562
	Minimum	515	534	551
	Maximum	542	550	571

North Carolina Grade 3 Math R2
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	33	39	52.5
Median	2	30	34.5	50
Median	3	24	35.5	48
Median	4	30	39	50
Median	Overall	30	38	50
25th %ile	1	33	39	49
25th %ile	2	30	33	48.75
25th %ile	3	18.25	28.75	46.25
25th %ile	4	25	38.5	46.5
25th %ile	Overall	25	34	48
75th %ile	1	33	39	53
75th %ile	2	30	37.25	50
75th %ile	3	25.75	39	48.5
75th %ile	4	31	39.5	51.5
75th %ile	Overall	31	39	50
Minimum	1	33	39	48
Minimum	2	30	33	45
Minimum	3	13	25	41
Minimum	4	25	38	46
Minimum	Overall	13	25	41
Maximum	1	33	39	53
Maximum	2	30	38	50
Maximum	3	28	39	50
Maximum	4	31	40	53
Maximum	Overall	33	40	53

Overall	Median	30	38	50
	25th %ile	25	34	48
	75th %ile	31	39	50
	Minimum	13	25	41
	Maximum	33	40	53

North Carolina Grade 3 Math R2
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	542	550	570
Median	2	540	545	562
Median	3	533	546	561
Median	4	540	550	562
Median	Overall	540	549	562
25th %ile	1	542	550	563
25th %ile	2	540	542	561
25th %ile	3	525	538	558
25th %ile	4	534	549	559
25th %ile	Overall	534	544	561
75th %ile	1	542	550	571
75th %ile	2	540	548	562
75th %ile	3	536	550	561
75th %ile	4	540	550	566
75th %ile	Overall	540	550	562
Minimum	1	542	550	561
Minimum	2	540	542	558
Minimum	3	515	534	551
Minimum	4	534	549	558
Minimum	Overall	515	534	551
Maximum	1	542	550	571
Maximum	2	540	549	562
Maximum	3	539	550	562
Maximum	4	540	550	571
Maximum	Overall	542	550	571

Overall	Median	540	549	562
	25th %ile	534	544	561
	75th %ile	540	550	562
	Minimum	515	534	551
	Maximum	542	550	571

North Carolina Grade 3 Math R2 Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	33	39	52.5
2	30	34.5	50
3	24	35.5	48
4	30	39	50
Overall	30	38	50

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	21.1	28.2	41.0	9.7

North Carolina Grade 3 Math R3
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	33	39	52
1	219	33	39	53
1	220	33	39	48
1	221	33	39	52
2	212	30	38	48
2	213	31	34	50
2	214	33	38	50
2	215	30	38	50
2	216	30	38	50
2	217	30	38	50
3	206	25	39	50
3	207	25	35	50
3	208	24	36	48
3	209	39	41	50
3	210	24	39	48
3	211	29	36	47
4	201	31	39	50
4	202	32	38	50
4	203	34	40	50
4	204	33	39	50
4	205	32	39	50

Overall	Median	31	39	50
	25th %ile	29.5	38	49
	75th %ile	33	39	50
	Minimum	24	34	47
	Maximum	39	41	53

North Carolina Grade 3 Math R3
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	542	550	570
1	219	542	550	571
1	220	542	550	561
1	221	542	550	570
2	212	540	549	561
2	213	540	544	562
2	214	542	549	562
2	215	540	549	562
2	216	540	549	562
2	217	540	549	562
3	206	534	550	562
3	207	534	547	562
3	208	533	548	561
3	209	550	551	562
3	210	533	550	561
3	211	539	548	559
4	201	540	550	562
4	202	540	549	562
4	203	544	550	562
4	204	542	550	562
4	205	540	550	562

Overall	Median	540	550	562
	25th %ile	539	549	561
	75th %ile	542	550	562
	Minimum	533	544	559
	Maximum	550	551	571

North Carolina Grade 3 Math R3
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	33	39	52
Median	2	30	38	50
Median	3	25	37.5	49
Median	4	32	39	50
Median	Overall	31	39	50
25th %ile	1	33	39	49
25th %ile	2	30	37	49.5
25th %ile	3	24	35.75	47.75
25th %ile	4	31.5	38.5	50
25th %ile	Overall	29.5	38	49
75th %ile	1	33	39	52.75
75th %ile	2	31.5	38	50
75th %ile	3	31.5	39.5	50
75th %ile	4	33.5	39.5	50
75th %ile	Overall	33	39	50
Minimum	1	33	39	48
Minimum	2	30	34	48
Minimum	3	24	35	47
Minimum	4	31	38	50
Minimum	Overall	24	34	47
Maximum	1	33	39	53
Maximum	2	33	38	50
Maximum	3	39	41	50
Maximum	4	34	40	50
Maximum	Overall	39	41	53

Overall	Median	31	39	50
	25th %ile	29.5	38	49
	75th %ile	33	39	50
	Minimum	24	34	47
	Maximum	39	41	53

North Carolina Grade 3 Math R3
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	542	550	570
Median	2	540	549	562
Median	3	534	549	561
Median	4	540	550	562
Median	Overall	540	550	562
25th %ile	1	542	550	563
25th %ile	2	540	548	562
25th %ile	3	533	548	560
25th %ile	4	540	549	562
25th %ile	Overall	539	549	561
75th %ile	1	542	550	571
75th %ile	2	540	549	562
75th %ile	3	542	550	562
75th %ile	4	543	550	562
75th %ile	Overall	542	550	562
Minimum	1	542	550	561
Minimum	2	540	544	561
Minimum	3	533	547	559
Minimum	4	540	549	562
Minimum	Overall	533	544	559
Maximum	1	542	550	571
Maximum	2	542	549	562
Maximum	3	550	551	562
Maximum	4	544	550	562
Maximum	Overall	550	551	571

Overall	Median	540	550	562
	25th %ile	539	549	561
	75th %ile	542	550	562
	Minimum	533	544	559
	Maximum	550	551	571

North Carolina Grade 3 Math R3 Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	33	39	52
2	30	38	50
3	25	37.5	49
4	32	39	50
Overall	31	39	50

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	21.1	31.2	38.0	9.7

North Carolina Grade 4 Math R1
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	33	39	50
1	219	27	38	48
1	220	28	45	53
1	221	35	46	52
2	212	16	37	56
2	213	30	37	52
2	214	20	33	52
2	215	14	33	52
2	216	16	33	53
2	217	14	33	54
3	206	10	19	53
3	207	23	33	45
3	208	14	25	45
3	209	23	38	54
3	210	12	23	54
3	211	32	39	54
4	201	21	35	51
4	202	22	39	56
4	203	32	45	53
4	204	13	37	52
4	205	12	27	39

Overall	Median	21	37	52
	25th %ile	14	33	50.5
	75th %ile	29	39	54
	Minimum	10	19	39
	Maximum	35	46	56

North Carolina Grade 4 Math R1
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	546	554	563
1	219	542	554	561
1	220	544	560	566
1	221	547	560	565
2	212	531	551	575
2	213	544	551	565
2	214	538	546	565
2	215	530	546	565
2	216	531	546	566
2	217	530	546	568
3	206	521	537	566
3	207	539	546	560
3	208	530	541	560
3	209	539	554	568
3	210	528	539	568
3	211	545	554	568
4	201	538	547	565
4	202	539	554	575
4	203	545	560	566
4	204	529	551	565
4	205	528	542	554

Overall	Median	538	551	565
	25th %ile	530	546	564
	75th %ile	544	554	568
	Minimum	521	537	554
	Maximum	547	560	575

North Carolina Grade 4 Math R1
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	30.5	42	51
Median	2	16	33	52.5
Median	3	18.5	29	53.5
Median	4	21	37	52
Median	Overall	21	37	52
25th %ile	1	27.25	38.25	48.5
25th %ile	2	14	33	52
25th %ile	3	11.5	22	45
25th %ile	4	12.5	31	45
25th %ile	Overall	14	33	50.5
75th %ile	1	34.5	45.75	52.75
75th %ile	2	22.5	37	54.5
75th %ile	3	25.25	38.25	54
75th %ile	4	27	42	54.5
75th %ile	Overall	29	39	54
Minimum	1	27	38	48
Minimum	2	14	33	52
Minimum	3	10	19	45
Minimum	4	12	27	39
Minimum	Overall	10	19	39
Maximum	1	35	46	53
Maximum	2	30	37	56
Maximum	3	32	39	54
Maximum	4	32	45	56
Maximum	Overall	35	46	56

Overall	Median	21	37	52
	25th %ile	14	33	50.5
	75th %ile	29	39	54
	Minimum	10	19	39
	Maximum	35	46	56

North Carolina Grade 4 Math R1
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	545	557	564
Median	2	531	546	565
Median	3	534	543	567
Median	4	538	551	565
Median	Overall	538	551	565
25th %ile	1	543	554	562
25th %ile	2	530	546	565
25th %ile	3	527	539	560
25th %ile	4	529	545	559
25th %ile	Overall	530	546	564
75th %ile	1	547	560	565
75th %ile	2	539	551	570
75th %ile	3	541	554	568
75th %ile	4	542	557	570
75th %ile	Overall	544	554	568
Minimum	1	542	554	561
Minimum	2	530	546	565
Minimum	3	521	537	560
Minimum	4	528	542	554
Minimum	Overall	521	537	554
Maximum	1	547	560	566
Maximum	2	544	551	575
Maximum	3	545	554	568
Maximum	4	545	560	575
Maximum	Overall	547	560	575

Overall	Median	538	551	565
	25th %ile	530	546	564
	75th %ile	544	554	568
	Minimum	521	537	554
	Maximum	547	560	575

North Carolina Grade 4 Math R1

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	30.5	42	51
2	16	33	52.5
3	18.5	29	53.5
4	21	37	52
Overall	21	37	52

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	17.2	39.2	38.7	4.8

North Carolina Grade 4 Math R2
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	29	38	48
1	219	28	38	48
1	220	28	38	48
1	221	29	38	48
2	212	16	34	52
2	213	16	35	52
2	214	16	35	52
2	215	16	35	52
2	216	16	35	52
2	217	16	35	52
3	206	12	29	53
3	207	14	21	45
3	208	19	32	50
3	209	20	36	50
3	210	15	23	50
3	211	32	38	52
4	201	22	35	51
4	202	22	35	52
4	203	30	39	53
4	204	22	37	52
4	205	23	37	48

Overall	Median	20	35	52
	25th %ile	16	34.5	48
	75th %ile	28	38	52
	Minimum	12	21	45
	Maximum	32	39	53

North Carolina Grade 4 Math R2
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	544	554	561
1	219	544	554	561
1	220	544	554	561
1	221	544	554	561
2	212	531	547	565
2	213	531	547	565
2	214	531	547	565
2	215	531	547	565
2	216	531	547	565
2	217	531	547	565
3	206	528	544	566
3	207	530	538	560
3	208	537	545	563
3	209	538	549	563
3	210	530	539	563
3	211	545	554	565
4	201	539	547	565
4	202	539	547	565
4	203	544	554	566
4	204	539	551	565
4	205	539	551	561

Overall	Median	538	547	565
	25th %ile	531	547	561
	75th %ile	544	554	565
	Minimum	528	538	560
	Maximum	545	554	566

North Carolina Grade 4 Math R2
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	28.5	38	48
Median	2	16	35	52
Median	3	17	30.5	50
Median	4	22	37	52
Median	Overall	20	35	52
25th %ile	1	28	38	48
25th %ile	2	16	34.75	52
25th %ile	3	13.5	22.5	48.75
25th %ile	4	22	35	49.5
25th %ile	Overall	16	34.5	48
75th %ile	1	29	38	48
75th %ile	2	16	35	52
75th %ile	3	23	36.5	52.25
75th %ile	4	26.5	38	52.5
75th %ile	Overall	28	38	52
Minimum	1	28	38	48
Minimum	2	16	34	52
Minimum	3	12	21	45
Minimum	4	22	35	48
Minimum	Overall	12	21	45
Maximum	1	29	38	48
Maximum	2	16	35	52
Maximum	3	32	38	53
Maximum	4	30	39	53
Maximum	Overall	32	39	53

Overall	Median	20	35	52
	25th %ile	16	34.5	48
	75th %ile	28	38	52
	Minimum	12	21	45
	Maximum	32	39	53

North Carolina Grade 4 Math R2
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	544	554	561
Median	2	531	547	565
Median	3	533	545	563
Median	4	539	551	565
Median	Overall	538	547	565
25th %ile	1	544	554	561
25th %ile	2	531	547	565
25th %ile	3	529	539	562
25th %ile	4	539	547	563
25th %ile	Overall	531	547	561
75th %ile	1	544	554	561
75th %ile	2	531	547	565
75th %ile	3	540	550	565
75th %ile	4	542	553	565
75th %ile	Overall	544	554	565
Minimum	1	544	554	561
Minimum	2	531	547	565
Minimum	3	528	538	560
Minimum	4	539	547	561
Minimum	Overall	528	538	560
Maximum	1	544	554	561
Maximum	2	531	547	565
Maximum	3	545	554	566
Maximum	4	544	554	566
Maximum	Overall	545	554	566

Overall	Median	538	547	565
	25th %ile	531	547	561
	75th %ile	544	554	565
	Minimum	528	538	560
	Maximum	545	554	566

North Carolina Grade 4 Math R2

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	28.5	38	48
2	16	35	52
3	17	30.5	50
4	22	37	52
Overall	20	35	52

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	17.2	25.2	52.7	4.8

North Carolina Grade 4 Math R3
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	28	38	48
1	219	28	38	48
1	220	28	38	47
1	221	26	38	52
2	212	22	34	52
2	213	20	35	52
2	214	20	35	52
2	215	22	37	49
2	216	20	35	49
2	217	21	35	49
3	206	18	29	50
3	207	19	27	46
3	208	19	30	50
3	209	20	36	50
3	210	20	27	50
3	211	32	36	50
4	201	22	35	51
4	202	22	35	51
4	203	28	39	53
4	204	22	37	52
4	205	28	37	51

Overall	Median	22	35	50
	25th %ile	20	34.5	49
	75th %ile	28	37.5	52
	Minimum	18	27	46
	Maximum	32	39	53

North Carolina Grade 4 Math R3
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	544	554	561
1	219	544	554	561
1	220	544	554	561
1	221	541	554	565
2	212	539	547	565
2	213	538	547	565
2	214	538	547	565
2	215	539	551	561
2	216	538	547	561
2	217	538	547	561
3	206	532	544	563
3	207	537	542	560
3	208	537	544	563
3	209	538	549	563
3	210	538	542	563
3	211	545	549	563
4	201	539	547	565
4	202	539	547	565
4	203	544	554	566
4	204	539	551	565
4	205	544	551	565

Overall	Median	539	547	563
	25th %ile	538	547	561
	75th %ile	544	553	565
	Minimum	532	542	560
	Maximum	545	554	566

North Carolina Grade 4 Math R3
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	28	38	48
Median	2	20.5	35	50.5
Median	3	19.5	29.5	50
Median	4	22	37	51
Median	Overall	22	35	50
25th %ile	1	26.5	38	47.25
25th %ile	2	20	34.75	49
25th %ile	3	18.75	27	49
25th %ile	4	22	35	51
25th %ile	Overall	20	34.5	49
75th %ile	1	28	38	51
75th %ile	2	22	35.5	52
75th %ile	3	23	36	50
75th %ile	4	28	38	52.5
75th %ile	Overall	28	37.5	52
Minimum	1	26	38	47
Minimum	2	20	34	49
Minimum	3	18	27	46
Minimum	4	22	35	51
Minimum	Overall	18	27	46
Maximum	1	28	38	52
Maximum	2	22	37	52
Maximum	3	32	36	50
Maximum	4	28	39	53
Maximum	Overall	32	39	53

Overall	Median	22	35	50
	25th %ile	20	34.5	49
	75th %ile	28	37.5	52
	Minimum	18	27	46
	Maximum	32	39	53

North Carolina Grade 4 Math R3
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	544	554	561
Median	2	538	547	563
Median	3	537	544	563
Median	4	539	551	565
Median	Overall	539	547	563
25th %ile	1	542	554	561
25th %ile	2	538	547	561
25th %ile	3	536	542	562
25th %ile	4	539	547	565
25th %ile	Overall	538	547	561
75th %ile	1	544	554	564
75th %ile	2	539	548	565
75th %ile	3	540	549	563
75th %ile	4	544	553	565
75th %ile	Overall	544	553	565
Minimum	1	541	554	561
Minimum	2	538	547	561
Minimum	3	532	542	560
Minimum	4	539	547	565
Minimum	Overall	532	542	560
Maximum	1	544	554	565
Maximum	2	539	551	565
Maximum	3	545	549	563
Maximum	4	544	554	566
Maximum	Overall	545	554	566

Overall	Median	539	547	563
	25th %ile	538	547	561
	75th %ile	544	553	565
	Minimum	532	542	560
	Maximum	545	554	566

North Carolina Grade 4 Math R3 Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	28	38	48
2	20.5	35	50.5
3	19.5	29.5	50
4	22	37	51
Overall	22	35	50

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	19.5	22.9	49.1	8.4

North Carolina Grade 5 Math R1
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	28	39	51
1	219	25	42	50
1	220	31	40	51
1	221	32	41	50
2	212	25	43	51
2	213	24	42	51
2	214	24	42	51
2	215	25	42	50
2	216	24	36	51
2	217	24	34	53
3	206	21	25	51
3	207	27	35	42
3	208	22	40	47
3	209	21	41	46
3	210	20	28	46
3	211	32	38	53
4	201	25	34	51
4	202	34	43	49
4	203	35	42	49
4	204	25	36	53
4	205	26	36	46

Overall	Median	25	40	51
	25th %ile	24	35.5	48
	75th %ile	29.5	42	51
	Minimum	20	25	42
	Maximum	35	43	53

North Carolina Grade 5 Math R1
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	546	561	572
1	219	543	561	572
1	220	548	561	572
1	221	549	561	572
2	212	543	562	572
2	213	543	561	572
2	214	543	561	572
2	215	543	561	572
2	216	543	552	572
2	217	543	552	575
3	206	541	543	572
3	207	546	552	561
3	208	541	561	570
3	209	541	561	565
3	210	539	546	565
3	211	549	556	575
4	201	543	552	572
4	202	552	562	572
4	203	552	561	572
4	204	543	552	575
4	205	543	552	565

Overall	Median	543	561	572
	25th %ile	543	552	571
	75th %ile	547	561	572
	Minimum	539	543	561
	Maximum	552	562	575

North Carolina Grade 5 Math R1
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	29.5	40.5	50.5
Median	2	24	42	51
Median	3	21.5	36.5	46.5
Median	4	26	36	49
Median	Overall	25	40	51
25th %ile	1	25.75	39.25	50
25th %ile	2	24	35.5	50.75
25th %ile	3	20.75	27.25	45
25th %ile	4	25	35	47.5
25th %ile	Overall	24	35.5	48
75th %ile	1	31.75	41.75	51
75th %ile	2	25	42.25	51.5
75th %ile	3	28.25	40.25	51.5
75th %ile	4	34.5	42.5	52
75th %ile	Overall	29.5	42	51
Minimum	1	25	39	50
Minimum	2	24	34	50
Minimum	3	20	25	42
Minimum	4	25	34	46
Minimum	Overall	20	25	42
Maximum	1	32	42	51
Maximum	2	25	43	53
Maximum	3	32	41	53
Maximum	4	35	43	53
Maximum	Overall	35	43	53

Overall	Median	25	40	51
	25th %ile	24	35.5	48
	75th %ile	29.5	42	51
	Minimum	20	25	42
	Maximum	35	43	53

North Carolina Grade 5 Math R1
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	547	561	572
Median	2	543	561	572
Median	3	541	554	568
Median	4	543	552	572
Median	Overall	543	561	572
25th %ile	1	544	561	572
25th %ile	2	543	552	572
25th %ile	3	541	546	564
25th %ile	4	543	552	568
25th %ile	Overall	543	552	571
75th %ile	1	549	561	572
75th %ile	2	543	562	573
75th %ile	3	547	561	573
75th %ile	4	552	562	574
75th %ile	Overall	547	561	572
Minimum	1	543	561	572
Minimum	2	543	552	572
Minimum	3	539	543	561
Minimum	4	543	552	565
Minimum	Overall	539	543	561
Maximum	1	549	561	572
Maximum	2	543	562	575
Maximum	3	549	561	575
Maximum	4	552	562	575
Maximum	Overall	552	562	575

Overall	Median	543	561	572
	25th %ile	543	552	571
	75th %ile	547	561	572
	Minimum	539	543	561
	Maximum	552	562	575

North Carolina Grade 5 Math R1

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	29.5	40.5	50.5
2	24	42	51
3	21.5	36.5	46.5
4	26	36	49
Overall	25	40	51

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	31.2	57.3	11.5	0.0

North Carolina Grade 5 Math R2
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	27	39	51
1	219	29	42	50
1	220	28	34	48
1	221	27	41	51
2	212	25	40	51
2	213	24	40	51
2	214	24	40	51
2	215	25	40	51
2	216	25	39	51
2	217	25	40	51
3	206	25	36	43
3	207	24	35	48
3	208	22	33	40
3	209	24	41	46
3	210	24	29	48
3	211	28	38	48
4	201	25	32	42
4	202	25	35	49
4	203	27	39	49
4	204	26	36	47
4	205	26	36	46

Overall	Median	25	39	49
	25th %ile	24	35	46.5
	75th %ile	27	40	51
	Minimum	22	29	40
	Maximum	29	42	51

North Carolina Grade 5 Math R2
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	546	561	572
1	219	547	561	572
1	220	546	552	572
1	221	546	561	572
2	212	543	561	572
2	213	543	561	572
2	214	543	561	572
2	215	543	561	572
2	216	543	561	572
2	217	543	561	572
3	206	543	552	562
3	207	543	552	572
3	208	541	551	561
3	209	543	561	565
3	210	543	547	572
3	211	546	556	572
4	201	543	549	561
4	202	543	552	572
4	203	546	561	572
4	204	543	552	570
4	205	543	552	565

Overall	Median	543	561	572
	25th %ile	543	552	568
	75th %ile	546	561	572
	Minimum	541	547	561
	Maximum	547	561	572

North Carolina Grade 5 Math R2
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	27.5	40	50.5
Median	2	25	40	51
Median	3	24	35.5	47
Median	4	26	36	47
Median	Overall	25	39	49
25th %ile	1	27	35.25	48.5
25th %ile	2	24	39.75	51
25th %ile	3	23.5	32	42.25
25th %ile	4	25	33.5	44
25th %ile	Overall	24	35	46.5
75th %ile	1	28.75	41.75	51
75th %ile	2	25	40	51
75th %ile	3	25.75	38.75	48
75th %ile	4	26.5	37.5	49
75th %ile	Overall	27	40	51
Minimum	1	27	34	48
Minimum	2	24	39	51
Minimum	3	22	29	40
Minimum	4	25	32	42
Minimum	Overall	22	29	40
Maximum	1	29	42	51
Maximum	2	25	40	51
Maximum	3	28	41	48
Maximum	4	27	39	49
Maximum	Overall	29	42	51

Overall	Median	25	39	49
	25th %ile	24	35	46.5
	75th %ile	27	40	51
	Minimum	22	29	40
	Maximum	29	42	51

North Carolina Grade 5 Math R2
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	546	561	572
Median	2	543	561	572
Median	3	543	552	568
Median	4	543	552	570
Median	Overall	543	561	572
25th %ile	1	546	554	572
25th %ile	2	543	561	572
25th %ile	3	543	550	562
25th %ile	4	543	551	563
25th %ile	Overall	543	552	568
75th %ile	1	547	561	572
75th %ile	2	543	561	572
75th %ile	3	544	557	572
75th %ile	4	545	556	572
75th %ile	Overall	546	561	572
Minimum	1	546	552	572
Minimum	2	543	561	572
Minimum	3	541	547	561
Minimum	4	543	549	561
Minimum	Overall	541	547	561
Maximum	1	547	561	572
Maximum	2	543	561	572
Maximum	3	546	561	572
Maximum	4	546	561	572
Maximum	Overall	547	561	572

Overall	Median	543	561	572
	25th %ile	543	552	568
	75th %ile	546	561	572
	Minimum	541	547	561
	Maximum	547	561	572

North Carolina Grade 5 Math R2

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	27.5	40	50.5
2	25	40	51
3	24	35.5	47
4	26	36	47
Overall	25	39	49

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	31.2	57.3	11.5	0.0

North Carolina Grade 5 Math R3
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	218	27	35	42
1	219	29	34	42
1	220	28	34	42
1	221	27	37	42
2	212	25	34	46
2	213	21	38	49
2	214	24	34	49
2	215	25	34	43
2	216	25	34	43
2	217	25	34	48
3	206	25	29	42
3	207	24	34	42
3	208	22	28	33
3	209	24	37	41
3	210	20	28	42
3	211	28	34	43
4	201	25	32	42
4	202	25	32	38
4	203	27	32	43
4	204	26	30	43
4	205	29	33	43

Overall	Median	25	34	42
	25th %ile	24	32	42
	75th %ile	27	34	43
	Minimum	20	28	33
	Maximum	29	38	49

North Carolina Grade 5 Math R3
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	218	546	552	561
1	219	547	552	561
1	220	546	552	561
1	221	546	553	561
2	212	543	552	565
2	213	541	556	572
2	214	543	552	572
2	215	543	552	562
2	216	543	552	562
2	217	543	552	572
3	206	543	547	561
3	207	543	552	561
3	208	541	546	551
3	209	543	553	561
3	210	539	546	561
3	211	546	552	562
4	201	543	549	561
4	202	543	549	556
4	203	546	549	562
4	204	543	548	562
4	205	547	551	562

Overall	Median	543	552	561
	25th %ile	543	549	561
	75th %ile	546	552	562
	Minimum	539	546	551
	Maximum	547	556	572

North Carolina Grade 5 Math R3
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	27.5	34.5	42
Median	2	25	34	47
Median	3	24	31.5	42
Median	4	26	32	43
Median	Overall	25	34	42
25th %ile	1	27	34	42
25th %ile	2	23.25	34	43
25th %ile	3	21.5	28	39
25th %ile	4	25	31	40
25th %ile	Overall	24	32	42
75th %ile	1	28.75	36.5	42
75th %ile	2	25	35	49
75th %ile	3	25.75	34.75	42.25
75th %ile	4	28	32.5	43
75th %ile	Overall	27	34	43
Minimum	1	27	34	42
Minimum	2	21	34	43
Minimum	3	20	28	33
Minimum	4	25	30	38
Minimum	Overall	20	28	33
Maximum	1	29	37	42
Maximum	2	25	38	49
Maximum	3	28	37	43
Maximum	4	29	33	43
Maximum	Overall	29	38	49

Overall	Median	25	34	42
	25th %ile	24	32	42
	75th %ile	27	34	43
	Minimum	20	28	33
	Maximum	29	38	49

North Carolina Grade 5 Math R3
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	546	552	561
Median	2	543	552	568
Median	3	543	549	561
Median	4	543	549	562
Median	Overall	543	552	561
25th %ile	1	546	552	561
25th %ile	2	543	552	562
25th %ile	3	541	546	559
25th %ile	4	543	548	559
25th %ile	Overall	543	549	561
75th %ile	1	547	553	561
75th %ile	2	543	553	572
75th %ile	3	544	552	562
75th %ile	4	547	550	562
75th %ile	Overall	546	552	562
Minimum	1	546	552	561
Minimum	2	541	552	562
Minimum	3	539	546	551
Minimum	4	543	548	556
Minimum	Overall	539	546	551
Maximum	1	547	553	561
Maximum	2	543	556	572
Maximum	3	546	553	562
Maximum	4	547	551	562
Maximum	Overall	547	556	572

Overall	Median	543	552	561
	25th %ile	543	549	561
	75th %ile	546	552	562
	Minimum	539	546	551
	Maximum	547	556	572

North Carolina Grade 5 Math R3 Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	27.5	34.5	42
2	25	34	47
3	24	31.5	42
4	26	32	43
Overall	25	34	42

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	31.2	29.8	27.5	11.5

North Carolina Grade 6 Math
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	19	33	49
1	226	22	33	42
1	227	15	27	42
1	228	14	27	42
1	229	13	27	42
2	230	17	30	42
2	231	16	32	41
2	232	19	32	42
2	233	22	34	49
2	234	27	34	48
3	235	16	29	42
3	236	17	26	42
3	237	22	28	41
3	238	21	26	35
3	239	13	33	50
3	240	14	28	35
4	241	15	34	49
4	242	17	38	51
4	243	14	31	51
4	244	14	28	47
4	245	19	26	41

Overall	Median	17	30	42
	25th %ile	14	27	41.5
	75th %ile	20	33	49
	Minimum	13	26	35
	Maximum	27	38	51

North Carolina Grade 6 Math
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	540	547	563
1	226	542	547	556
1	227	537	544	556
1	228	537	544	556
1	229	537	544	556
2	230	538	546	556
2	231	538	547	553
2	232	540	547	556
2	233	542	548	563
2	234	544	548	562
3	235	538	545	556
3	236	538	543	556
3	237	542	545	553
3	238	541	543	548
3	239	537	547	564
3	240	537	545	548
4	241	537	548	563
4	242	538	551	566
4	243	537	546	566
4	244	537	545	560
4	245	540	543	553

Overall	Median	538	546	556
	25th %ile	537	544	554
	75th %ile	541	547	563
	Minimum	537	543	548
	Maximum	544	551	566

North Carolina Grade 6 Math
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	15	27	42
Median	2	19	32	42
Median	3	16.5	28	41.5
Median	4	15	31	49
Median	Overall	17	30	42
25th %ile	1	13.5	27	42
25th %ile	2	16.5	31	41.5
25th %ile	3	13.75	26	35
25th %ile	4	14	27	44
25th %ile	Overall	14	27	41.5
75th %ile	1	20.5	33	45.5
75th %ile	2	24.5	34	48.5
75th %ile	3	21.25	30	44
75th %ile	4	18	36	51
75th %ile	Overall	20	33	49
Minimum	1	13	27	42
Minimum	2	16	30	41
Minimum	3	13	26	35
Minimum	4	14	26	41
Minimum	Overall	13	26	35
Maximum	1	22	33	49
Maximum	2	27	34	49
Maximum	3	22	33	50
Maximum	4	19	38	51
Maximum	Overall	27	38	51

Overall	Median	17	30	42
	25th %ile	14	27	41.5
	75th %ile	20	33	49
	Minimum	13	26	35
	Maximum	27	38	51

North Carolina Grade 6 Math
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	537	544	556
Median	2	540	547	556
Median	3	538	545	554
Median	4	537	546	563
Median	Overall	538	546	556
25th %ile	1	537	544	556
25th %ile	2	538	547	554
25th %ile	3	537	543	548
25th %ile	4	537	544	556
25th %ile	Overall	537	544	554
75th %ile	1	541	547	560
75th %ile	2	543	548	563
75th %ile	3	541	545	558
75th %ile	4	539	549	566
75th %ile	Overall	541	547	563
Minimum	1	537	544	556
Minimum	2	538	546	553
Minimum	3	537	543	548
Minimum	4	537	543	553
Minimum	Overall	537	543	548
Maximum	1	542	547	563
Maximum	2	544	548	563
Maximum	3	542	547	564
Maximum	4	540	551	566
Maximum	Overall	544	551	566

Overall	Median	538	546	556
	25th %ile	537	544	554
	75th %ile	541	547	563
	Minimum	537	543	548
	Maximum	544	551	566

North Carolina Grade 6 Math Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	15	27	42
2	19	32	42
3	16.5	28	41.5
4	15	31	49
Overall	17	30	42

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	18.1	22.8	34.6	24.4

North Carolina Grade 6 Math
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	18	33	49
1	226	22	33	42
1	227	17	27	42
1	228	15	27	42
1	229	17	27	42
2	230	21	33	42
2	231	22	32	42
2	232	24	32	42
2	233	22	34	42
2	234	22	33	43
3	235	17	29	42
3	236	17	26	42
3	237	22	28	42
3	238	21	28	42
3	239	16	29	43
3	240	17	28	42
4	241	15	34	47
4	242	17	34	42
4	243	16	31	50
4	244	14	30	42
4	245	16	26	41

Overall	Median	17	30	42
	25th %ile	16	27.5	42
	75th %ile	22	33	42.5
	Minimum	14	26	41
	Maximum	24	34	50

North Carolina Grade 6 Math
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	539	547	563
1	226	542	547	556
1	227	538	544	556
1	228	537	544	556
1	229	538	544	556
2	230	541	547	556
2	231	542	547	556
2	232	542	547	556
2	233	542	548	556
2	234	542	547	556
3	235	538	545	556
3	236	538	543	556
3	237	542	545	556
3	238	541	545	556
3	239	538	545	556
3	240	538	545	556
4	241	537	548	560
4	242	538	548	556
4	243	538	546	564
4	244	537	546	556
4	245	538	543	553

Overall	Median	538	546	556
	25th %ile	538	544	556
	75th %ile	542	547	556
	Minimum	537	543	553
	Maximum	542	548	564

North Carolina Grade 6 Math
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	17	27	42
Median	2	22	33	42
Median	3	17	28	42
Median	4	16	31	42
Median	Overall	17	30	42
25th %ile	1	16	27	42
25th %ile	2	21.5	32	42
25th %ile	3	16.75	27.5	42
25th %ile	4	14.5	28	41.5
25th %ile	Overall	16	27.5	42
75th %ile	1	20	33	45.5
75th %ile	2	23	33.5	42.5
75th %ile	3	21.25	29	42.25
75th %ile	4	16.5	34	48.5
75th %ile	Overall	22	33	42.5
Minimum	1	15	27	42
Minimum	2	21	32	42
Minimum	3	16	26	42
Minimum	4	14	26	41
Minimum	Overall	14	26	41
Maximum	1	22	33	49
Maximum	2	24	34	43
Maximum	3	22	29	43
Maximum	4	17	34	50
Maximum	Overall	24	34	50

Overall	Median	17	30	42
	25th %ile	16	27.5	42
	75th %ile	22	33	42.5
	Minimum	14	26	41
	Maximum	24	34	50

North Carolina Grade 6 Math
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	538	544	556
Median	2	542	547	556
Median	3	538	545	556
Median	4	538	546	556
Median	Overall	538	546	556
25th %ile	1	538	544	556
25th %ile	2	541	547	556
25th %ile	3	538	544	556
25th %ile	4	537	545	554
25th %ile	Overall	538	544	556
75th %ile	1	540	547	560
75th %ile	2	542	548	556
75th %ile	3	541	545	556
75th %ile	4	538	548	562
75th %ile	Overall	542	547	556
Minimum	1	537	544	556
Minimum	2	541	547	556
Minimum	3	538	543	556
Minimum	4	537	543	553
Minimum	Overall	537	543	553
Maximum	1	542	547	563
Maximum	2	542	548	556
Maximum	3	542	545	556
Maximum	4	538	548	564
Maximum	Overall	542	548	564

Overall	Median	538	546	556
	25th %ile	538	544	556
	75th %ile	542	547	556
	Minimum	537	543	553
	Maximum	542	548	564

North Carolina Grade 6 Math

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	17	27	42
2	22	33	42
3	17	28	42
4	16	31	42
Overall	17	30	42

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	18.1	22.8	34.6	24.4

North Carolina Grade 6 Math
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	25	33	49
1	226	29	33	47
1	227	23	33	49
1	228	21	33	49
1	229	25	33	49
2	230	22	33	49
2	231	25	33	48
2	232	30	34	49
2	233	25	34	49
2	234	27	34	48
3	235	20	31	49
3	236	17	30	42
3	237	22	29	48
3	238	24	33	42
3	239	26	33	47
3	240	22	33	49
4	241	23	34	48
4	242	23	38	51
4	243	22	34	50
4	244	23	36	52
4	245	22	34	49

Overall	Median	23	33	49
	25th %ile	22	33	48
	75th %ile	25	34	49
	Minimum	17	29	42
	Maximum	30	38	52

North Carolina Grade 6 Math
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	543	547	563
1	226	545	547	560
1	227	542	547	563
1	228	541	547	563
1	229	543	547	563
2	230	542	547	563
2	231	543	547	562
2	232	546	548	563
2	233	543	548	563
2	234	544	548	562
3	235	541	546	563
3	236	538	546	556
3	237	542	545	562
3	238	542	547	556
3	239	543	547	560
3	240	542	547	563
4	241	542	548	562
4	242	542	551	566
4	243	542	548	564
4	244	542	550	568
4	245	542	548	563

Overall	Median	542	547	563
	25th %ile	542	547	562
	75th %ile	543	548	563
	Minimum	538	545	556
	Maximum	546	551	568

North Carolina Grade 6 Math
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	25	33	49
Median	2	25	34	49
Median	3	22	32	47.5
Median	4	23	34	50
Median	Overall	23	33	49
25th %ile	1	22	33	48
25th %ile	2	23.5	33	48
25th %ile	3	19.25	29.75	42
25th %ile	4	22	34	48.5
25th %ile	Overall	22	33	48
75th %ile	1	27	33	49
75th %ile	2	28.5	34	49
75th %ile	3	24.5	33	49
75th %ile	4	23	37	51.5
75th %ile	Overall	25	34	49
Minimum	1	21	33	47
Minimum	2	22	33	48
Minimum	3	17	29	42
Minimum	4	22	34	48
Minimum	Overall	17	29	42
Maximum	1	29	33	49
Maximum	2	30	34	49
Maximum	3	26	33	49
Maximum	4	23	38	52
Maximum	Overall	30	38	52

Overall	Median	23	33	49
	25th %ile	22	33	48
	75th %ile	25	34	49
	Minimum	17	29	42
	Maximum	30	38	52

North Carolina Grade 6 Math
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	543	547	563
Median	2	543	548	563
Median	3	542	547	561
Median	4	542	548	564
Median	Overall	542	547	563
25th %ile	1	542	547	561
25th %ile	2	542	547	562
25th %ile	3	540	546	556
25th %ile	4	542	548	563
25th %ile	Overall	542	547	562
75th %ile	1	544	547	563
75th %ile	2	545	548	563
75th %ile	3	542	547	563
75th %ile	4	542	550	567
75th %ile	Overall	543	548	563
Minimum	1	541	547	560
Minimum	2	542	547	562
Minimum	3	538	545	556
Minimum	4	542	548	562
Minimum	Overall	538	545	556
Maximum	1	545	547	563
Maximum	2	546	548	563
Maximum	3	543	547	563
Maximum	4	542	551	568
Maximum	Overall	546	551	568

Overall	Median	542	547	563
	25th %ile	542	547	562
	75th %ile	543	548	563
	Minimum	538	545	556
	Maximum	546	551	568

North Carolina Grade 6 Math

Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	25	33	49
2	25	34	49
3	22	32	47.5
4	23	34	50
Overall	23	33	49

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	28.2	15.2	48.9	7.6

North Carolina Grade 7 Math
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	13	27	51
1	226	12	31	46
1	227	13	29	46
1	228	9	23	54
1	229	23	44	57
2	230	22	41	53
2	231	25	46	53
2	232	25	41	56
2	233	25	48	59
2	234	23	33	49
2	236	24	34	49
3	235	6	25	32
3	237	28	34	52
3	238	27	31	43
3	239	17	31	43
3	240	18	32	41
4	241	17	33	49
4	242	18	31	46
4	243	9	22	49
4	244	22	34	56
4	245	33	43	53

Overall	Median	22	33	49
	25th %ile	13	30	46
	75th %ile	25	41	53.5
	Minimum	6	22	32
	Maximum	33	48	59

North Carolina Grade 7 Math
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	540	548	567
1	226	539	550	561
1	227	540	549	561
1	228	535	546	570
1	229	546	559	578
2	230	546	557	569
2	231	547	561	569
2	232	547	557	573
2	233	547	562	588
2	234	546	551	563
2	236	547	552	563
3	235	531	547	550
3	237	548	552	568
3	238	548	550	558
3	239	544	550	558
3	240	545	550	557
4	241	544	551	563
4	242	545	550	561
4	243	535	546	563
4	244	546	552	573
4	245	551	558	569

Overall	Median	546	551	563
	25th %ile	540	550	561
	75th %ile	547	557	570
	Minimum	531	546	550
	Maximum	551	562	588

North Carolina Grade 7 Math
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	13	29	51
Median	2	24.5	41	53
Median	3	18	31	43
Median	4	18	33	49
Median	Overall	22	33	49
25th %ile	1	10.5	25	46
25th %ile	2	22.75	33.75	49
25th %ile	3	11.5	28	36.5
25th %ile	4	13	26.5	47.5
25th %ile	Overall	13	30	46
75th %ile	1	18	37.5	55.5
75th %ile	2	25	46.5	56.75
75th %ile	3	27.5	33	47.5
75th %ile	4	27.5	38.5	54.5
75th %ile	Overall	25	41	53.5
Minimum	1	9	23	46
Minimum	2	22	33	49
Minimum	3	6	25	32
Minimum	4	9	22	46
Minimum	Overall	6	22	32
Maximum	1	23	44	57
Maximum	2	25	48	59
Maximum	3	28	34	52
Maximum	4	33	43	56
Maximum	Overall	33	48	59

Overall	Median	22	33	49
	25th %ile	13	30	46
	75th %ile	25	41	53.5
	Minimum	6	22	32
	Maximum	33	48	59

North Carolina Grade 7 Math
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	540	549	567
Median	2	547	557	569
Median	3	545	550	558
Median	4	545	551	563
Median	Overall	546	551	563
25th %ile	1	537	547	561
25th %ile	2	546	552	563
25th %ile	3	537	549	554
25th %ile	4	539	548	562
25th %ile	Overall	540	550	561
75th %ile	1	543	555	574
75th %ile	2	547	562	577
75th %ile	3	548	551	563
75th %ile	4	549	555	571
75th %ile	Overall	547	557	570
Minimum	1	535	546	561
Minimum	2	546	551	563
Minimum	3	531	547	550
Minimum	4	535	546	561
Minimum	Overall	531	546	550
Maximum	1	546	559	578
Maximum	2	547	562	588
Maximum	3	548	552	568
Maximum	4	551	558	573
Maximum	Overall	551	562	588

Overall	Median	546	551	563
	25th %ile	540	550	561
	75th %ile	547	557	570
	Minimum	531	546	550
	Maximum	551	562	588

North Carolina Grade 7 Math

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	13	29	51
2	24.5	41	53
3	18	31	43
4	18	33	49
Overall	22	33	49

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	41.5	16.9	33.7	7.9

North Carolina Grade 7 Math
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	22	31	51
1	226	22	31	46
1	227	23	33	46
1	228	23	41	49
1	229	23	43	52
2	230	22	33	49
2	231	25	33	49
2	232	22	32	49
2	233	25	31	47
2	234	23	33	43
3	235	14	31	41
3	236	18	30	49
3	237	25	32	44
3	238	23	31	43
3	239	18	31	43
3	240	17	31	41
4	241	19	33	49
4	242	21	33	49
4	243	12	22	46
4	244	18	30	49
4	245	22	36	47

Overall	Median	22	32	47
	25th %ile	18	31	43.5
	75th %ile	23	33	49
	Minimum	12	22	41
	Maximum	25	43	52

North Carolina Grade 7 Math
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	546	550	567
1	226	546	550	561
1	227	546	551	561
1	228	546	557	563
1	229	546	558	568
2	230	546	551	563
2	231	547	551	563
2	232	546	550	563
2	233	547	550	562
2	234	546	551	558
3	235	541	550	557
3	236	545	549	563
3	237	547	550	559
3	238	546	550	558
3	239	545	550	558
3	240	544	550	557
4	241	545	551	563
4	242	546	551	563
4	243	539	546	561
4	244	545	549	563
4	245	546	553	562

Overall	Median	546	550	562
	25th %ile	545	550	559
	75th %ile	546	551	563
	Minimum	539	546	557
	Maximum	547	558	568

North Carolina Grade 7 Math
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	23	33	49
Median	2	23	33	49
Median	3	18	31	43
Median	4	19	33	49
Median	Overall	22	32	47
25th %ile	1	22	31	46
25th %ile	2	22	31.5	45
25th %ile	3	16.25	30.75	41
25th %ile	4	15	26	46.5
25th %ile	Overall	18	31	43.5
75th %ile	1	23	42	51.5
75th %ile	2	25	33	49
75th %ile	3	23.5	31.25	45.25
75th %ile	4	21.5	34.5	49
75th %ile	Overall	23	33	49
Minimum	1	22	31	46
Minimum	2	22	31	43
Minimum	3	14	30	41
Minimum	4	12	22	46
Minimum	Overall	12	22	41
Maximum	1	23	43	52
Maximum	2	25	33	49
Maximum	3	25	32	49
Maximum	4	22	36	49
Maximum	Overall	25	43	52

Overall	Median	22	32	47
	25th %ile	18	31	43.5
	75th %ile	23	33	49
	Minimum	12	22	41
	Maximum	25	43	52

North Carolina Grade 7 Math
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	546	551	563
Median	2	546	551	563
Median	3	545	550	558
Median	4	545	551	563
Median	Overall	546	550	562
25th %ile	1	546	550	561
25th %ile	2	546	550	560
25th %ile	3	543	550	557
25th %ile	4	542	548	562
25th %ile	Overall	545	550	559
75th %ile	1	546	558	567
75th %ile	2	547	551	563
75th %ile	3	547	550	560
75th %ile	4	546	552	563
75th %ile	Overall	546	551	563
Minimum	1	546	550	561
Minimum	2	546	550	558
Minimum	3	541	549	557
Minimum	4	539	546	561
Minimum	Overall	539	546	557
Maximum	1	546	558	568
Maximum	2	547	551	563
Maximum	3	547	550	563
Maximum	4	546	553	563
Maximum	Overall	547	558	568

Overall	Median	546	550	562
	25th %ile	545	550	559
	75th %ile	546	551	563
	Minimum	539	546	557
	Maximum	547	558	568

North Carolina Grade 7 Math

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	23	33	49
2	23	33	49
3	18	31	43
4	19	33	49
Overall	22	32	47

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	41.5	13.9	34.7	9.9

North Carolina Grade 7 Math
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	22	32	47
1	226	22	33	47
1	227	23	33	46
1	228	22	31	49
1	229	23	31	46
2	230	22	33	49
2	231	23	33	49
2	232	23	32	49
2	233	23	31	47
2	234	25	30	49
3	235	14	31	41
3	236	14	30	49
3	237	23	32	44
3	238	23	31	43
3	239	18	31	43
3	240	18	32	43
4	241	19	33	49
4	242	21	31	46
4	243	12	22	49
4	244	17	30	49
4	245	22	33	45

Overall	Median	22	31	47
	25th %ile	18	31	44.5
	75th %ile	23	33	49
	Minimum	12	22	41
	Maximum	25	33	49

North Carolina Grade 7 Math
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	546	550	562
1	226	546	551	562
1	227	546	551	561
1	228	546	550	563
1	229	546	550	561
2	230	546	551	563
2	231	546	551	563
2	232	546	550	563
2	233	546	550	562
2	234	547	549	563
3	235	541	550	557
3	236	541	549	563
3	237	546	550	559
3	238	546	550	558
3	239	545	550	558
3	240	545	550	558
4	241	545	551	563
4	242	546	550	561
4	243	539	546	563
4	244	544	549	563
4	245	546	551	561

Overall	Median	546	550	562
	25th %ile	545	550	560
	75th %ile	546	551	563
	Minimum	539	546	557
	Maximum	547	551	563

North Carolina Grade 7 Math
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	22	32	47
Median	2	23	32	49
Median	3	18	31	43
Median	4	19	31	49
Median	Overall	22	31	47
25th %ile	1	22	31	46
25th %ile	2	22.5	30.5	48
25th %ile	3	14	30.75	42.5
25th %ile	4	14.5	26	45.5
25th %ile	Overall	18	31	44.5
75th %ile	1	23	33	48
75th %ile	2	24	33	49
75th %ile	3	23	32	45.25
75th %ile	4	21.5	33	49
75th %ile	Overall	23	33	49
Minimum	1	22	31	46
Minimum	2	22	30	47
Minimum	3	14	30	41
Minimum	4	12	22	45
Minimum	Overall	12	22	41
Maximum	1	23	33	49
Maximum	2	25	33	49
Maximum	3	23	32	49
Maximum	4	22	33	49
Maximum	Overall	25	33	49

Overall	Median	22	31	47
	25th %ile	18	31	44.5
	75th %ile	23	33	49
	Minimum	12	22	41
	Maximum	25	33	49

North Carolina Grade 7 Math
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	546	550	562
Median	2	546	550	563
Median	3	545	550	558
Median	4	545	550	563
Median	Overall	546	550	562
25th %ile	1	546	550	561
25th %ile	2	546	550	562
25th %ile	3	541	550	558
25th %ile	4	541	548	561
25th %ile	Overall	545	550	560
75th %ile	1	546	551	562
75th %ile	2	547	551	563
75th %ile	3	546	550	560
75th %ile	4	546	551	563
75th %ile	Overall	546	551	563
Minimum	1	546	550	561
Minimum	2	546	549	562
Minimum	3	541	549	557
Minimum	4	539	546	561
Minimum	Overall	539	546	557
Maximum	1	546	551	563
Maximum	2	547	551	563
Maximum	3	546	550	563
Maximum	4	546	551	563
Maximum	Overall	547	551	563

Overall	Median	546	550	562
	25th %ile	545	550	560
	75th %ile	546	551	563
	Minimum	539	546	557
	Maximum	547	551	563

North Carolina Grade 7 Math

Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	22	32	47
2	23	32	49
3	18	31	43
4	19	31	49
Overall	22	31	47

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	41.5	13.9	34.7	9.9

North Carolina Grade 8 Math
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	26	39	49
1	226	26	38	53
1	227	27	39	49
1	228	24	36	49
1	229	25	39	55
2	230	21	37	49
2	231	21	37	49
2	232	35	44	55
2	233	20	36	52
2	234	24	31	49
3	235	28	37	49
3	236	24	38	49
3	237	25	36	49
3	238	24	37	49
3	239	23	37	49
3	240	24	42	50
4	241	20	42	49
4	242	24	37	49
4	243	21	30	49
4	244	20	41	50
4	245	20	41	50

Overall	Median	24	37	49
	25th %ile	21	36.5	49
	75th %ile	25.5	40	50
	Minimum	20	30	49
	Maximum	35	44	55

North Carolina Grade 8 Math
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	547	559	571
1	226	547	559	577
1	227	548	559	571
1	228	545	558	571
1	229	547	559	582
2	230	541	558	571
2	231	541	558	571
2	232	557	564	582
2	233	540	558	575
2	234	545	552	571
3	235	549	558	571
3	236	545	559	571
3	237	547	558	571
3	238	545	558	571
3	239	544	558	571
3	240	545	563	571
4	241	540	563	571
4	242	545	558	571
4	243	541	552	571
4	244	540	559	571
4	245	540	559	571

Overall	Median	545	558	571
	25th %ile	541	558	571
	75th %ile	547	559	571
	Minimum	540	552	571
	Maximum	557	564	582

North Carolina Grade 8 Math
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	26	39	49
Median	2	21	37	49
Median	3	24	37	49
Median	4	20	41	49
Median	Overall	24	37	49
25th %ile	1	24.5	37	49
25th %ile	2	20.5	33.5	49
25th %ile	3	23.75	36.75	49
25th %ile	4	20	33.5	49
25th %ile	Overall	21	36.5	49
75th %ile	1	26.5	39	54
75th %ile	2	29.5	40.5	53.5
75th %ile	3	25.75	39	49.25
75th %ile	4	22.5	41.5	50
75th %ile	Overall	25.5	40	50
Minimum	1	24	36	49
Minimum	2	20	31	49
Minimum	3	23	36	49
Minimum	4	20	30	49
Minimum	Overall	20	30	49
Maximum	1	27	39	55
Maximum	2	35	44	55
Maximum	3	28	42	50
Maximum	4	24	42	50
Maximum	Overall	35	44	55

Overall	Median	24	37	49
	25th %ile	21	36.5	49
	75th %ile	25.5	40	50
	Minimum	20	30	49
	Maximum	35	44	55

North Carolina Grade 8 Math
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	547	559	571
Median	2	541	558	571
Median	3	545	558	571
Median	4	540	559	571
Median	Overall	545	558	571
25th %ile	1	546	558	571
25th %ile	2	541	555	571
25th %ile	3	545	558	571
25th %ile	4	540	555	571
25th %ile	Overall	541	558	571
75th %ile	1	547	559	579
75th %ile	2	551	561	579
75th %ile	3	547	560	571
75th %ile	4	543	561	571
75th %ile	Overall	547	559	571
Minimum	1	545	558	571
Minimum	2	540	552	571
Minimum	3	544	558	571
Minimum	4	540	552	571
Minimum	Overall	540	552	571
Maximum	1	548	559	582
Maximum	2	557	564	582
Maximum	3	549	563	571
Maximum	4	545	563	571
Maximum	Overall	557	564	582

Overall	Median	545	558	571
	25th %ile	541	558	571
	75th %ile	547	559	571
	Minimum	540	552	571
	Maximum	557	564	582

North Carolina Grade 8 Math

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	26	39	49
2	21	37	49
3	24	37	49
4	20	41	49
Overall	24	37	49

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	72.8	24.7	2.5	0.0

North Carolina Grade 8 Math
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	20	37	49
1	226	21	37	49
1	227	21	30	49
1	228	20	30	49
1	229	21	30	42
2	230	21	36	49
2	231	21	37	49
2	232	24	38	49
2	233	21	36	49
2	234	24	28	49
3	235	24	36	49
3	236	21	37	49
3	237	21	36	49
3	238	21	37	49
3	239	21	37	49
3	240	21	36	49
4	241	20	30	49
4	242	24	37	49
4	243	21	30	49
4	244	20	30	46
4	245	20	30	41

Overall	Median	21	36	49
	25th %ile	20.5	30	49
	75th %ile	21	37	49
	Minimum	20	28	41
	Maximum	24	38	49

North Carolina Grade 8 Math
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	540	558	571
1	226	541	558	571
1	227	541	552	571
1	228	540	552	571
1	229	541	552	563
2	230	541	558	571
2	231	541	558	571
2	232	545	559	571
2	233	541	558	571
2	234	545	549	571
3	235	545	558	571
3	236	541	558	571
3	237	541	558	571
3	238	541	558	571
3	239	541	558	571
3	240	541	558	571
4	241	540	552	571
4	242	545	558	571
4	243	541	552	571
4	244	540	552	568
4	245	540	552	559

Overall	Median	541	558	571
	25th %ile	541	552	571
	75th %ile	541	558	571
	Minimum	540	549	559
	Maximum	545	559	571

North Carolina Grade 8 Math
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	21	30	49
Median	2	21	36	49
Median	3	21	36.5	49
Median	4	20	30	49
Median	Overall	21	36	49
25th %ile	1	20	30	45.5
25th %ile	2	21	32	49
25th %ile	3	21	36	49
25th %ile	4	20	30	43.5
25th %ile	Overall	20.5	30	49
75th %ile	1	21	37	49
75th %ile	2	24	37.5	49
75th %ile	3	21.75	37	49
75th %ile	4	22.5	33.5	49
75th %ile	Overall	21	37	49
Minimum	1	20	30	42
Minimum	2	21	28	49
Minimum	3	21	36	49
Minimum	4	20	30	41
Minimum	Overall	20	28	41
Maximum	1	21	37	49
Maximum	2	24	38	49
Maximum	3	24	37	49
Maximum	4	24	37	49
Maximum	Overall	24	38	49

Overall	Median	21	36	49
	25th %ile	20.5	30	49
	75th %ile	21	37	49
	Minimum	20	28	41
	Maximum	24	38	49

North Carolina Grade 8 Math
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	541	552	571
Median	2	541	558	571
Median	3	541	558	571
Median	4	540	552	571
Median	Overall	541	558	571
25th %ile	1	540	552	567
25th %ile	2	541	553	571
25th %ile	3	541	558	571
25th %ile	4	540	552	564
25th %ile	Overall	541	552	571
75th %ile	1	541	558	571
75th %ile	2	545	558	571
75th %ile	3	542	558	571
75th %ile	4	543	555	571
75th %ile	Overall	541	558	571
Minimum	1	540	552	563
Minimum	2	541	549	571
Minimum	3	541	558	571
Minimum	4	540	552	559
Minimum	Overall	540	549	559
Maximum	1	541	558	571
Maximum	2	545	559	571
Maximum	3	545	558	571
Maximum	4	545	558	571
Maximum	Overall	545	559	571

Overall	Median	541	558	571
	25th %ile	541	552	571
	75th %ile	541	558	571
	Minimum	540	549	559
	Maximum	545	559	571

North Carolina Grade 8 Math

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	21	30	49
2	21	36	49
3	21	36.5	49
4	20	30	49
Overall	21	36	49

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	58.0	39.6	2.5	0.0

North Carolina Grade 8 Math
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	225	20	30	48
1	226	20	30	42
1	227	20	30	49
1	228	20	30	43
1	229	21	30	43
2	230	19	30	42
2	231	19	30	49
2	232	20	31	49
2	233	19	30	49
2	234	23	27	49
3	235	19	34	47
3	236	19	25	36
3	237	21	30	45
3	238	20	36	49
3	239	20	34	49
3	240	19	35	49
4	241	18	24	42
4	242	20	33	45
4	243	15	24	46
4	244	16	24	32
4	245	18	26	40

Overall	Median	20	30	46
	25th %ile	19	26.5	42
	75th %ile	20	32	49
	Minimum	15	24	32
	Maximum	23	36	49

North Carolina Grade 8 Math
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	225	540	552	570
1	226	540	552	563
1	227	540	552	571
1	228	540	552	563
1	229	541	552	563
2	230	540	552	563
2	231	540	552	571
2	232	540	552	571
2	233	540	552	571
2	234	544	548	571
3	235	540	556	569
3	236	540	547	558
3	237	541	552	564
3	238	540	558	571
3	239	540	556	571
3	240	540	557	571
4	241	539	545	563
4	242	540	556	564
4	243	532	545	568
4	244	533	545	555
4	245	539	547	559

Overall	Median	540	552	568
	25th %ile	540	547	563
	75th %ile	540	554	571
	Minimum	532	545	555
	Maximum	544	558	571

North Carolina Grade 8 Math
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	20	30	43
Median	2	19	30	49
Median	3	19.5	34	48
Median	4	18	24	42
Median	Overall	20	30	46
25th %ile	1	20	30	42.5
25th %ile	2	19	28.5	45.5
25th %ile	3	19	28.75	42.75
25th %ile	4	15.5	24	36
25th %ile	Overall	19	26.5	42
75th %ile	1	20.5	30	48.5
75th %ile	2	21.5	30.5	49
75th %ile	3	20.25	35.25	49
75th %ile	4	19	29.5	45.5
75th %ile	Overall	20	32	49
Minimum	1	20	30	42
Minimum	2	19	27	42
Minimum	3	19	25	36
Minimum	4	15	24	32
Minimum	Overall	15	24	32
Maximum	1	21	30	49
Maximum	2	23	31	49
Maximum	3	21	36	49
Maximum	4	20	33	46
Maximum	Overall	23	36	49

Overall	Median	20	30	46
	25th %ile	19	26.5	42
	75th %ile	20	32	49
	Minimum	15	24	32
	Maximum	23	36	49

North Carolina Grade 8 Math
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	540	552	563
Median	2	540	552	571
Median	3	540	556	570
Median	4	539	545	563
Median	Overall	540	552	568
25th %ile	1	540	552	563
25th %ile	2	540	550	567
25th %ile	3	540	550	562
25th %ile	4	533	545	557
25th %ile	Overall	540	547	563
75th %ile	1	541	552	571
75th %ile	2	542	552	571
75th %ile	3	540	557	571
75th %ile	4	539	551	566
75th %ile	Overall	540	554	571
Minimum	1	540	552	563
Minimum	2	540	548	563
Minimum	3	540	547	558
Minimum	4	532	545	555
Minimum	Overall	532	545	555
Maximum	1	541	552	571
Maximum	2	544	552	571
Maximum	3	541	558	571
Maximum	4	540	556	568
Maximum	Overall	544	558	571

Overall	Median	540	552	568
	25th %ile	540	547	563
	75th %ile	540	554	571
	Minimum	532	545	555
	Maximum	544	558	571

North Carolina Grade 8 Math Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	20	30	43
2	19	30	49
3	19.5	34	48
4	18	24	42
Overall	20	30	46

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	54.5	35.2	10.3	0.1

North Carolina EOC1 Math
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	26	37	55
1	250	19	36	53
1	251	19	37	53
1	252	26	35	53
2	253	25	43	53
2	254	21	30	46
2	255	25	45	54
2	256	17	28	49
3	257	8	27	55
3	258	19	30	52
3	259	20	56	60
3	260	13	36	53
3	261	14	39	54
4	262	18	28	53
4	263	22	37	53
4	264	23	35	53
4	265	23	37	49

Overall	Median	20	36	53
	25th %ile	17.5	30	52.5
	75th %ile	24	38	54
	Minimum	8	27	46
	Maximum	26	56	60

North Carolina EOC1 Math
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	550	557	578
1	250	545	555	571
1	251	545	557	571
1	252	550	554	571
2	253	550	562	571
2	254	546	553	563
2	255	550	563	574
2	256	541	552	567
3	257	532	550	578
3	258	545	553	571
3	259	546	582	616
3	260	537	555	571
3	261	538	558	574
4	262	544	552	571
4	263	548	557	571
4	264	549	554	571
4	265	549	557	567

Overall	Median	546	555	571
	25th %ile	542	553	571
	75th %ile	549	557	574
	Minimum	532	550	563
	Maximum	550	582	616

North Carolina EOC1 Math
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	22.5	36.5	53
Median	2	23	36.5	51
Median	3	14	36	54
Median	4	22.5	36	53
Median	Overall	20	36	53
25th %ile	1	19	35.25	53
25th %ile	2	18	28.5	46.75
25th %ile	3	10.5	28.5	52.5
25th %ile	4	19	29.75	50
25th %ile	Overall	17.5	30	52.5
75th %ile	1	26	37	54.5
75th %ile	2	25	44.5	53.75
75th %ile	3	19.5	47.5	57.5
75th %ile	4	23	37	53
75th %ile	Overall	24	38	54
Minimum	1	19	35	53
Minimum	2	17	28	46
Minimum	3	8	27	52
Minimum	4	18	28	49
Minimum	Overall	8	27	46
Maximum	1	26	37	55
Maximum	2	25	45	54
Maximum	3	20	56	60
Maximum	4	23	37	53
Maximum	Overall	26	56	60

Overall	Median	20	36	53
	25th %ile	17.5	30	52.5
	75th %ile	24	38	54
	Minimum	8	27	46
	Maximum	26	56	60

North Carolina EOC1 Math
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	547	556	571
Median	2	548	557	569
Median	3	538	555	574
Median	4	549	556	571
Median	Overall	546	555	571
25th %ile	1	545	555	571
25th %ile	2	542	552	564
25th %ile	3	535	552	571
25th %ile	4	545	552	568
25th %ile	Overall	542	553	571
75th %ile	1	550	557	576
75th %ile	2	550	563	573
75th %ile	3	545	570	597
75th %ile	4	549	557	571
75th %ile	Overall	549	557	574
Minimum	1	545	554	571
Minimum	2	541	552	563
Minimum	3	532	550	571
Minimum	4	544	552	567
Minimum	Overall	532	550	563
Maximum	1	550	557	578
Maximum	2	550	563	574
Maximum	3	546	582	616
Maximum	4	549	557	571
Maximum	Overall	550	582	616

Overall	Median	546	555	571
	25th %ile	542	553	571
	75th %ile	549	557	574
	Minimum	532	550	563
	Maximum	550	582	616

North Carolina EOC1 Math

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	22.5	36.5	53
2	23	36.5	51
3	14	36	54
4	22.5	36	53
Overall	20	36	53

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	39.0	30.4	29.0	1.5

North Carolina EOC1 Math
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	26	35	55
1	250	19	35	53
1	251	19	35	53
1	252	21	35	53
2	253	21	36	53
2	254	21	34	46
2	255	21	36	53
2	256	20	32	51
3	257	12	33	54
3	258	15	33	52
3	259	13	20	56
3	260	12	33	53
3	261	17	36	52
4	262	21	32	49
4	263	21	32	49
4	264	21	32	49
4	265	21	32	50

Overall	Median	21	33	53
	25th %ile	16	32	49.5
	75th %ile	21	35	53
	Minimum	12	20	46
	Maximum	26	36	56

North Carolina EOC1 Math
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	550	554	578
1	250	545	554	571
1	251	545	554	571
1	252	546	554	571
2	253	546	555	571
2	254	546	554	563
2	255	546	555	571
2	256	546	554	570
3	257	537	554	574
3	258	539	554	571
3	259	537	546	582
3	260	537	554	571
3	261	541	555	571
4	262	546	554	567
4	263	546	554	567
4	264	546	554	567
4	265	546	554	568

Overall	Median	546	554	571
	25th %ile	540	554	567
	75th %ile	546	554	571
	Minimum	537	546	563
	Maximum	550	555	582

North Carolina EOC1 Math
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	20	35	53
Median	2	21	35	52
Median	3	13	33	53
Median	4	21	32	49
Median	Overall	21	33	53
25th %ile	1	19	35	53
25th %ile	2	20.25	32.5	47.25
25th %ile	3	12	26.5	52
25th %ile	4	21	32	49
25th %ile	Overall	16	32	49.5
75th %ile	1	24.75	35	54.5
75th %ile	2	21	36	53
75th %ile	3	16	34.5	55
75th %ile	4	21	32	49.75
75th %ile	Overall	21	35	53
Minimum	1	19	35	53
Minimum	2	20	32	46
Minimum	3	12	20	52
Minimum	4	21	32	49
Minimum	Overall	12	20	46
Maximum	1	26	35	55
Maximum	2	21	36	53
Maximum	3	17	36	56
Maximum	4	21	32	50
Maximum	Overall	26	36	56

Overall	Median	21	33	53
	25th %ile	16	32	49.5
	75th %ile	21	35	53
	Minimum	12	20	46
	Maximum	26	36	56

North Carolina EOC1 Math
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	545	554	571
Median	2	546	555	571
Median	3	537	554	571
Median	4	546	554	567
Median	Overall	546	554	571
25th %ile	1	545	554	571
25th %ile	2	546	554	565
25th %ile	3	537	550	571
25th %ile	4	546	554	567
25th %ile	Overall	540	554	567
75th %ile	1	549	554	576
75th %ile	2	546	555	571
75th %ile	3	540	555	578
75th %ile	4	546	554	567
75th %ile	Overall	546	554	571
Minimum	1	545	554	571
Minimum	2	546	554	563
Minimum	3	537	546	571
Minimum	4	546	554	567
Minimum	Overall	537	546	563
Maximum	1	550	554	578
Maximum	2	546	555	571
Maximum	3	541	555	582
Maximum	4	546	554	568
Maximum	Overall	550	555	582

Overall	Median	546	554	571
	25th %ile	540	554	567
	75th %ile	546	554	571
	Minimum	537	546	563
	Maximum	550	555	582

North Carolina EOC1 Math

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	20	35	53
2	21	35	52
3	13	33	53
4	21	32	49
Overall	21	33	53

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	39.0	28.0	31.3	1.5

North Carolina EOC1 Math
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	21	33	53
1	250	20	33	53
1	251	19	33	47
1	252	19	30	47
2	253	21	36	47
2	254	21	35	47
2	255	19	36	47
2	256	19	33	49
3	257	19	34	48
3	258	19	33	46
3	259	19	33	46
3	260	19	33	46
3	261	19	33	46
4	262	19	30	48
4	263	19	30	47
4	264	20	32	47
4	265	20	32	47

Overall	Median	19	33	47
	25th %ile	19	32	46.5
	75th %ile	20	33.5	48
	Minimum	19	30	46
	Maximum	21	36	53

North Carolina EOC1 Math
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	546	554	571
1	250	546	554	571
1	251	545	554	565
1	252	545	553	565
2	253	546	555	565
2	254	546	554	565
2	255	545	555	565
2	256	545	554	567
3	257	545	554	566
3	258	545	554	563
3	259	545	554	563
3	260	545	554	563
3	261	545	554	563
4	262	545	553	566
4	263	545	553	565
4	264	546	554	565
4	265	546	554	565

Overall	Median	545	554	565
	25th %ile	545	554	564
	75th %ile	546	554	566
	Minimum	545	553	563
	Maximum	546	555	571

North Carolina EOC1 Math
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	19.5	33	50
Median	2	20	35.5	47
Median	3	19	33	46
Median	4	19.5	31	47
Median	Overall	19	33	47
25th %ile	1	19	30.75	47
25th %ile	2	19	33.5	47
25th %ile	3	19	33	46
25th %ile	4	19	30	47
25th %ile	Overall	19	32	46.5
75th %ile	1	20.75	33	53
75th %ile	2	21	36	48.5
75th %ile	3	19	33.5	47
75th %ile	4	20	32	47.75
75th %ile	Overall	20	33.5	48
Minimum	1	19	30	47
Minimum	2	19	33	47
Minimum	3	19	33	46
Minimum	4	19	30	47
Minimum	Overall	19	30	46
Maximum	1	21	33	53
Maximum	2	21	36	49
Maximum	3	19	34	48
Maximum	4	20	32	48
Maximum	Overall	21	36	53

Overall	Median	19	33	47
	25th %ile	19	32	46.5
	75th %ile	20	33.5	48
	Minimum	19	30	46
	Maximum	21	36	53

North Carolina EOC1 Math
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	545	554	568
Median	2	545	555	565
Median	3	545	554	563
Median	4	545	553	565
Median	Overall	545	554	565
25th %ile	1	545	553	565
25th %ile	2	545	554	565
25th %ile	3	545	554	563
25th %ile	4	545	553	565
25th %ile	Overall	545	554	564
75th %ile	1	546	554	571
75th %ile	2	546	555	567
75th %ile	3	545	554	564
75th %ile	4	546	554	566
75th %ile	Overall	546	554	566
Minimum	1	545	553	565
Minimum	2	545	554	565
Minimum	3	545	554	563
Minimum	4	545	553	565
Minimum	Overall	545	553	563
Maximum	1	546	554	571
Maximum	2	546	555	567
Maximum	3	545	554	566
Maximum	4	546	554	566
Maximum	Overall	546	555	571

Overall	Median	545	554	565
	25th %ile	545	554	564
	75th %ile	546	554	566
	Minimum	545	553	563
	Maximum	546	555	571

North Carolina EOC1 Math

Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	19.5	33	50
2	20	35.5	47
3	19	33	46
4	19.5	31	47
Overall	19	33	47

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	35.2	31.9	26.7	6.2

North Carolina EOC3 Math
Round 1 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	19	32	42
1	250	19	32	43
1	251	12	32	41
1	252	19	32	46
2	253	15	25	32
2	254	14	28	43
2	255	18	34	43
2	256	18	32	48
3	257	7	28	43
3	258	14	28	48
3	259	13	35	43
3	260	28	35	49
3	261	11	31	48
4	262	17	24	32
4	263	19	27	36
4	264	15	27	34
4	265	14	27	33

Overall	Median	15	31	43
	25th %ile	13.5	27	35
	75th %ile	19	32	47
	Minimum	7	24	32
	Maximum	28	35	49

North Carolina EOC3 Math
Round 1 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	543	553	564
1	250	543	553	569
1	251	538	553	564
1	252	543	553	572
2	253	540	550	553
2	254	539	551	569
2	255	542	558	569
2	256	542	553	574
3	257	532	551	569
3	258	539	551	574
3	259	538	559	569
3	260	551	559	575
3	261	536	553	574
4	262	540	549	553
4	263	543	551	560
4	264	540	551	558
4	265	539	551	557

Overall	Median	540	553	569
	25th %ile	539	551	559
	75th %ile	543	553	573
	Minimum	532	549	553
	Maximum	551	559	575

North Carolina EOC3 Math
Round 1 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	19	32	42.5
Median	2	16.5	30	43
Median	3	13	31	48
Median	4	16	27	33.5
Median	Overall	15	31	43
25th %ile	1	13.75	32	41.25
25th %ile	2	14.25	25.75	34.75
25th %ile	3	9	28	43
25th %ile	4	14.25	24.75	32.25
25th %ile	Overall	13.5	27	35
75th %ile	1	19	32	45.25
75th %ile	2	18	33.5	46.75
75th %ile	3	21	35	48.5
75th %ile	4	18.5	27	35.5
75th %ile	Overall	19	32	47
Minimum	1	12	32	41
Minimum	2	14	25	32
Minimum	3	7	28	43
Minimum	4	14	24	32
Minimum	Overall	7	24	32
Maximum	1	19	32	46
Maximum	2	18	34	48
Maximum	3	28	35	49
Maximum	4	19	27	36
Maximum	Overall	28	35	49

Overall	Median	15	31	43
	25th %ile	13.5	27	35
	75th %ile	19	32	47
	Minimum	7	24	32
	Maximum	28	35	49

North Carolina EOC3 Math
Round 1 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	543	553	566
Median	2	541	552	569
Median	3	538	553	574
Median	4	540	551	557
Median	Overall	540	553	569
25th %ile	1	539	553	564
25th %ile	2	539	550	557
25th %ile	3	534	551	569
25th %ile	4	539	550	554
25th %ile	Overall	539	551	559
75th %ile	1	543	553	571
75th %ile	2	542	557	573
75th %ile	3	545	559	574
75th %ile	4	542	551	560
75th %ile	Overall	543	553	573
Minimum	1	538	553	564
Minimum	2	539	550	553
Minimum	3	532	551	569
Minimum	4	539	549	553
Minimum	Overall	532	549	553
Maximum	1	543	553	572
Maximum	2	542	558	574
Maximum	3	551	559	575
Maximum	4	543	551	560
Maximum	Overall	551	559	575

Overall	Median	540	553	569
	25th %ile	539	551	559
	75th %ile	543	553	573
	Minimum	532	549	553
	Maximum	551	559	575

North Carolina EOC3 Math

Round 1 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	19	32	42.5
2	16.5	30	43
3	13	31	48
4	16	27	33.5
Overall	15	31	43

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	16.7	46.9	34.1	2.2

North Carolina EOC3 Math
Round 2 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	17	30	42
1	250	19	30	39
1	251	12	30	41
1	252	15	30	43
2	253	15	32	43
2	254	17	33	43
2	255	16	32	43
2	256	18	31	43
3	257	12	30	43
3	258	14	28	43
3	259	13	35	43
3	260	12	28	43
3	261	12	28	43
4	262	19	27	36
4	263	19	27	36
4	264	19	27	36
4	265	19	27	36

Overall	Median	16	30	43
	25th %ile	12.5	27.5	37.5
	75th %ile	19	31.5	43
	Minimum	12	27	36
	Maximum	19	35	43

North Carolina EOC3 Math
Round 2 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	540	552	564
1	250	543	552	563
1	251	538	552	564
1	252	540	552	569
2	253	540	553	569
2	254	540	557	569
2	255	540	553	569
2	256	542	553	569
3	257	538	552	569
3	258	539	551	569
3	259	538	559	569
3	260	538	551	569
3	261	538	551	569
4	262	543	551	560
4	263	543	551	560
4	264	543	551	560
4	265	543	551	560

Overall	Median	540	552	569
	25th %ile	538	551	561
	75th %ile	543	553	569
	Minimum	538	551	560
	Maximum	543	559	569

North Carolina EOC3 Math
Round 2 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	16	30	41.5
Median	2	16.5	32	43
Median	3	12	28	43
Median	4	19	27	36
Median	Overall	16	30	43
25th %ile	1	12.75	30	39.5
25th %ile	2	15.25	31.25	43
25th %ile	3	12	28	43
25th %ile	4	19	27	36
25th %ile	Overall	12.5	27.5	37.5
75th %ile	1	18.5	30	42.75
75th %ile	2	17.75	32.75	43
75th %ile	3	13.5	32.5	43
75th %ile	4	19	27	36
75th %ile	Overall	19	31.5	43
Minimum	1	12	30	39
Minimum	2	15	31	43
Minimum	3	12	28	43
Minimum	4	19	27	36
Minimum	Overall	12	27	36
Maximum	1	19	30	43
Maximum	2	18	33	43
Maximum	3	14	35	43
Maximum	4	19	27	36
Maximum	Overall	19	35	43

Overall	Median	16	30	43
	25th %ile	12.5	27.5	37.5
	75th %ile	19	31.5	43
	Minimum	12	27	36
	Maximum	19	35	43

North Carolina EOC3 Math
Round 2 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	540	552	564
Median	2	540	553	569
Median	3	538	551	569
Median	4	543	551	560
Median	Overall	540	552	569
25th %ile	1	538	552	563
25th %ile	2	540	553	569
25th %ile	3	538	551	569
25th %ile	4	543	551	560
25th %ile	Overall	538	551	561
75th %ile	1	542	552	568
75th %ile	2	541	556	569
75th %ile	3	539	555	569
75th %ile	4	543	551	560
75th %ile	Overall	543	553	569
Minimum	1	538	552	563
Minimum	2	540	553	569
Minimum	3	538	551	569
Minimum	4	543	551	560
Minimum	Overall	538	551	560
Maximum	1	543	552	569
Maximum	2	542	557	569
Maximum	3	539	559	569
Maximum	4	543	551	560
Maximum	Overall	543	559	569

Overall	Median	540	552	569
	25th %ile	538	551	561
	75th %ile	543	553	569
	Minimum	538	551	560
	Maximum	543	559	569

North Carolina EOC3 Math

Round 2 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	16	30	41.5
2	16.5	32	43
3	12	28	43
4	19	27	36
Overall	16	30	43

Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	16.7	44.4	36.6	2.2

North Carolina EOC3 Math
Round 3 Bookmark Placements

Table	Participant	Level 3	Level 4	Level 5
1	249	19	30	39
1	250	19	30	38
1	251	13	30	36
1	252	17	30	40
2	253	19	32	38
2	254	19	30	39
2	255	19	32	39
2	256	18	32	43
3	257	19	30	39
3	258	17	28	37
3	259	14	30	43
3	260	19	30	43
3	261	19	28	39
4	262	19	30	36
4	263	19	30	37
4	264	19	30	36
4	265	19	30	36

Overall	Median	19	30	39
	25th %ile	17.5	30	36.5
	75th %ile	19	30	39.5
	Minimum	13	28	36
	Maximum	19	32	43

North Carolina EOC3 Math
Round 3 Cut Scores

Table	Participant	Level 3	Level 4	Level 5
1	249	543	552	563
1	250	543	552	562
1	251	538	552	560
1	252	540	552	563
2	253	543	553	562
2	254	543	552	563
2	255	543	553	563
2	256	542	553	569
3	257	543	552	563
3	258	540	551	561
3	259	539	552	569
3	260	543	552	569
3	261	543	551	563
4	262	543	552	560
4	263	543	552	561
4	264	543	552	560
4	265	543	552	560

Overall	Median	543	552	563
	25th %ile	541	552	561
	75th %ile	543	552	563
	Minimum	538	551	560
	Maximum	543	553	569

North Carolina EOC3 Math
Round 3 Summary of Bookmark Placements

Statistic	Table	Level 3	Level 4	Level 5
Median	1	18	30	38.5
Median	2	19	32	39
Median	3	19	30	39
Median	4	19	30	36
Median	Overall	19	30	39
25th %ile	1	14	30	36.5
25th %ile	2	18.25	30.5	38.25
25th %ile	3	15.5	28	38
25th %ile	4	19	30	36
25th %ile	Overall	17.5	30	36.5
75th %ile	1	19	30	39.75
75th %ile	2	19	32	42
75th %ile	3	19	30	43
75th %ile	4	19	30	36.75
75th %ile	Overall	19	30	39.5
Minimum	1	13	30	36
Minimum	2	18	30	38
Minimum	3	14	28	37
Minimum	4	19	30	36
Minimum	Overall	13	28	36
Maximum	1	19	30	40
Maximum	2	19	32	43
Maximum	3	19	30	43
Maximum	4	19	30	37
Maximum	Overall	19	32	43

Overall	Median	19	30	39
	25th %ile	17.5	30	36.5
	75th %ile	19	30	39.5
	Minimum	13	28	36
	Maximum	19	32	43

North Carolina EOC3 Math
Round 3 Summary of Cut Scores

Statistic	Table	Level 3	Level 4	Level 5
Median	1	542	552	563
Median	2	543	553	563
Median	3	543	552	563
Median	4	543	552	560
Median	Overall	543	552	563
25th %ile	1	539	552	561
25th %ile	2	542	553	562
25th %ile	3	540	551	562
25th %ile	4	543	552	560
25th %ile	Overall	541	552	561
75th %ile	1	543	552	563
75th %ile	2	543	553	567
75th %ile	3	543	552	569
75th %ile	4	543	552	561
75th %ile	Overall	543	552	563
Minimum	1	538	552	560
Minimum	2	542	552	562
Minimum	3	539	551	561
Minimum	4	543	552	560
Minimum	Overall	538	551	560
Maximum	1	543	552	563
Maximum	2	543	553	569
Maximum	3	543	552	569
Maximum	4	543	552	561
Maximum	Overall	543	553	569

Overall	Median	543	552	563
	25th %ile	541	552	561
	75th %ile	543	552	563
	Minimum	538	551	560
	Maximum	543	553	569

North Carolina EOC3 Math

Round 3 Median Bookmark Summary

Table	Level 3	Level 4	Level 5
1	18	30	38.5
2	19	32	39
3	19	30	39
4	19	30	36
Overall	19	30	39

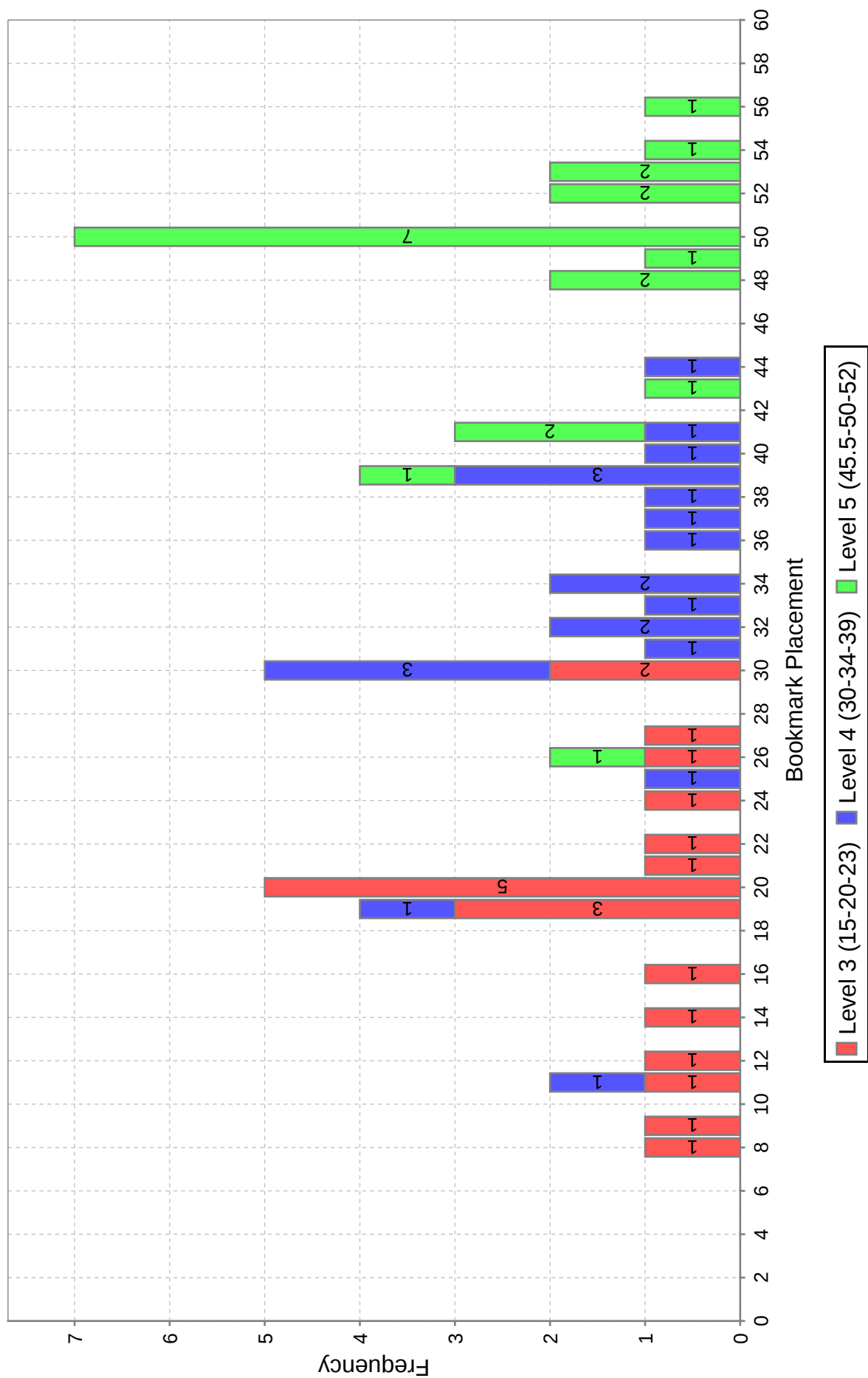
Impact Data

	Level 2 and Below	Level 3	Level 4	Level 5
Overall	29.4	31.7	29.9	8.9

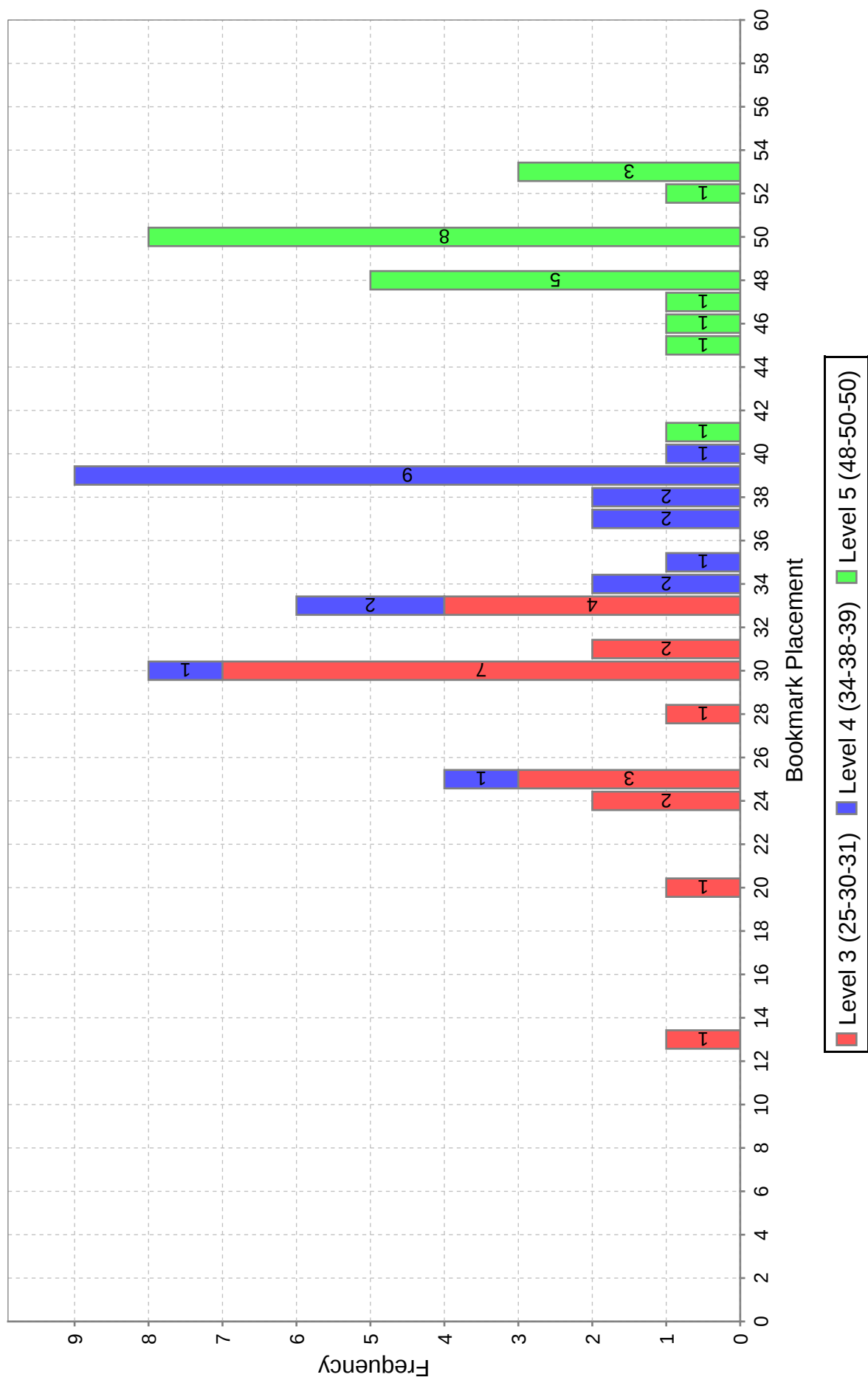
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Graphical Representation of Participants' Judgments

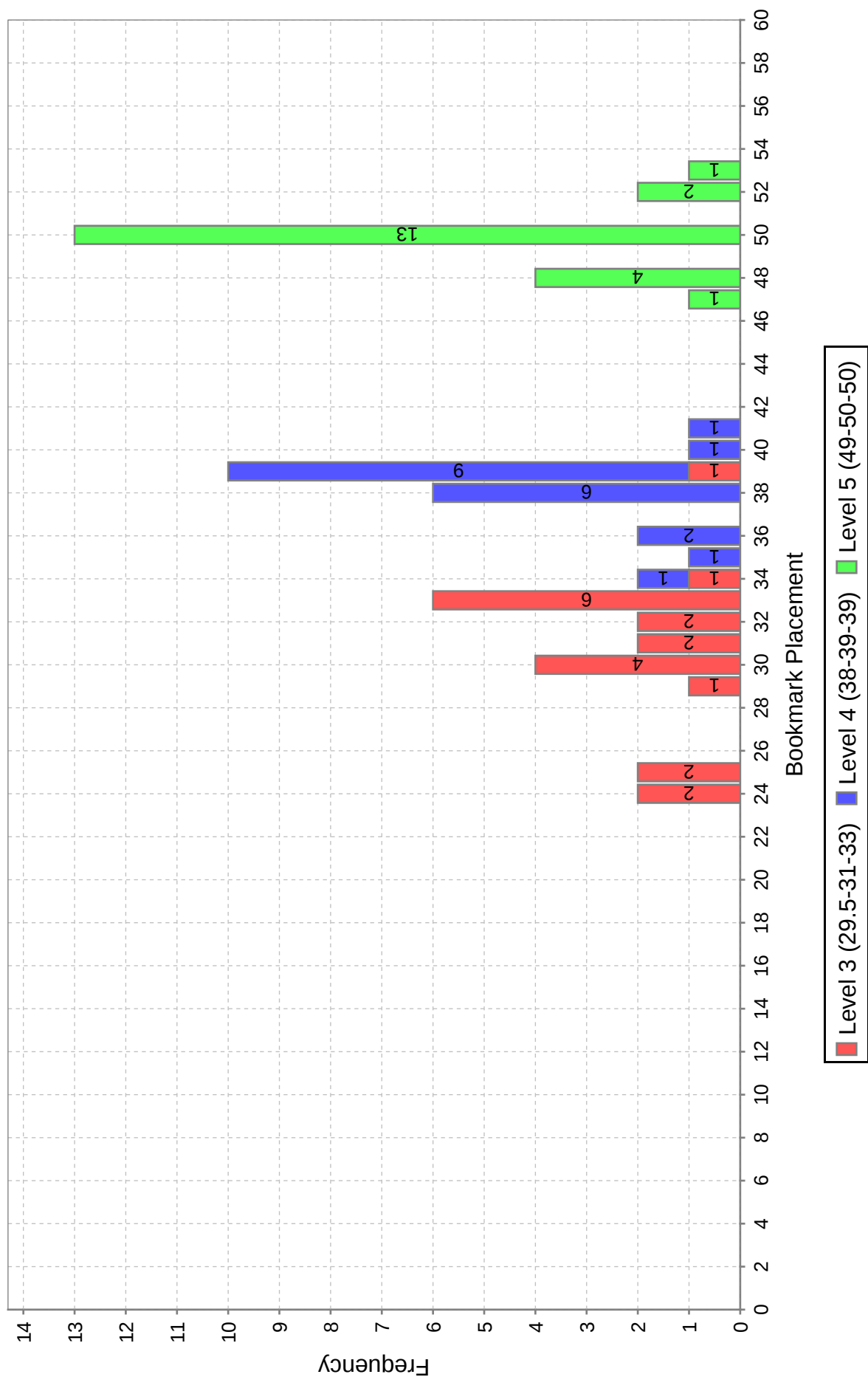
North Carolina Grade 3 Math Frequency of Bookmark Placements Round 1



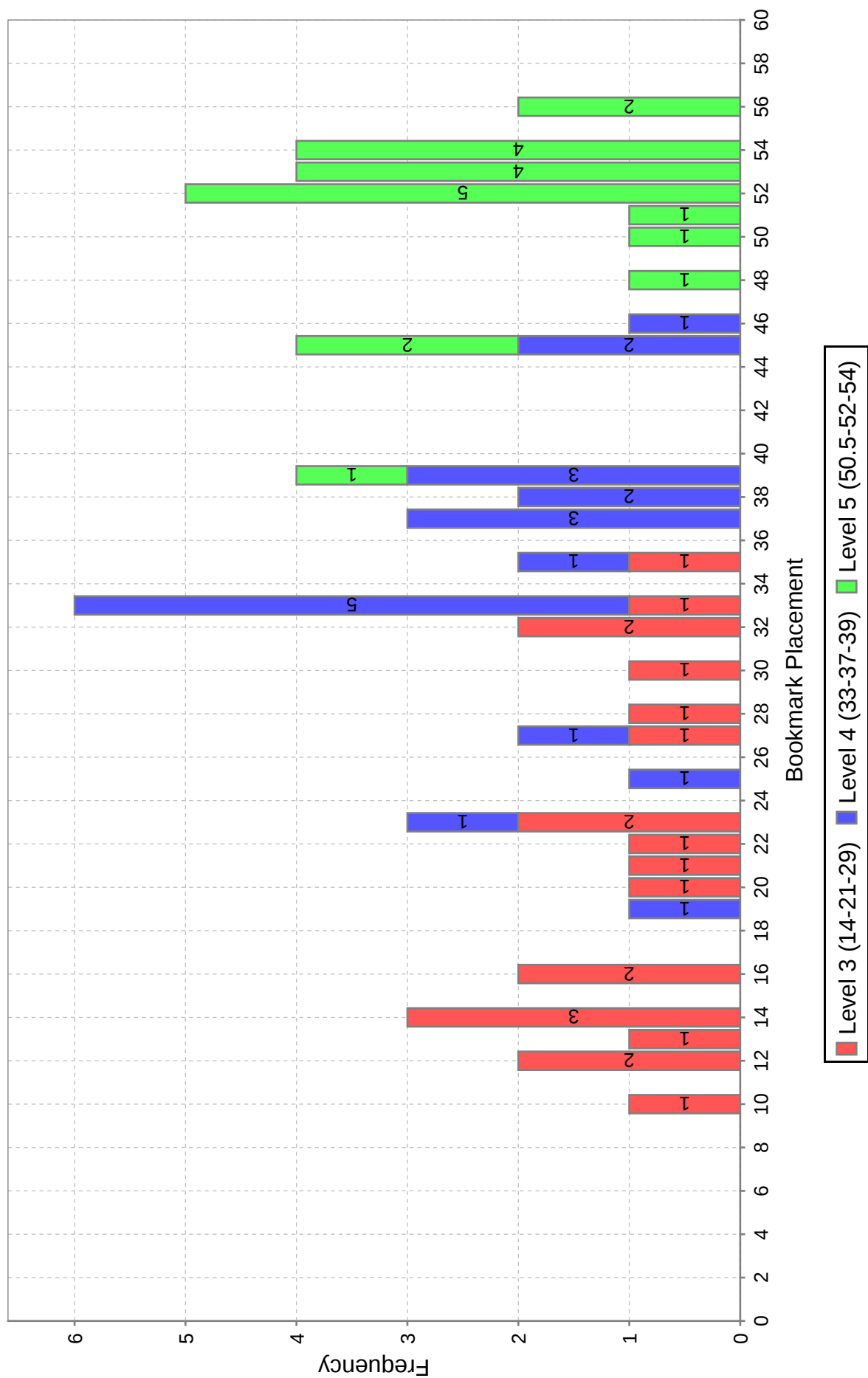
North Carolina Grade 3 Math Frequency of Bookmark Placements Round 2



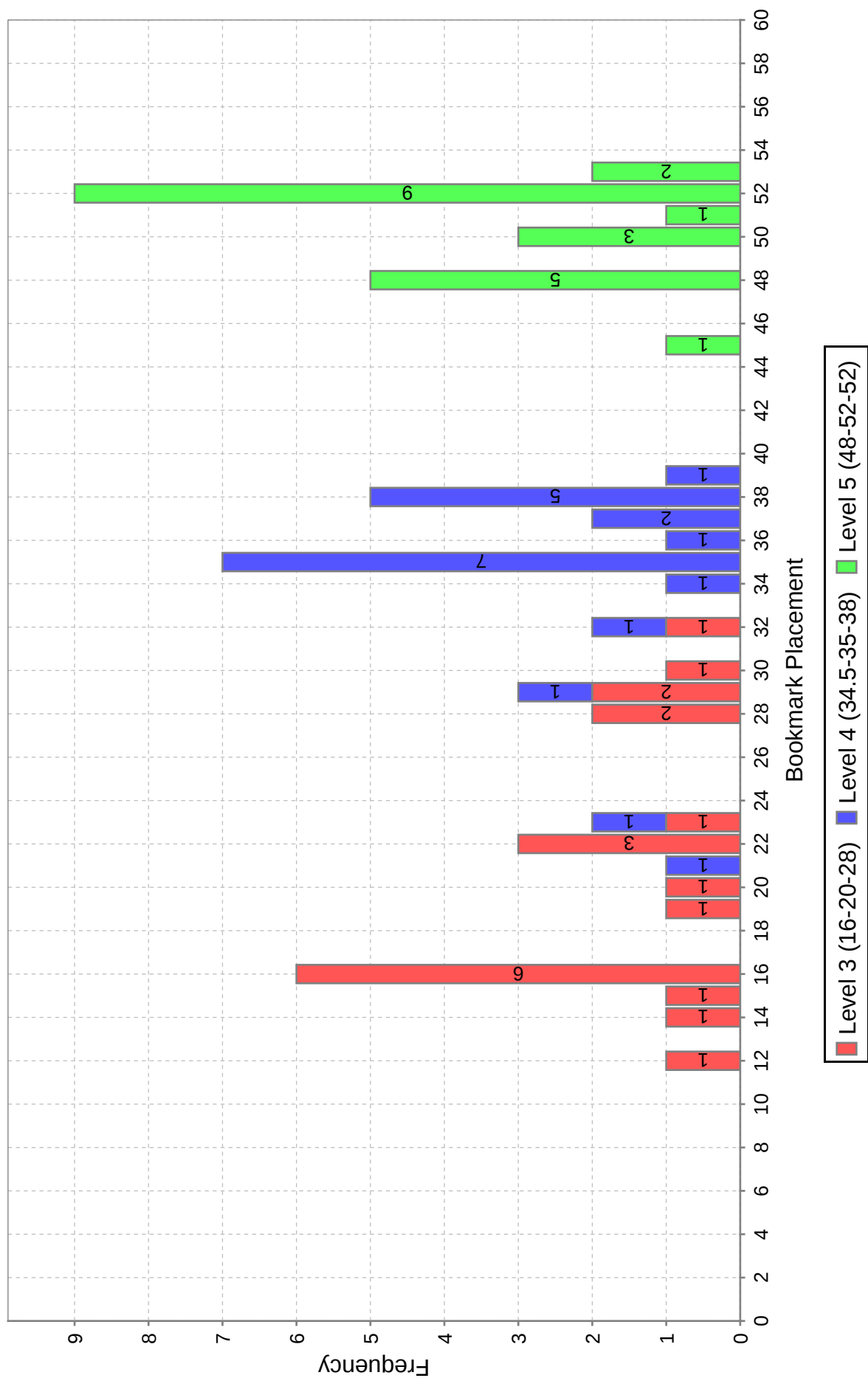
North Carolina Grade 3 Math Frequency of Bookmark Placements Round 3



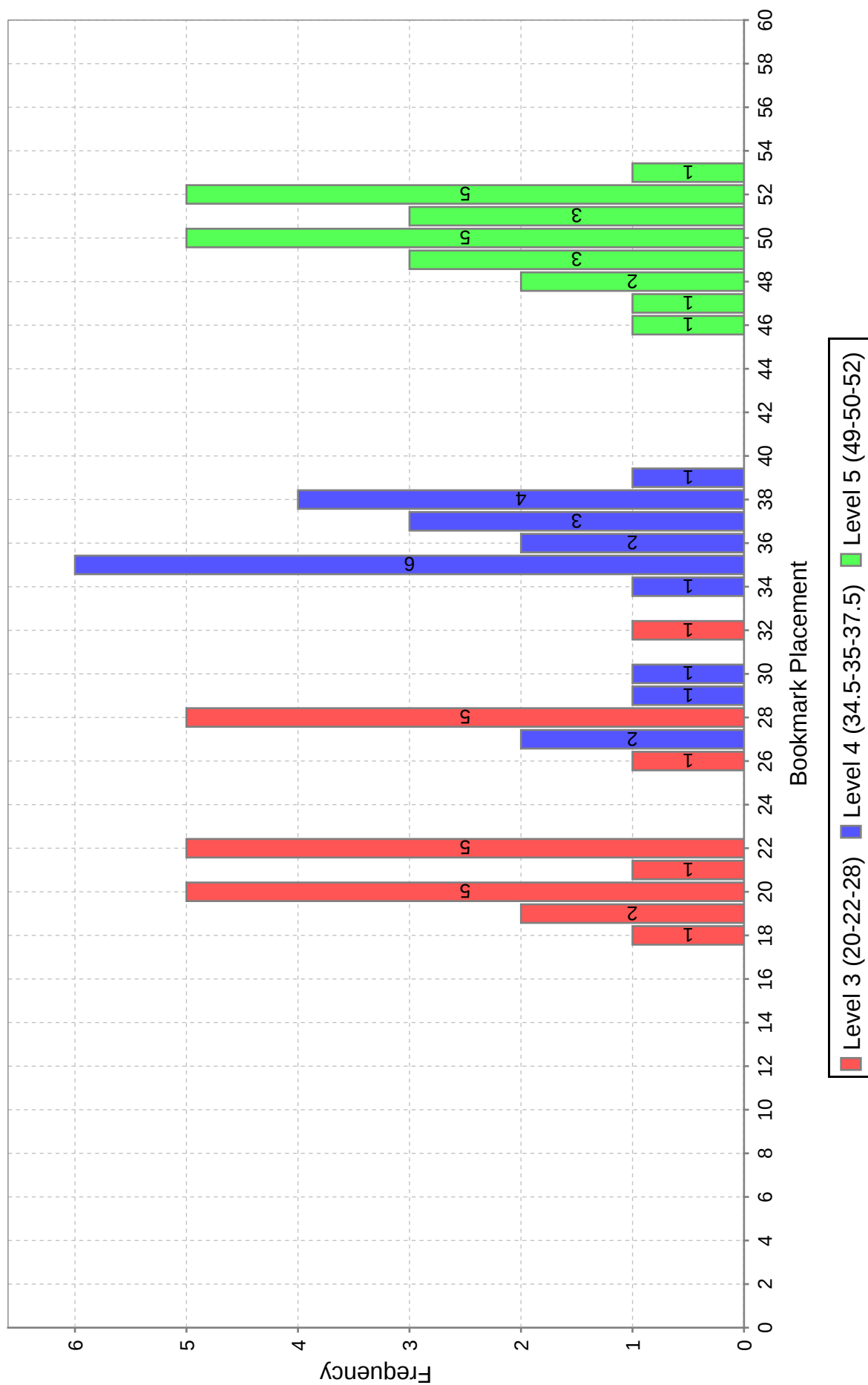
North Carolina Grade 4 Math Frequency of Bookmark Placements Round 1



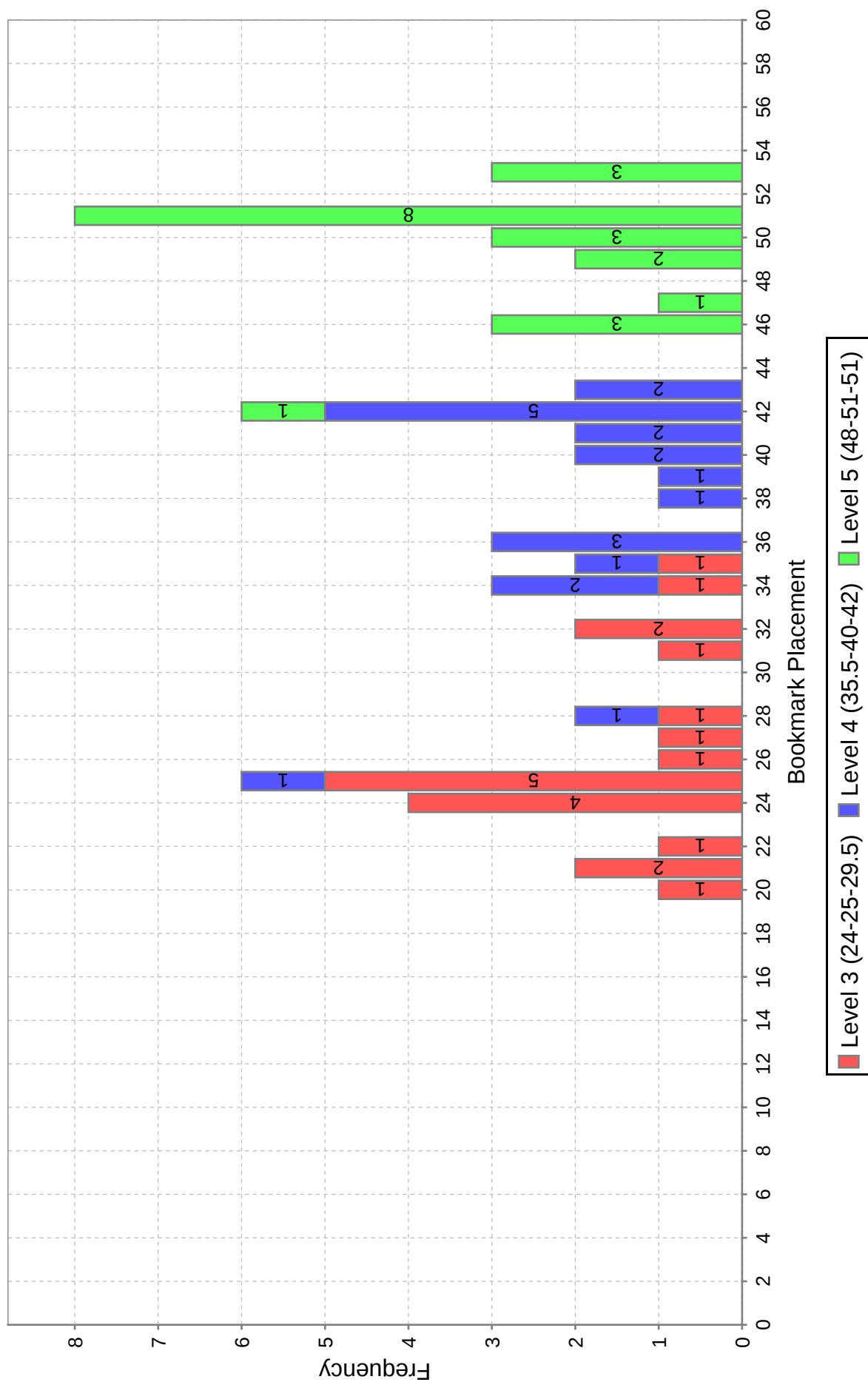
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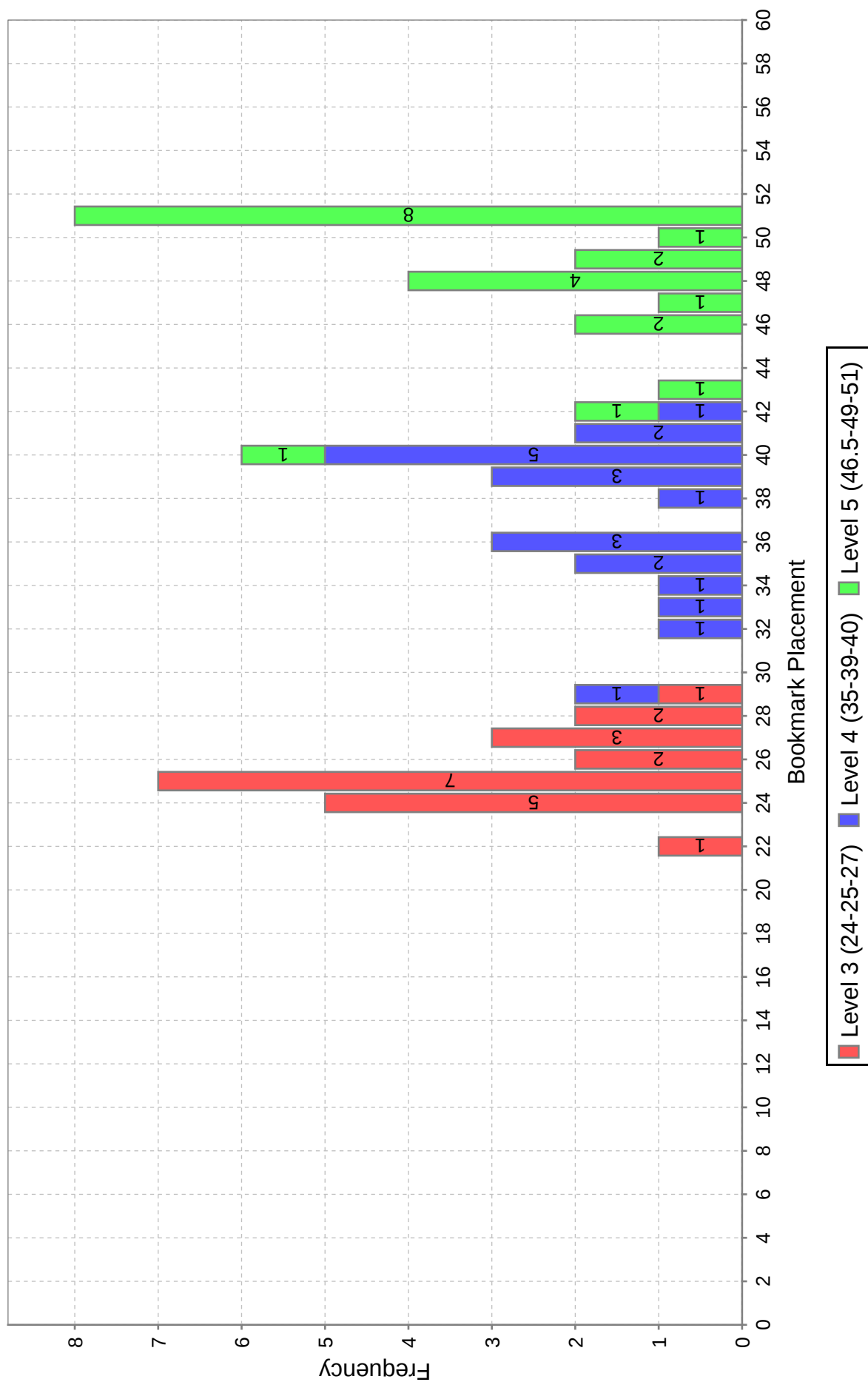
North Carolina Grade 4 Math Frequency of Bookmark Placements Round 3



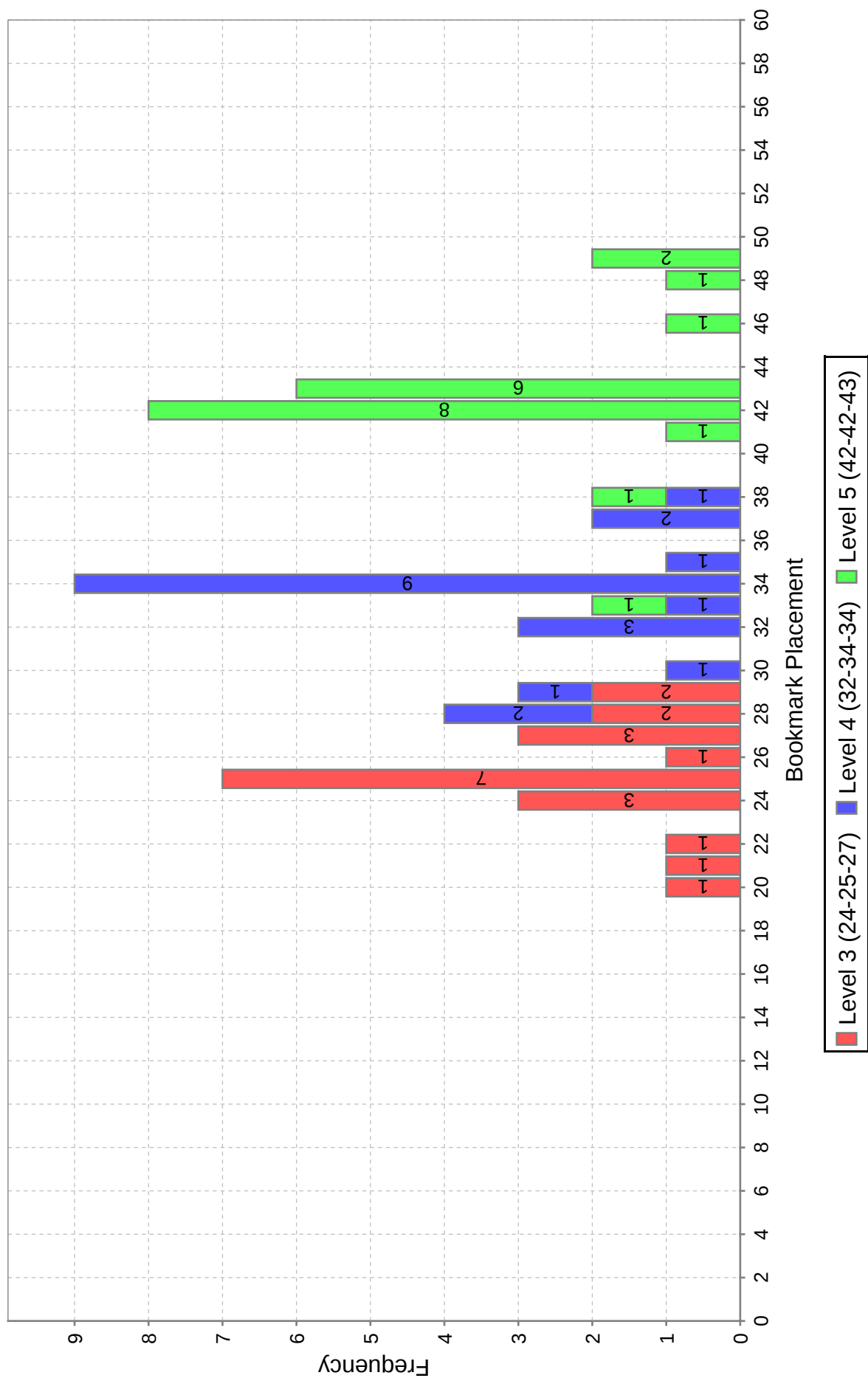
North Carolina Grade 5 Math Frequency of Bookmark Placements Round 1



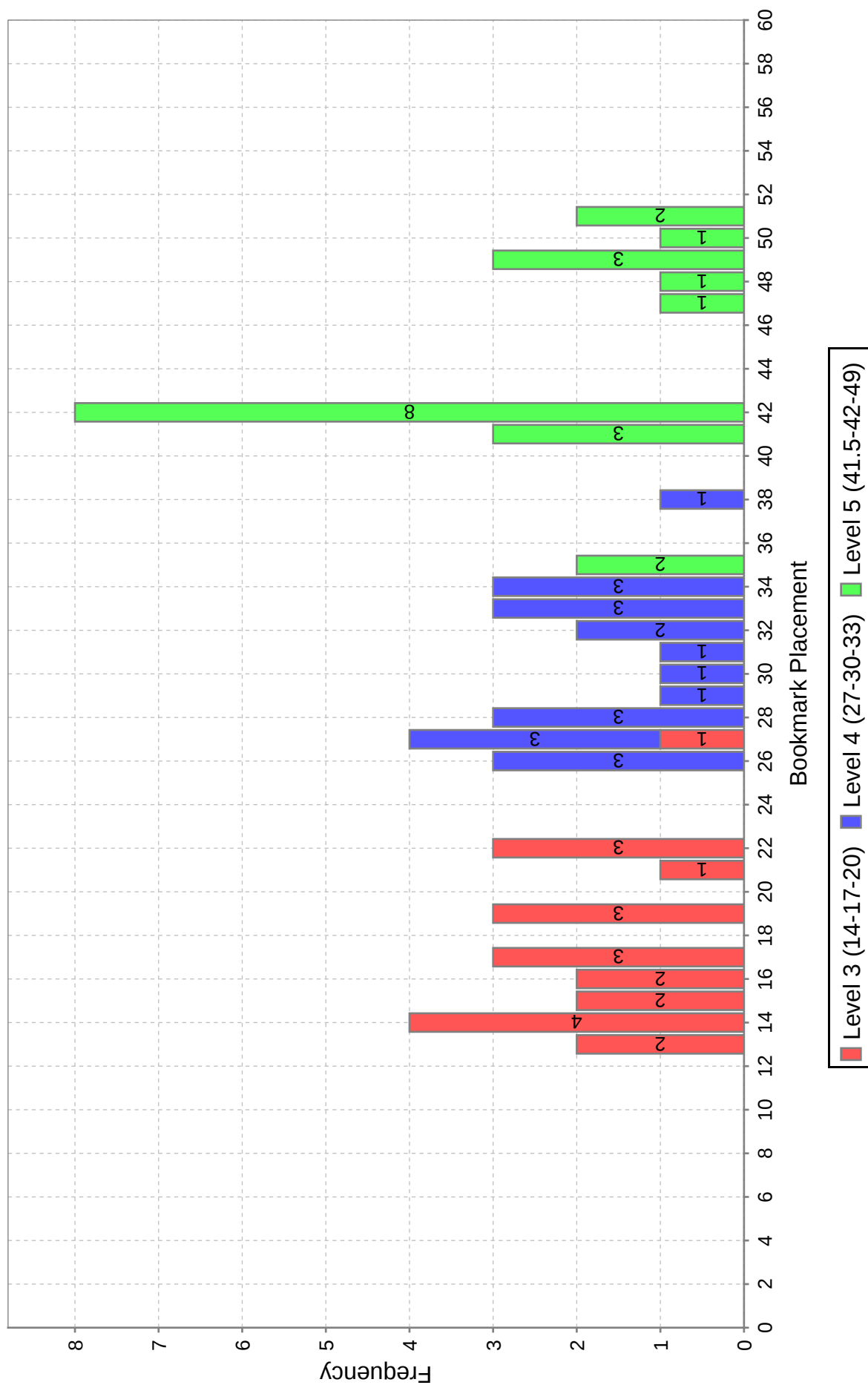
North Carolina Grade 5 Math Frequency of Bookmark Placements Round 2



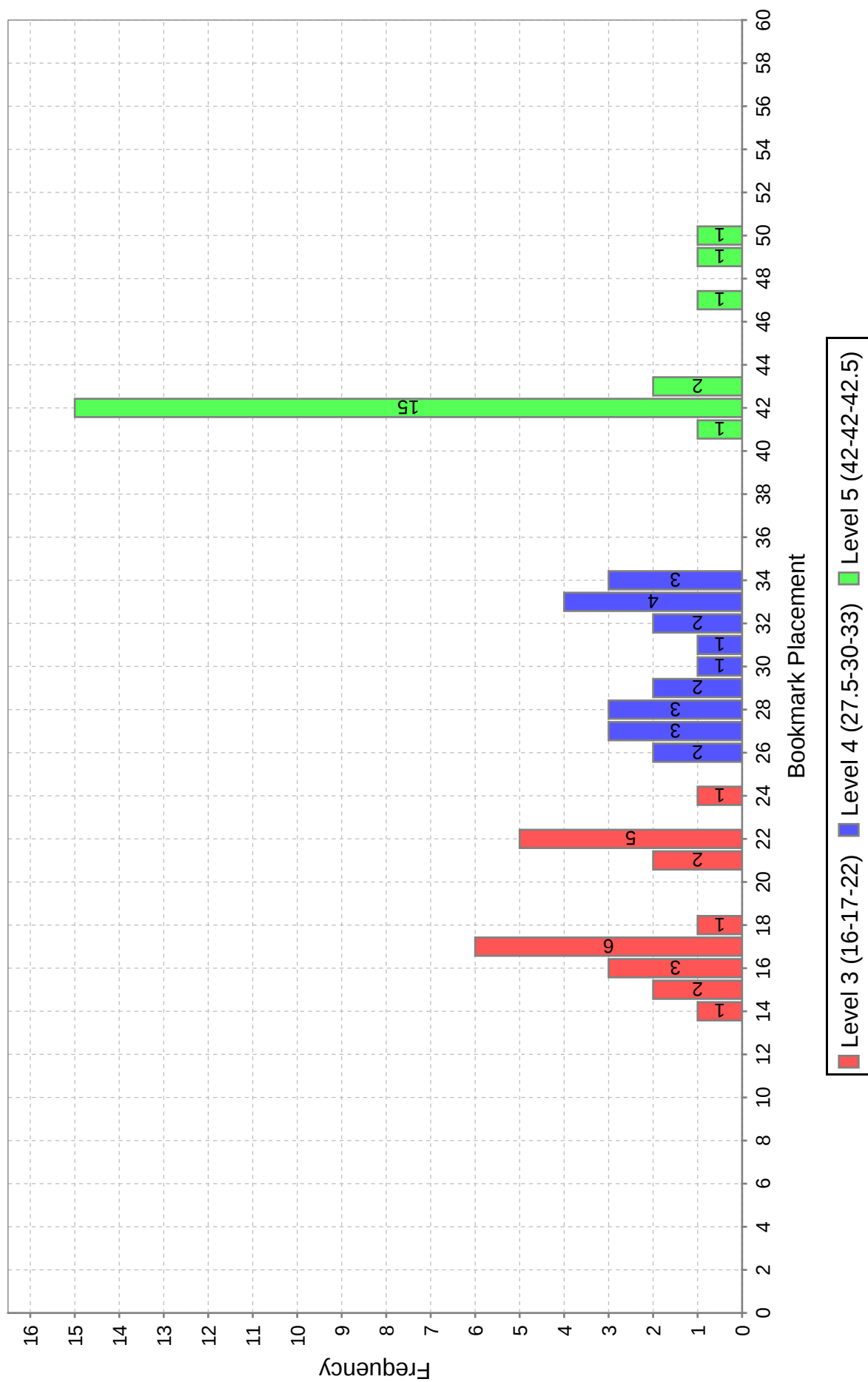
North Carolina Grade 5 Math Frequency of Bookmark Placements Round 3



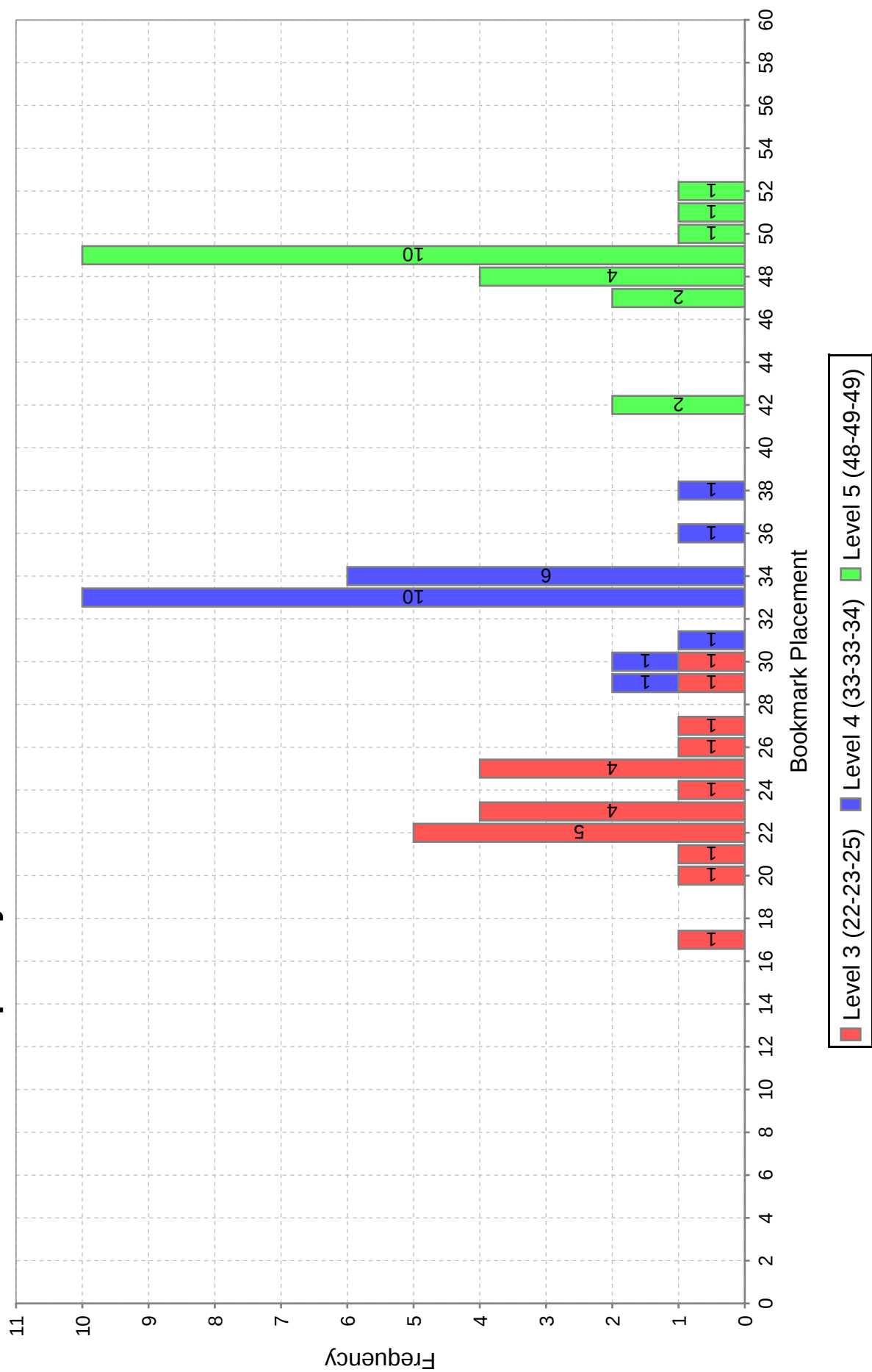
North Carolina Grade 6 Math Frequency of Bookmark Placements Round 1



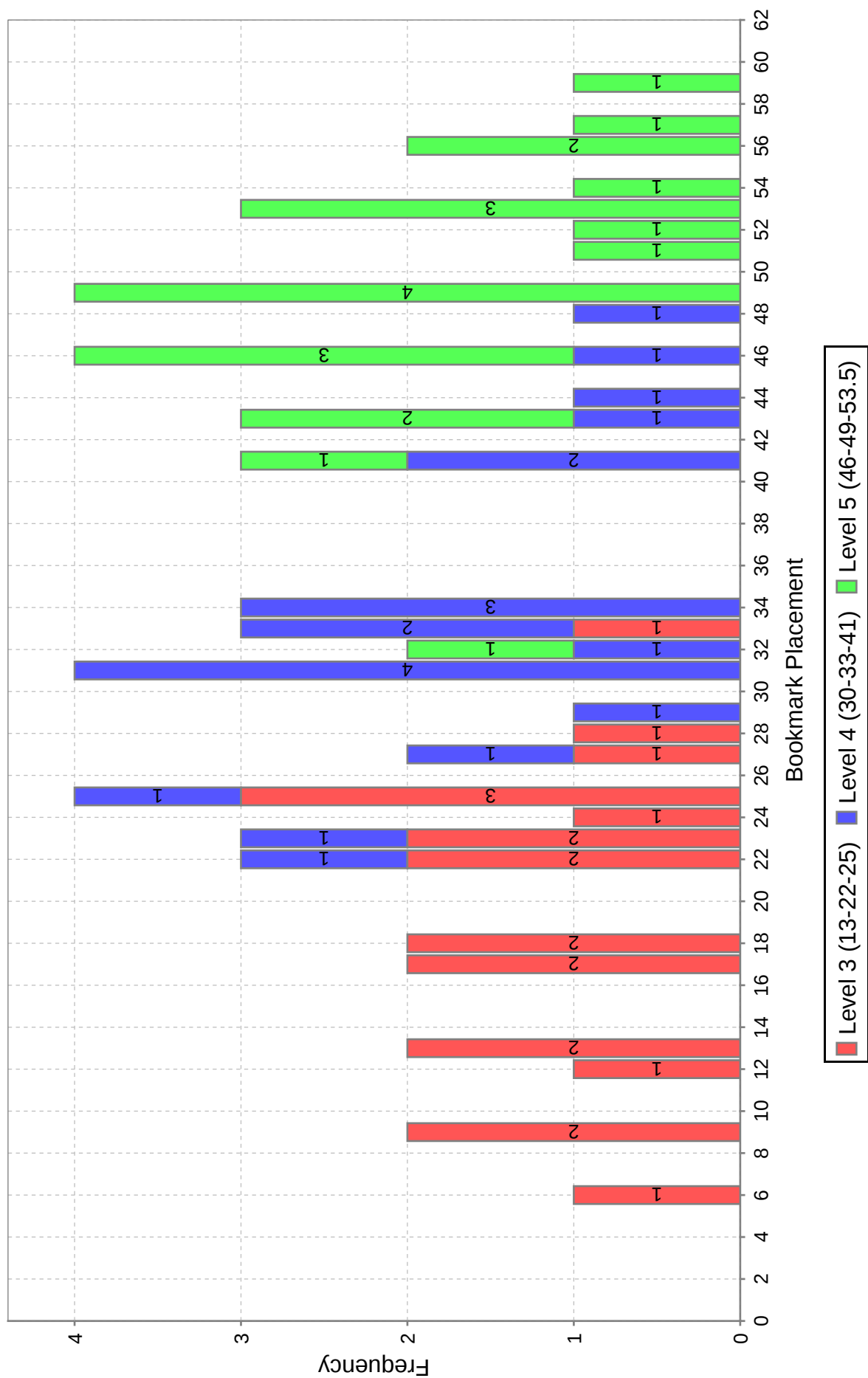
North Carolina Grade 6 Math Frequency of Bookmark Placements Round 2



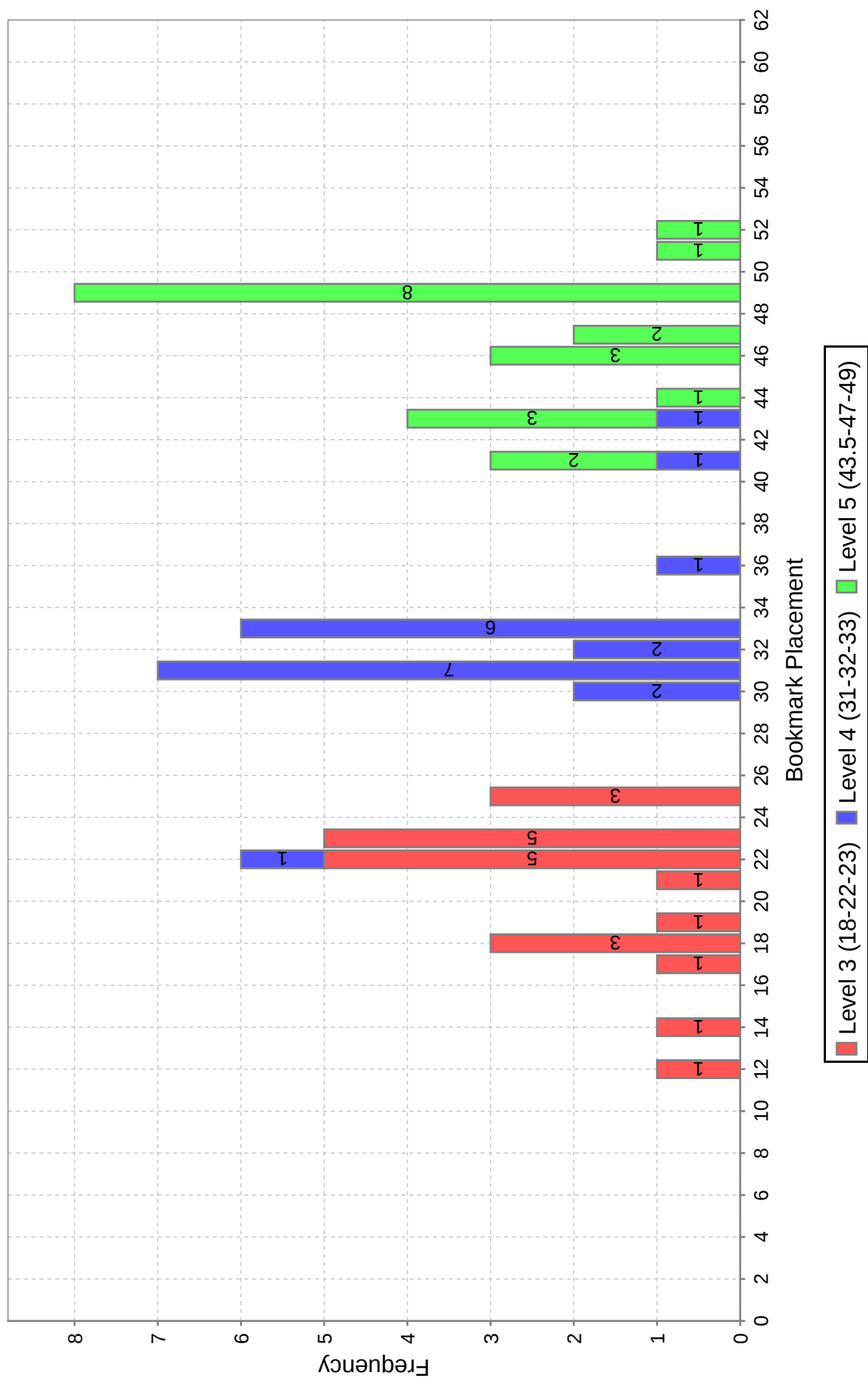
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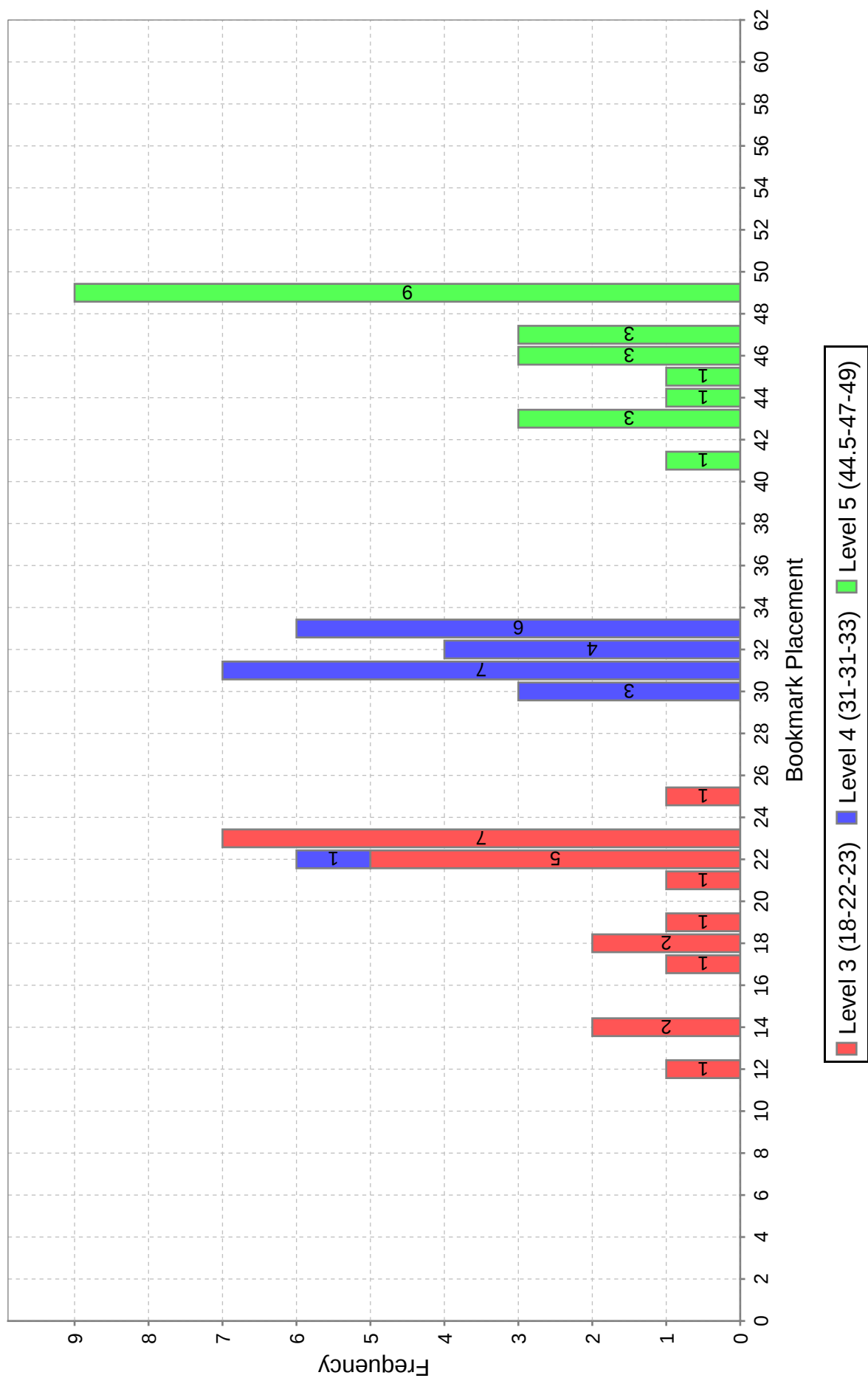
North Carolina Grade 7 Math Frequency of Bookmark Placements Round 1



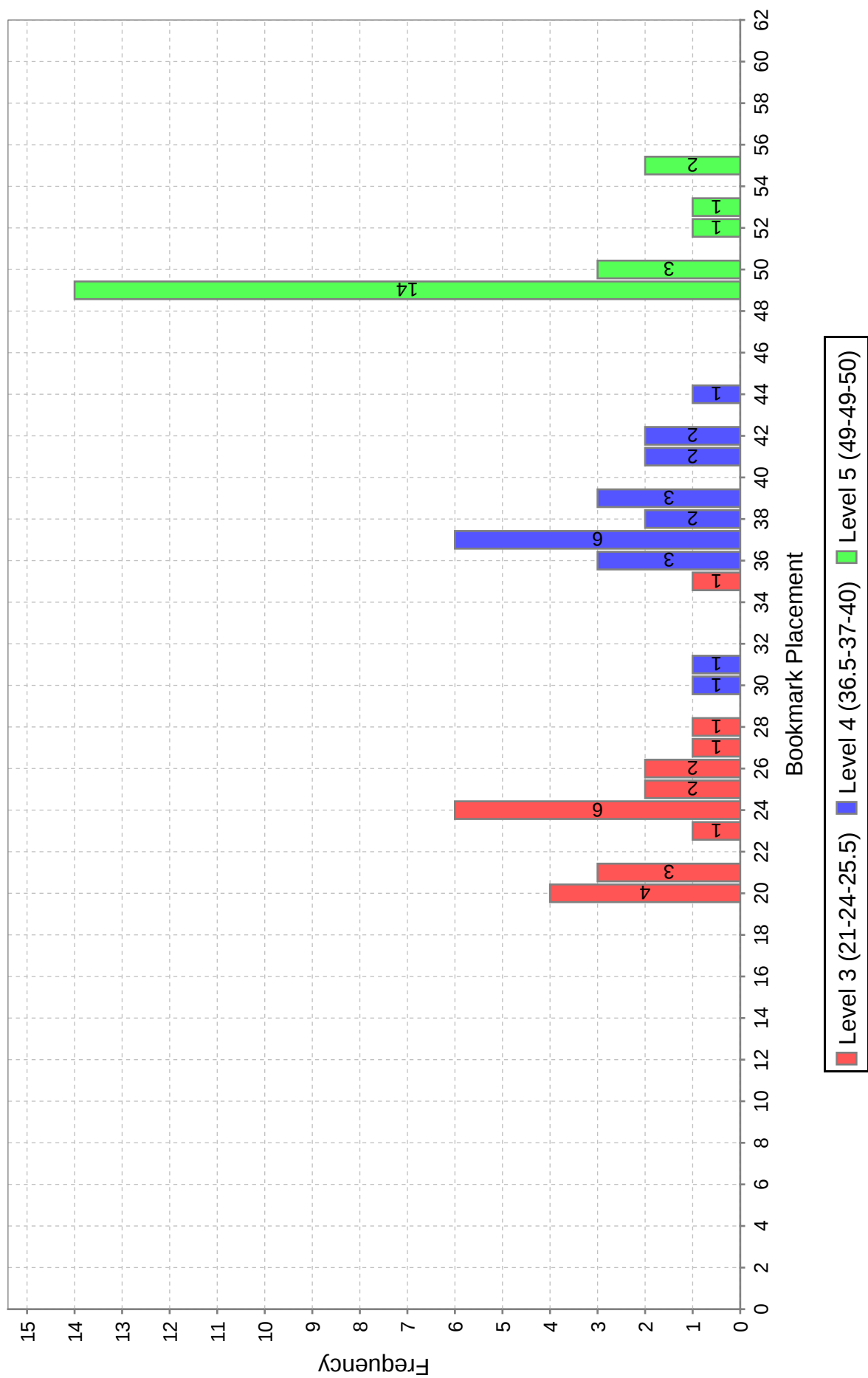
North Carolina Grade 7 Math Frequency of Bookmark Placements Round 2



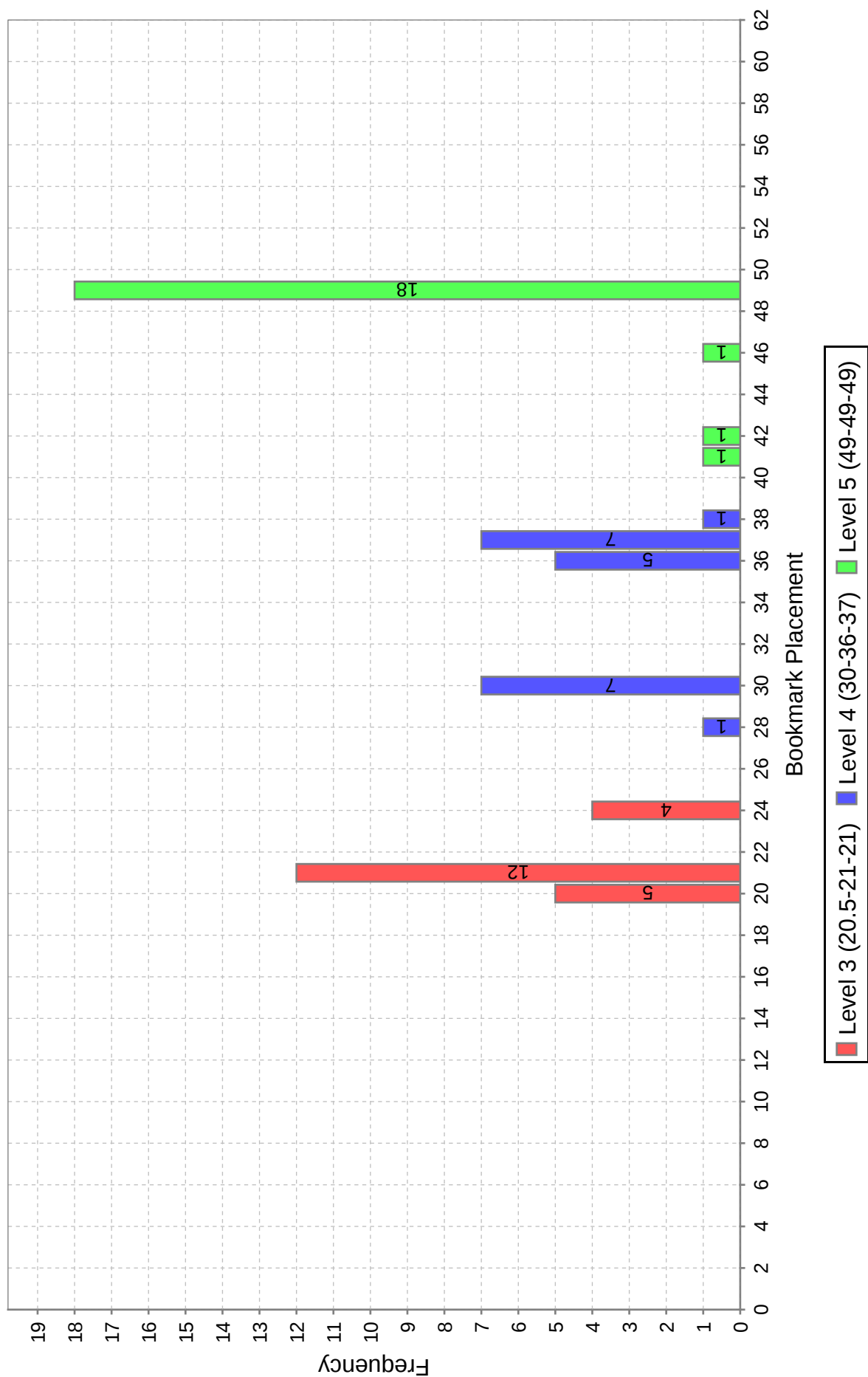
North Carolina Grade 7 Math Frequency of Bookmark Placements Round 3



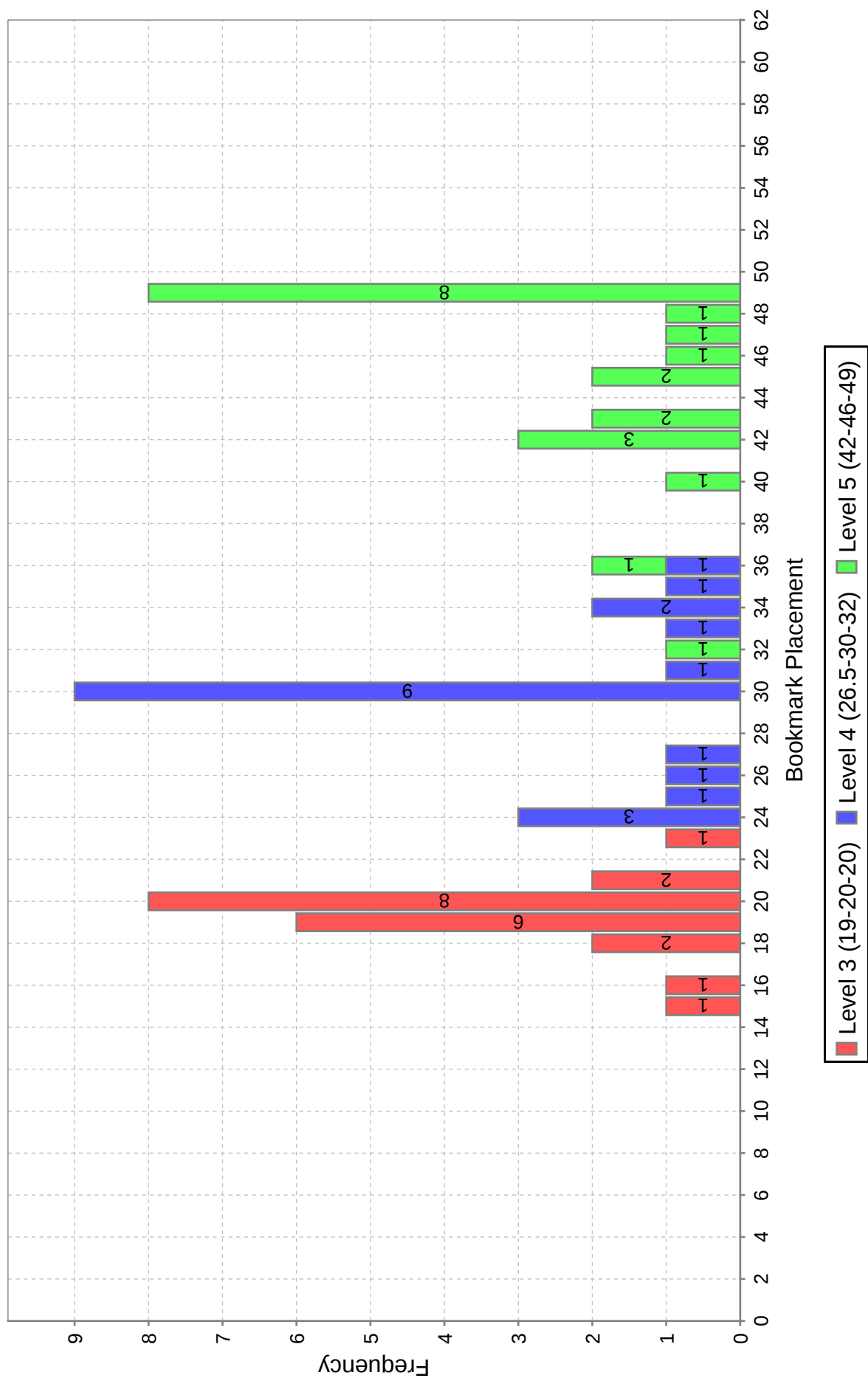
North Carolina Grade 8 Math Frequency of Bookmark Placements Round 1



North Carolina Grade 8 Math Frequency of Bookmark Placements Round 2

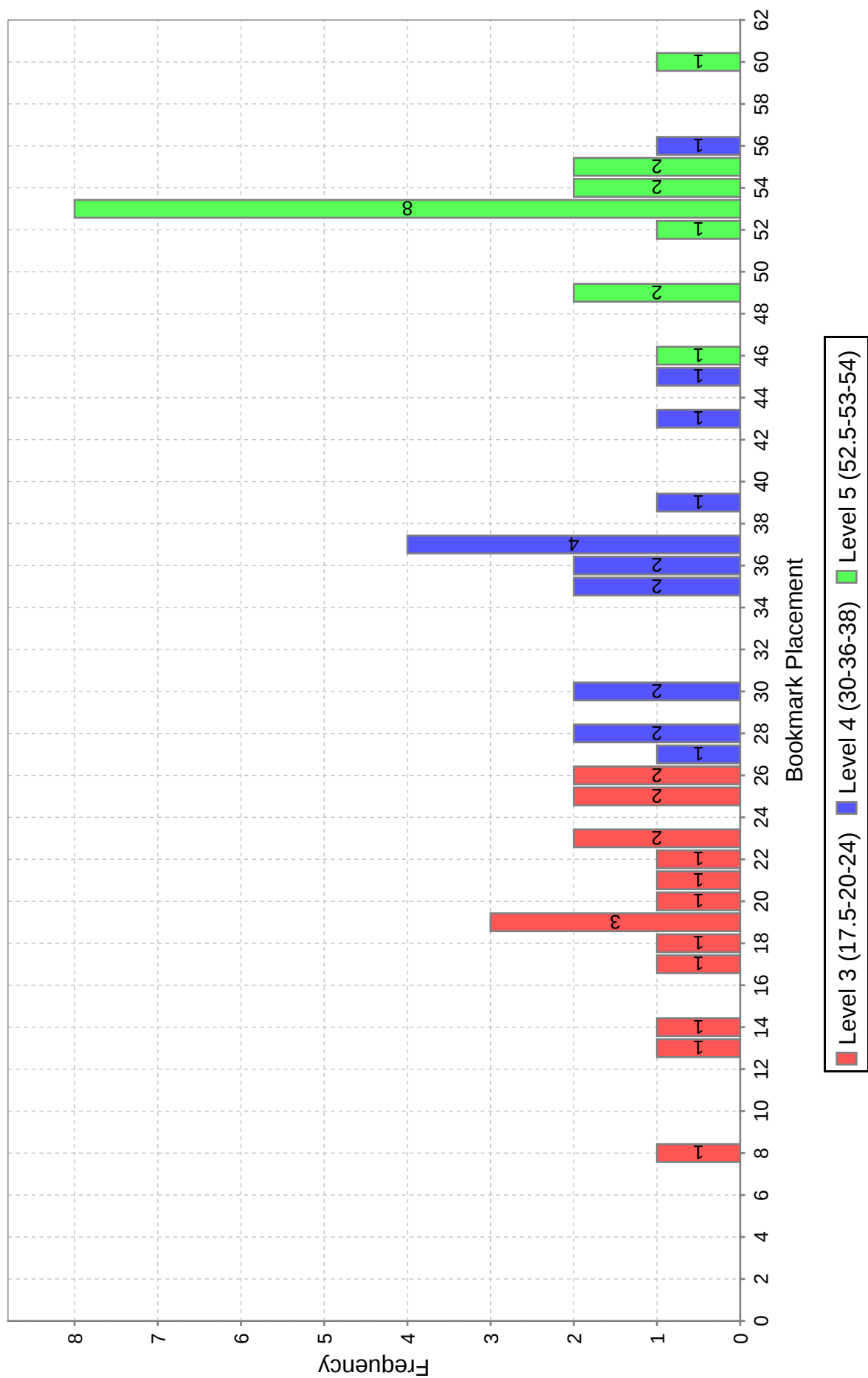


North Carolina Grade 8 Math Frequency of Bookmark Placements Round 3

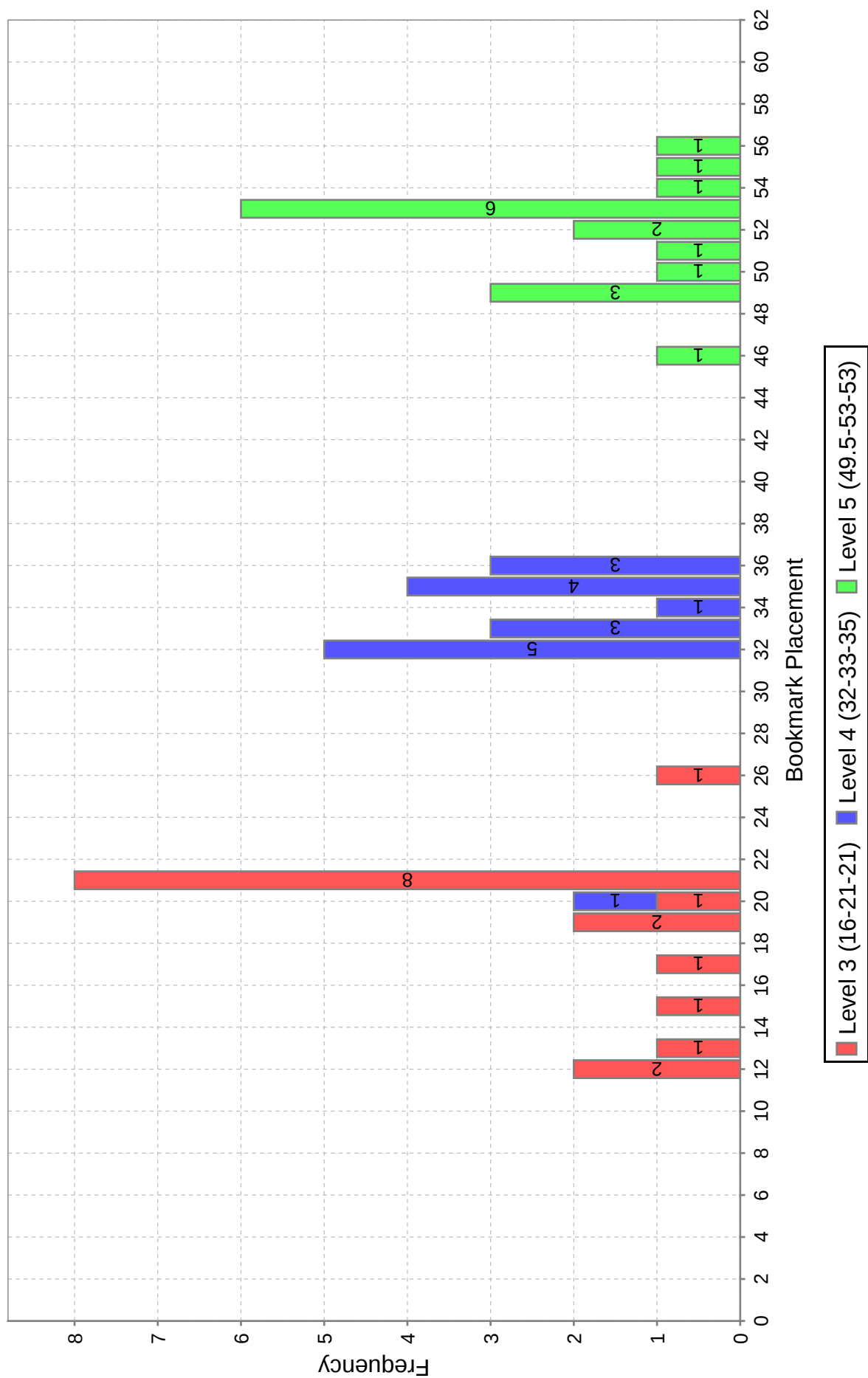


North Carolina EOC1 Math

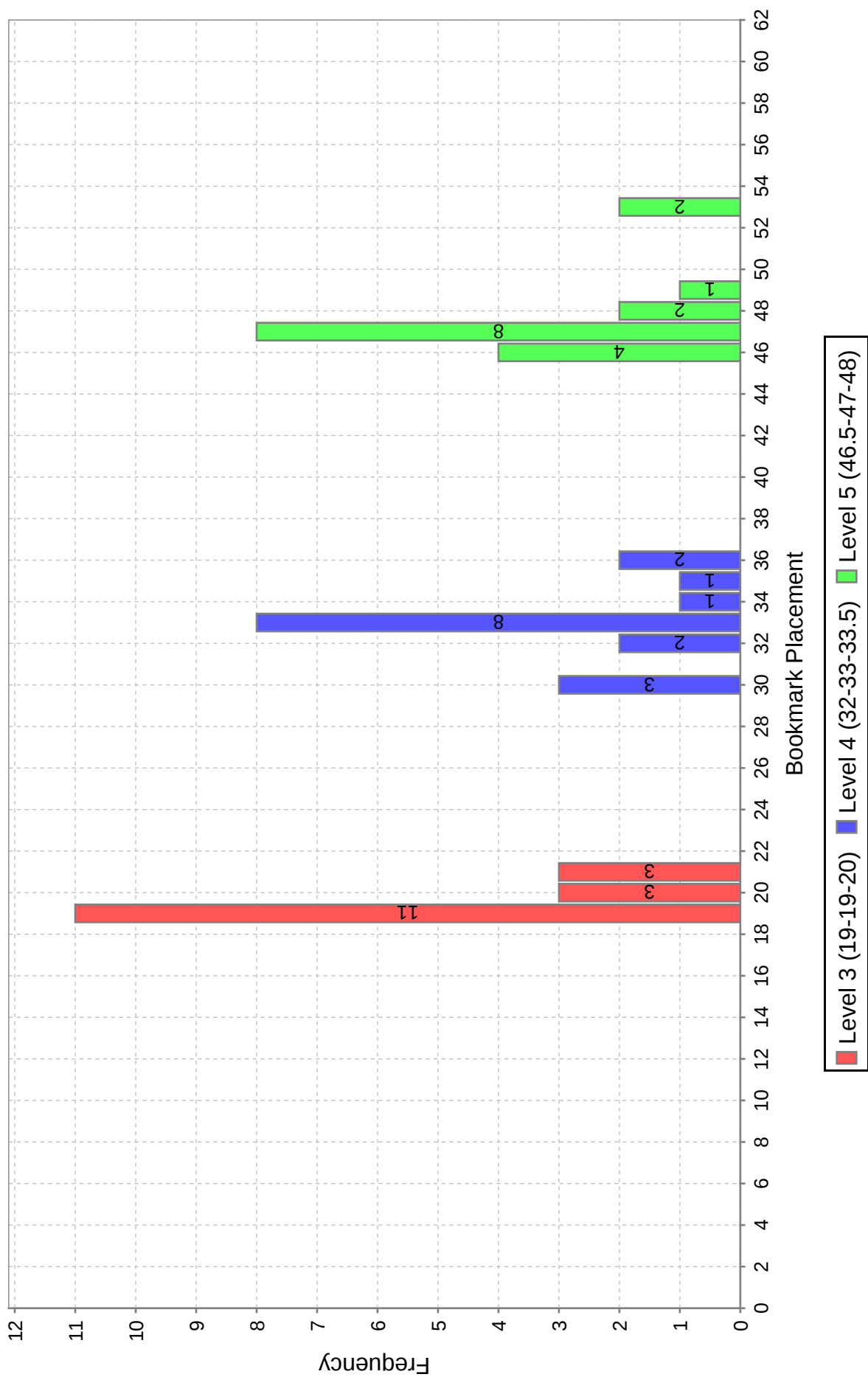
Frequency of Bookmark Placements Round 1



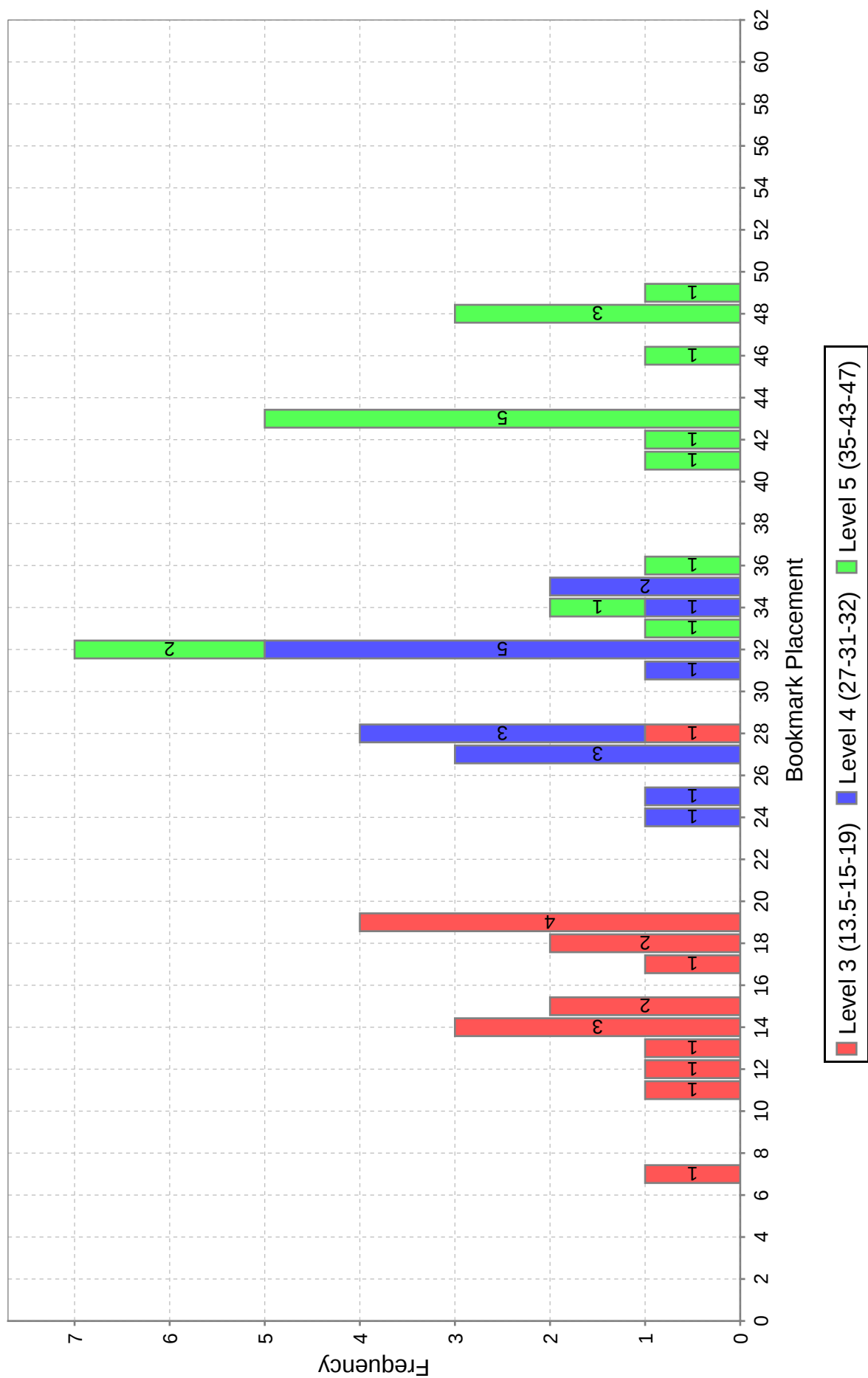
North Carolina EOC1 Math Frequency of Bookmark Placements Round 2



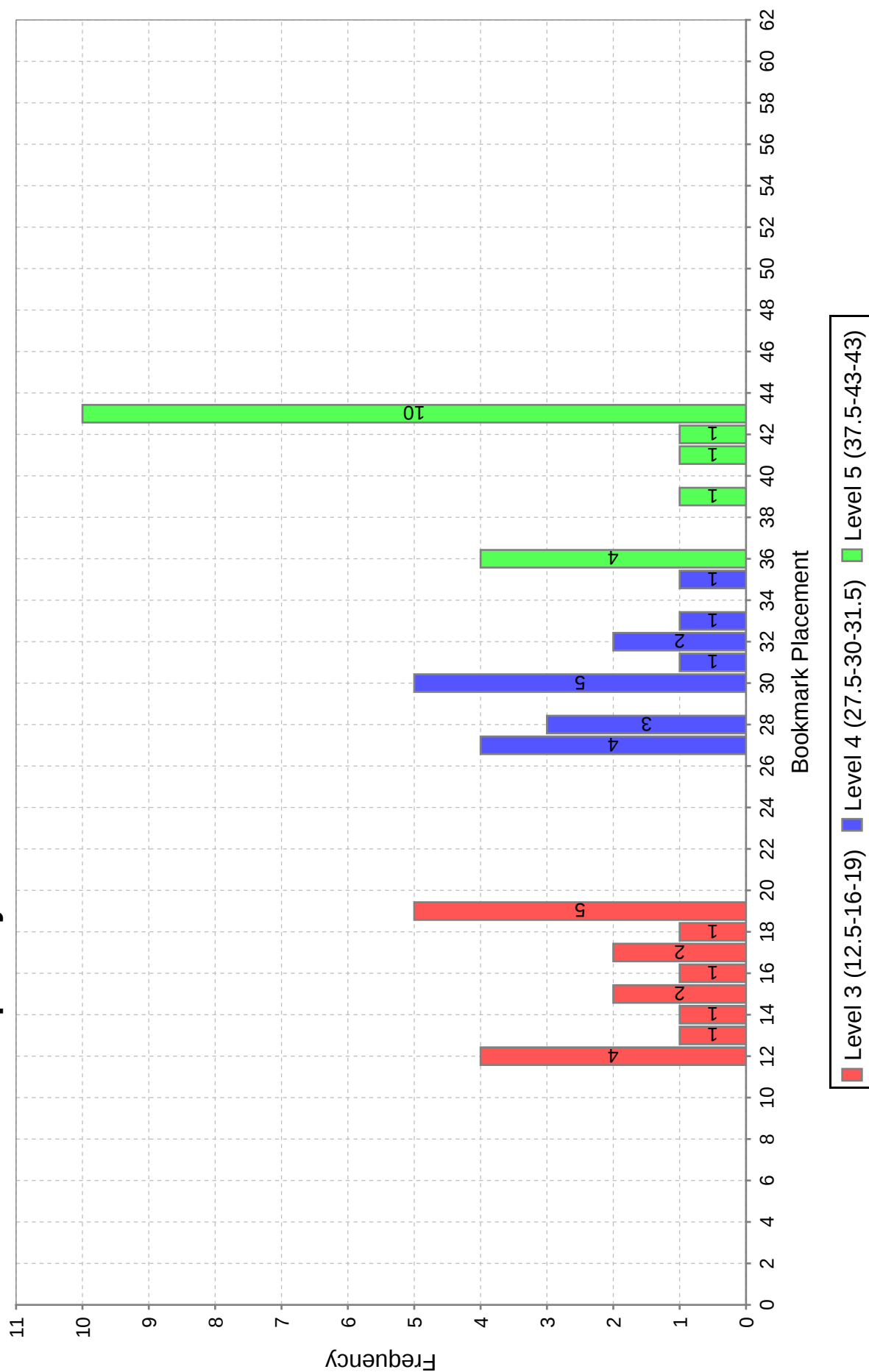
North Carolina EOC1 Math Frequency of Bookmark Placements Round 3



North Carolina EOC3 Math Frequency of Bookmark Placements Round 1

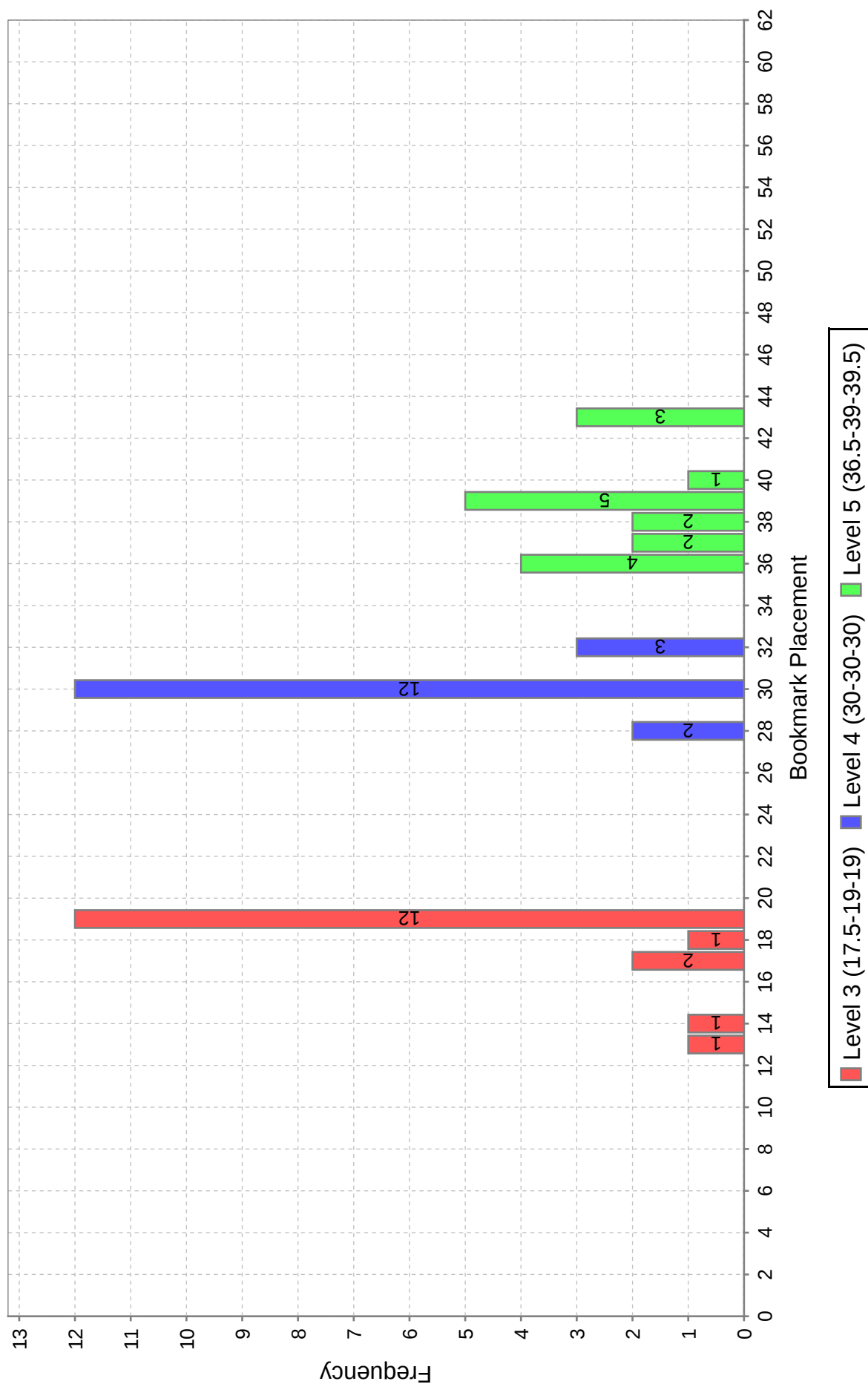


North Carolina EOC3 Math Frequency of Bookmark Placements Round 2



North Carolina EOC3 Math

Frequency of Bookmark Placements Round 3



H

Standard Errors Associated with Cut Scores

North Carolina Grade 3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		1.50	0.57	1.76	
Recommended Cut Point* + 3 SE		544	551	567	+ 3 SE
Percent of Students in Each Level	32.9	22.5	42.0	2.5	
Recommended Cut Point* + 2 SE		543	551	565	+ 2 SE
Percent of Students in Each Level	28.7	26.7	39.9	4.6	
Recommended Cut Point* + 1 SE		541	550	564	+ 1 SE
Percent of Students in Each Level	23.4	28.9	41.9	5.8	
Recommended Cut Point*		540	550	562	Recommended Cut Points*
Percent of Students in Each Level	21.1	31.2	38.0	9.7	
Recommended Cut Point* -1 SE		538	549	560	-1 SE
Percent of Students in Each Level	16.3	33.0	37.0	13.8	
Recommended Cut Point* -2 SE		537	549	558	-2 SE
Percent of Students in Each Level	15.5	33.7	30.4	20.3	
Recommended Cut Point* -3 SE		535	548	557	-3 SE
Percent of Students in Each Level	10.6	34.8	30.5	24.2	

* Participants' Large Group Medians

North Carolina Grade 3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		12.00	11.00	12.00	
Recommended Cut Point* + 3 SE		576	583	598	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		564	572	586	+ 2 SE
Percent of Students in Each Level	94.2	5.8	0.0	0.0	
Recommended Cut Point* + 1 SE		552	561	574	+ 1 SE
Percent of Students in Each Level	58.6	29.0	12.4	0.0	
Recommended Cut Point*		540	550	562	Recommended Cut Points*
Percent of Students in Each Level	21.1	31.2	38.0	9.7	
Recommended Cut Point* -1 SE		528	539	550	-1 SE
Percent of Students in Each Level	0.6	18.0	33.7	47.7	
Recommended Cut Point* -2 SE		516	528	538	-2 SE
Percent of Students in Each Level	0.0	0.6	15.6	83.7	
Recommended Cut Point* -3 SE		504	517	526	-3 SE
Percent of Students in Each Level	0.0	0.0	0.1	99.9	

* Participants' Large Group Medians

North Carolina Grade 3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		12.09	11.01	12.13	
Recommended Cut Point* + 3 SE		576	583	598	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		564	572	586	+ 2 SE
Percent of Students in Each Level	94.2	5.8	0.0	0.0	
Recommended Cut Point* + 1 SE		552	561	574	+ 1 SE
Percent of Students in Each Level	58.6	29.0	12.4	0.0	
Recommended Cut Point*		540	550	562	Recommended Cut Points*
Percent of Students in Each Level	21.1	31.2	38.0	9.7	
Recommended Cut Point* -1 SE		528	539	550	-1 SE
Percent of Students in Each Level	0.6	18.0	33.7	47.7	
Recommended Cut Point* -2 SE		515	528	538	-2 SE
Percent of Students in Each Level	0.0	0.6	15.6	83.7	
Recommended Cut Point* -3 SE		503	517	525	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	100.0	

* Participants' Large Group Medians

North Carolina Grade 4 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		1.56	2.18	0.77	
Recommended Cut Point* + 3 SE		543	554	565	+ 3 SE
Percent of Students in Each Level	29.6	38.2	27.3	4.8	
Recommended Cut Point* + 2 SE		542	551	565	+ 2 SE
Percent of Students in Each Level	27.1	29.3	38.7	4.8	
Recommended Cut Point* + 1 SE		540	549	564	+ 1 SE
Percent of Students in Each Level	21.3	28.3	43.2	7.1	
Recommended Cut Point*		539	547	563	Recommended Cut Points*
Percent of Students in Each Level	19.5	22.9	49.1	8.4	
Recommended Cut Point* -1 SE		537	545	562	-1 SE
Percent of Students in Each Level	15.1	20.6	54.6	9.6	
Recommended Cut Point* -2 SE		536	543	561	-2 SE
Percent of Students in Each Level	12.5	17.1	58.1	12.2	
Recommended Cut Point* -3 SE		534	540	561	-3 SE
Percent of Students in Each Level	8.5	12.8	66.4	12.2	

* Participants' Large Group Medians

North Carolina Grade 4 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		12.00	12.00	12.00	
Recommended Cut Point* + 3 SE		575	583	599	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		563	571	587	+ 2 SE
Percent of Students in Each Level	91.5	8.3	0.0	0.1	
Recommended Cut Point* + 1 SE		551	559	575	+ 1 SE
Percent of Students in Each Level	56.4	26.4	17.1	0.1	
Recommended Cut Point*		539	547	563	Recommended Cut Points*
Percent of Students in Each Level	19.5	22.9	49.1	8.4	
Recommended Cut Point* -1 SE		527	535	551	-1 SE
Percent of Students in Each Level	0.0	11.1	45.2	43.5	
Recommended Cut Point* -2 SE		515	523	539	-2 SE
Percent of Students in Each Level	0.0	0.0	19.5	80.4	
Recommended Cut Point* -3 SE		503	511	527	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	99.9	

* Participants' Large Group Medians

North Carolina Grade 4 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		12.10	12.20	12.02	
Recommended Cut Point* + 3 SE		575	584	599	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		563	571	587	+ 2 SE
Percent of Students in Each Level	91.5	8.3	0.0	0.1	
Recommended Cut Point* + 1 SE		551	559	575	+ 1 SE
Percent of Students in Each Level	56.4	26.4	17.1	0.1	
Recommended Cut Point*		539	547	563	Recommended Cut Points*
Percent of Students in Each Level	19.5	22.9	49.1	8.4	
Recommended Cut Point* -1 SE		527	535	551	-1 SE
Percent of Students in Each Level	0.0	11.1	45.2	43.5	
Recommended Cut Point* -2 SE		515	523	539	-2 SE
Percent of Students in Each Level	0.0	0.0	19.5	80.4	
Recommended Cut Point* -3 SE		502	510	527	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	99.9	

* Participants' Large Group Medians

North Carolina Grade 5 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		1.06	1.12	2.25	
Recommended Cut Point* + 3 SE		546	555	568	+ 3 SE
Percent of Students in Each Level	39.5	31.8	25.9	2.8	
Recommended Cut Point* + 2 SE		545	554	566	+ 2 SE
Percent of Students in Each Level	36.6	31.2	27.8	4.4	
Recommended Cut Point* + 1 SE		544	553	564	+ 1 SE
Percent of Students in Each Level	33.8	30.6	29.6	6.1	
Recommended Cut Point*		543	552	561	Recommended Cut Points*
Percent of Students in Each Level	31.2	29.8	27.5	11.5	
Recommended Cut Point* -1 SE		542	551	559	-1 SE
Percent of Students in Each Level	28.5	29.2	27.1	15.2	
Recommended Cut Point* -2 SE		541	549	557	-2 SE
Percent of Students in Each Level	25.7	25.7	26.6	21.9	
Recommended Cut Point* -3 SE		540	548	555	-3 SE
Percent of Students in Each Level	23.0	25.3	23.0	28.7	

* Participants' Large Group Medians

North Carolina Grade 5 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		13.00	13.00	13.00	
Recommended Cut Point* + 3 SE		582	591	600	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		569	578	587	+ 2 SE
Percent of Students in Each Level	98.7	1.2	0.0	0.0	
Recommended Cut Point* + 1 SE		556	565	574	+ 1 SE
Percent of Students in Each Level	74.7	20.1	5.2	0.0	
Recommended Cut Point*		543	552	561	Recommended Cut Points*
Percent of Students in Each Level	31.2	29.8	27.5	11.5	
Recommended Cut Point* -1 SE		530	539	548	-1 SE
Percent of Students in Each Level	2.4	17.8	28.1	51.7	
Recommended Cut Point* -2 SE		517	526	535	-2 SE
Percent of Students in Each Level	0.0	0.0	11.4	88.6	
Recommended Cut Point* -3 SE		504	513	522	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	100.0	

* Participants' Large Group Medians

North Carolina Grade 5 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		13.04	13.05	13.19	
Recommended Cut Point* + 3 SE		582	591	601	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		569	578	588	+ 2 SE
Percent of Students in Each Level	98.7	1.2	0.0	0.0	
Recommended Cut Point* + 1 SE		556	565	575	+ 1 SE
Percent of Students in Each Level	74.7	20.1	5.2	0.0	
Recommended Cut Point*		543	552	561	Recommended Cut Points*
Percent of Students in Each Level	31.2	29.8	27.5	11.5	
Recommended Cut Point* -1 SE		530	539	548	-1 SE
Percent of Students in Each Level	2.4	17.8	28.1	51.7	
Recommended Cut Point* -2 SE		517	526	535	-2 SE
Percent of Students in Each Level	0.0	0.0	11.4	88.6	
Recommended Cut Point* -3 SE		504	513	522	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	100.0	

* Participants' Large Group Medians

North Carolina Grade 6 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		0.69	0.62	1.34	
Recommended Cut Point* + 3 SE		544	549	567	+ 3 SE
Percent of Students in Each Level	33.8	16.9	45.7	3.5	
Recommended Cut Point* + 2 SE		543	549	566	+ 2 SE
Percent of Students in Each Level	31.0	19.7	45.7	3.5	
Recommended Cut Point* + 1 SE		543	548	565	+ 1 SE
Percent of Students in Each Level	31.0	16.4	47.0	5.5	
Recommended Cut Point*		542	547	563	Recommended Cut Points*
Percent of Students in Each Level	28.2	15.2	48.9	7.6	
Recommended Cut Point* -1 SE		541	547	562	-1 SE
Percent of Students in Each Level	25.3	18.1	46.7	9.8	
Recommended Cut Point* -2 SE		541	546	561	-2 SE
Percent of Students in Each Level	25.3	15.6	46.9	12.1	
Recommended Cut Point* -3 SE		540	545	559	-3 SE
Percent of Students in Each Level	23.5	14.3	45.1	17.0	

* Participants' Large Group Medians

North Carolina Grade 6 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		11.00	11.00	11.00	
Recommended Cut Point* + 3 SE		575	580	596	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		564	569	585	+ 2 SE
Percent of Students in Each Level	93.7	4.2	1.9	0.1	
Recommended Cut Point* + 1 SE		553	558	574	+ 1 SE
Percent of Students in Each Level	65.5	15.0	19.3	0.1	
Recommended Cut Point*		542	547	563	Recommended Cut Points*
Percent of Students in Each Level	28.2	15.2	48.9	7.6	
Recommended Cut Point* -1 SE		531	536	552	-1 SE
Percent of Students in Each Level	1.7	9.8	49.1	39.3	
Recommended Cut Point* -2 SE		520	525	541	-2 SE
Percent of Students in Each Level	0.0	0.0	25.3	74.6	
Recommended Cut Point* -3 SE		509	514	530	-3 SE
Percent of Students in Each Level	0.0	0.0	0.3	99.6	

* Participants' Large Group Medians

North Carolina Grade 6 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		11.02	11.02	11.08	
Recommended Cut Point* + 3 SE		575	580	597	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		564	569	585	+ 2 SE
Percent of Students in Each Level	93.7	4.2	1.9	0.1	
Recommended Cut Point* + 1 SE		553	558	574	+ 1 SE
Percent of Students in Each Level	65.5	15.0	19.3	0.1	
Recommended Cut Point*		542	547	563	Recommended Cut Points*
Percent of Students in Each Level	28.2	15.2	48.9	7.6	
Recommended Cut Point* -1 SE		531	536	552	-1 SE
Percent of Students in Each Level	1.7	9.8	49.1	39.3	
Recommended Cut Point* -2 SE		520	525	541	-2 SE
Percent of Students in Each Level	0.0	0.0	25.3	74.6	
Recommended Cut Point* -3 SE		509	514	530	-3 SE
Percent of Students in Each Level	0.0	0.0	0.3	99.6	

* Participants' Large Group Medians

North Carolina Grade 7 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		0.84	0.40	1.12	
Recommended Cut Point* + 3 SE		549	552	565	+ 3 SE
Percent of Students in Each Level	51.8	10.9	31.7	5.6	
Recommended Cut Point* + 2 SE		548	551	564	+ 2 SE
Percent of Students in Each Level	48.7	9.7	35.8	5.8	
Recommended Cut Point* + 1 SE		547	551	563	+ 1 SE
Percent of Students in Each Level	44.8	13.5	33.7	7.9	
Recommended Cut Point*		546	550	562	Recommended Cut Points*
Percent of Students in Each Level	41.5	13.9	34.7	9.9	
Recommended Cut Point* -1 SE		545	550	561	-1 SE
Percent of Students in Each Level	38.8	16.5	33.2	11.4	
Recommended Cut Point* -2 SE		545	550	560	-2 SE
Percent of Students in Each Level	38.8	16.5	31.5	13.1	
Recommended Cut Point* -3 SE		544	549	559	-3 SE
Percent of Students in Each Level	36.0	15.7	32.4	15.8	

* Participants' Large Group Medians

North Carolina Grade 7 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		9.00	9.00	9.00	
Recommended Cut Point* + 3 SE		573	577	589	+ 3 SE
Percent of Students in Each Level	99.2	0.8	0.0	0.0	
Recommended Cut Point* + 2 SE		564	568	580	+ 2 SE
Percent of Students in Each Level	94.2	3.7	2.1	0.0	
Recommended Cut Point* + 1 SE		555	559	571	+ 1 SE
Percent of Students in Each Level	72.2	12.0	15.0	0.8	
Recommended Cut Point*		546	550	562	Recommended Cut Points*
Percent of Students in Each Level	41.5	13.9	34.7	9.9	
Recommended Cut Point* -1 SE		537	541	553	-1 SE
Percent of Students in Each Level	14.5	12.0	38.5	35.1	
Recommended Cut Point* -2 SE		528	532	544	-2 SE
Percent of Students in Each Level	0.0	1.0	35.1	64.0	
Recommended Cut Point* -3 SE		519	523	535	-3 SE
Percent of Students in Each Level	0.0	0.0	6.9	93.0	

* Participants' Large Group Medians

North Carolina Grade 7 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		9.04	9.01	9.07	
Recommended Cut Point* + 3 SE		573	577	589	+ 3 SE
Percent of Students in Each Level	99.2	0.8	0.0	0.0	
Recommended Cut Point* + 2 SE		564	568	580	+ 2 SE
Percent of Students in Each Level	94.2	3.7	2.1	0.0	
Recommended Cut Point* + 1 SE		555	559	571	+ 1 SE
Percent of Students in Each Level	72.2	12.0	15.0	0.8	
Recommended Cut Point*		546	550	562	Recommended Cut Points*
Percent of Students in Each Level	41.5	13.9	34.7	9.9	
Recommended Cut Point* -1 SE		537	541	553	-1 SE
Percent of Students in Each Level	14.5	12.0	38.5	35.1	
Recommended Cut Point* -2 SE		528	532	544	-2 SE
Percent of Students in Each Level	0.0	1.0	35.1	64.0	
Recommended Cut Point* -3 SE		519	523	535	-3 SE
Percent of Students in Each Level	0.0	0.0	6.9	93.0	

* Participants' Large Group Medians

North Carolina Grade 8 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		1.28	1.84	2.27	
Recommended Cut Point* + 3 SE		544	557	575	+ 3 SE
Percent of Students in Each Level	69.2	27.4	3.4	0.0	
Recommended Cut Point* + 2 SE		543	555	573	+ 2 SE
Percent of Students in Each Level	64.3	29.9	5.7	0.0	
Recommended Cut Point* + 1 SE		541	554	571	+ 1 SE
Percent of Students in Each Level	58.0	35.0	7.1	0.0	
Recommended Cut Point*		540	552	568	Recommended Cut Points*
Percent of Students in Each Level	54.5	35.2	10.3	0.1	
Recommended Cut Point* -1 SE		539	550	566	-1 SE
Percent of Students in Each Level	52.2	33.9	13.8	0.2	
Recommended Cut Point* -2 SE		538	548	564	-2 SE
Percent of Students in Each Level	48.4	31.9	19.2	0.5	
Recommended Cut Point* -3 SE		536	546	562	-3 SE
Percent of Students in Each Level	41.6	33.9	23.9	0.6	

* Participants' Large Group Medians

North Carolina Grade 8 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		16.00	14.00	13.00	
Recommended Cut Point* + 3 SE		588	594	607	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		572	580	594	+ 2 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 1 SE		556	566	581	+ 1 SE
Percent of Students in Each Level	95.5	4.3	0.2	0.0	
Recommended Cut Point*		540	552	568	Recommended Cut Points*
Percent of Students in Each Level	54.5	35.2	10.3	0.1	
Recommended Cut Point* -1 SE		524	538	555	-1 SE
Percent of Students in Each Level	3.1	45.3	45.8	5.7	
Recommended Cut Point* -2 SE		508	524	542	-2 SE
Percent of Students in Each Level	0.0	3.1	58.0	38.9	
Recommended Cut Point* -3 SE		492	510	529	-3 SE
Percent of Students in Each Level	0.0	0.0	16.5	83.5	

* Participants' Large Group Medians

North Carolina Grade 8 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		16.05	14.12	13.20	
Recommended Cut Point* + 3 SE		588	594	608	+ 3 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 2 SE		572	580	595	+ 2 SE
Percent of Students in Each Level	100.0	0.0	0.0	0.0	
Recommended Cut Point* + 1 SE		556	566	582	+ 1 SE
Percent of Students in Each Level	95.5	4.3	0.2	0.0	
Recommended Cut Point*		540	552	568	Recommended Cut Points*
Percent of Students in Each Level	54.5	35.2	10.3	0.1	
Recommended Cut Point* -1 SE		524	538	555	-1 SE
Percent of Students in Each Level	3.1	45.3	45.8	5.7	
Recommended Cut Point* -2 SE		508	524	542	-2 SE
Percent of Students in Each Level	0.0	3.1	58.0	38.9	
Recommended Cut Point* -3 SE		492	509	529	-3 SE
Percent of Students in Each Level	0.0	0.0	16.5	83.5	

* Participants' Large Group Medians

North Carolina EOC1 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		0.30	0.34	1.24	
Recommended Cut Point* + 3 SE		545	555	569	+ 3 SE
Percent of Students in Each Level	35.2	34.3	28.0	2.4	
Recommended Cut Point* + 2 SE		545	555	568	+ 2 SE
Percent of Students in Each Level	35.2	34.3	27.5	2.9	
Recommended Cut Point* + 1 SE		545	554	567	+ 1 SE
Percent of Students in Each Level	35.2	31.9	28.7	4.1	
Recommended Cut Point*		545	554	565	Recommended Cut Points*
Percent of Students in Each Level	35.2	31.9	26.7	6.2	
Recommended Cut Point* -1 SE		544	554	564	-1 SE
Percent of Students in Each Level	32.5	34.6	25.8	7.0	
Recommended Cut Point* -2 SE		544	553	563	-2 SE
Percent of Students in Each Level	32.5	30.2	28.7	8.5	
Recommended Cut Point* -3 SE		544	553	562	-3 SE
Percent of Students in Each Level	32.5	30.2	26.3	11.0	

* Participants' Large Group Medians

North Carolina EOC1 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		11.00	11.00	10.00	
Recommended Cut Point* + 3 SE		578	587	595	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		567	576	585	+ 2 SE
Percent of Students in Each Level	95.8	4.0	0.0	0.1	
Recommended Cut Point* + 1 SE		556	565	575	+ 1 SE
Percent of Students in Each Level	73.6	20.1	5.7	0.4	
Recommended Cut Point*		545	554	565	Recommended Cut Points*
Percent of Students in Each Level	35.2	31.9	26.7	6.2	
Recommended Cut Point* -1 SE		534	543	555	-1 SE
Percent of Students in Each Level	4.0	25.5	40.0	30.5	
Recommended Cut Point* -2 SE		523	532	545	-2 SE
Percent of Students in Each Level	0.0	1.0	34.2	64.7	
Recommended Cut Point* -3 SE		512	521	535	-3 SE
Percent of Students in Each Level	0.0	0.0	6.7	93.2	

* Participants' Large Group Medians

North Carolina EOC1 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		11.00	11.01	10.08	
Recommended Cut Point* + 3 SE		578	587	596	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		567	576	586	+ 2 SE
Percent of Students in Each Level	95.8	4.0	0.0	0.1	
Recommended Cut Point* + 1 SE		556	565	576	+ 1 SE
Percent of Students in Each Level	73.6	20.1	6.1	0.1	
Recommended Cut Point*		545	554	565	Recommended Cut Points*
Percent of Students in Each Level	35.2	31.9	26.7	6.2	
Recommended Cut Point* -1 SE		534	543	555	-1 SE
Percent of Students in Each Level	4.0	25.5	40.0	30.5	
Recommended Cut Point* -2 SE		523	532	545	-2 SE
Percent of Students in Each Level	0.0	1.0	34.2	64.7	
Recommended Cut Point* -3 SE		512	521	535	-3 SE
Percent of Students in Each Level	0.0	0.0	6.7	93.2	

* Participants' Large Group Medians

North Carolina EOC3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
SE (cut score)		0.63	0.27	1.37	
Recommended Cut Point* + 3 SE		545	553	567	+ 3 SE
Percent of Students in Each Level	36.6	27.0	32.7	3.6	
Recommended Cut Point* + 2 SE		544	553	566	+ 2 SE
Percent of Students in Each Level	33.0	30.6	31.4	4.9	
Recommended Cut Point* + 1 SE		543	553	564	+ 1 SE
Percent of Students in Each Level	29.4	34.2	29.1	7.2	
Recommended Cut Point*		543	552	563	Recommended Cut Points*
Percent of Students in Each Level	29.4	31.7	29.9	8.9	
Recommended Cut Point* -1 SE		542	552	561	-1 SE
Percent of Students in Each Level	25.8	35.2	25.6	13.2	
Recommended Cut Point* -2 SE		542	552	560	-2 SE
Percent of Students in Each Level	25.8	35.2	24.1	14.7	
Recommended Cut Point* -3 SE		541	552	559	-3 SE
Percent of Students in Each Level	20.5	40.5	21.1	17.8	

* Participants' Large Group Medians

North Carolina EOC3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement		17.00	14.00	12.00	
Recommended Cut Point* + 3 SE		594	594	599	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		577	580	587	+ 2 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 1 SE		560	566	575	+ 1 SE
Percent of Students in Each Level	85.2	9.8	4.5	0.4	
Recommended Cut Point*		543	552	563	Recommended Cut Points*
Percent of Students in Each Level	29.4	31.7	29.9	8.9	
Recommended Cut Point* -1 SE		526	538	551	-1 SE
Percent of Students in Each Level	0.0	8.2	48.4	43.3	
Recommended Cut Point* -2 SE		509	524	539	-2 SE
Percent of Students in Each Level	0.0	0.0	11.5	88.4	
Recommended Cut Point* -3 SE		492	510	527	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	99.9	

* Participants' Large Group Medians

North Carolina EOC3 Math

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

Performance Level	Level 2 and Below	Level 3	Level 4	Level 5	
Standard Error (SE) measurement + cutscore		17.01	14.00	12.08	
Recommended Cut Point* + 3 SE		594	594	599	+ 3 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 2 SE		577	580	587	+ 2 SE
Percent of Students in Each Level	99.8	0.0	0.0	0.1	
Recommended Cut Point* + 1 SE		560	566	575	+ 1 SE
Percent of Students in Each Level	85.2	9.8	4.5	0.4	
Recommended Cut Point*		543	552	563	Recommended Cut Points*
Percent of Students in Each Level	29.4	31.7	29.9	8.9	
Recommended Cut Point* -1 SE		526	538	551	-1 SE
Percent of Students in Each Level	0.0	8.2	48.4	43.3	
Recommended Cut Point* -2 SE		509	524	539	-2 SE
Percent of Students in Each Level	0.0	0.0	11.5	88.4	
Recommended Cut Point* -3 SE		492	510	527	-3 SE
Percent of Students in Each Level	0.0	0.0	0.0	99.9	

* Participants' Large Group Medians

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Participant Evaluations of the Workshop

North Carolina 2019 Standard Setting Pre-Session Survey for Mathematics

The purpose of this survey is (a) to document the experience and diversity of standard setting participants, and (b) to learn about factors affecting panelists in a standard setting. By completing this evaluation, you consent to having your responses aggregated with others and used in research. **Please do not put your name on this form.** While we need the information to describe the committee in the aggregate, your individual responses will be kept confidential. **When you have completed the survey, please hold on to it until collected by a facilitator. Thank you!**

Part 1: About Your Experience Before the Workshop

1. How were you initially contacted about participating in this standard setting? **Please select only one response.**

- ☐ Principal
- ☐ Other school administrator
- ☐ District personnel
- ☐ DRC (Data Recognition Corporation)
- ☐ Referral from a teaching staff member
- ☐ State department of education

2. Have you ever attended a standard setting meeting before?

- ☐ Yes – Please go to question 3
- ☐ No – Please go to question 5

IF YES →

3. How many years has it been since your most recent standard setting attendance?

- ☐ Less than 2 years
- ☐ 2 to 5 years
- ☐ Over 5 years

4. How many previous standard settings have you attended?

- ☐ 1
- ☐ 2
- ☐ 3 or more

5. Have you been in contact with people in these positions about the standard setting meeting prior to today?

	Yes	No
5a. Principal	☐	☐
5b. Other School administrator	☐	☐
5c. Other teachers in your school	☐	☐
5d. District personnel	☐	☐
5e. Other teachers outside of your school	☐	☐
5f. State department of education staff	☐	☐
5g. DRC meeting planning	☐	☐
5h. DRC facilitator	☐	☐

6. Do you feel in anyway pressured to make certain decisions at the standard setting by people in these positions?

	Yes	No
6a. Principal	☐	☐
6b. Other School administrator	☐	☐
6c. Other teachers in your school	☐	☐
6d. District personnel	☐	☐
6e. Other teachers outside of your school	☐	☐
6f. State department of education staff	☐	☐
6g. DRC meeting planning	☐	☐
6h. DRC facilitator	☐	☐

Part 1 (continued): About Your Experience Before the Workshop

7. When you arrived at the meeting today, did you feel that any of the following provided direction for your participation in the standard setting meeting? An agenda can be defined as a specific plan or motive to follow.

	Yes	No
7a. An agenda from your school community	☐	☐
7b. An agenda from your school administration	☐	☐
7c. An agenda from your other teachers	☐	☐
7d. An agenda from your district	☐	☐
7e. An agenda from the state department of education	☐	☐
7f. Pressure to set cut-scores high (stringent)	☐	☐
7g. Pressure to set cut-scores low	☐	☐

8. What is your level of confidence with these skills and characteristics?

	Not Confident	Somewhat Confident	Mostly Confident	Very Confident
8a. Learning what is needed to make cut-score decisions	☐	☐	☐	☐
8b. Learning the statistical processes needed to make these decisions	☐	☐	☐	☐
8c. Making cut-score decisions	☐	☐	☐	☐
8d. Making a cut score decision regardless of another panelist's opinion	☐	☐	☐	☐
8e. Tuning out all preconceived notions and focus on training	☐	☐	☐	☐
8f. Speaking up and asking questions when needed	☐	☐	☐	☐
8g. Setting aside any preconceptions	☐	☐	☐	☐
8h. Setting aside other agendas and focus on the current meeting	☐	☐	☐	☐

9. To what extent do you agree or disagree with the following statements about working in small groups?

	Disagree	Slightly Disagree	Slightly Agree	Agree
9a. I feel confident in sharing my thoughts and opinions	☐	☐	☐	☐
9b. I am usually the quiet one	☐	☐	☐	☐
9c. I let others talk	☐	☐	☐	☐
9d. I tend to lead	☐	☐	☐	☐
9e. I like to listen and not speak	☐	☐	☐	☐
9f. I am good at listening to people even if I disagree	☐	☐	☐	☐
9g. I keep an open mind and wait for all information to be presented before making my decisions	☐	☐	☐	☐

10. What other committees related to educational assessment have you been on?

	Yes	No
10a. Item writing	☐	☐
10b. Performance/achievement level descriptor writing	☐	☐
10c. Rangefinding	☐	☐
10d. Academic content standard development	☐	☐
10e. Development of Content Standards	☐	☐

11. Have you worked with the content standards before?

12. Have you worked with the achievement level descriptors before?

13. Do you believe that your input at this standard setting will have value?

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Part 2: About Your Pre-Workshop Knowledge of Standard Setting

14. How was standard setting described to you?

15. What do you envision your role being?

16. What is your definition of a *threshold student*?

17. How will your recommended cut scores be used after this meeting is over?

18. Do you have any questions at this time?

Part 3: About You and Your Experience

19. What is your current position? (Please choose one answer that best describes where a majority of your time is spent.)

- ☐ General education teacher
- ☐ Special education teacher
- ☐ ELL teacher
- ☐ Curriculum staff
- ☐ District assessment staff
- ☐ State department staff
- ☐ Higher education
- ☐ Teacher on special assignment
- ☐ Administrator

20. What is your educational setting? (Please choose one answer that best meets where a majority of your time is spent.)

- ☐ Elementary school
- ☐ Middle/junior high school
- ☐ High school
- ☐ Higher education
- ☐ K-8
- ☐ 6-12

21. How many years have you been in education?

- ☐ None
- ☐ Less than 1
- ☐ 1-5
- ☐ 6-10
- ☐ 11-15
- ☐ 16-20
- ☐ 21-25
- ☐ Over 25

22. Approximately what percent of your students qualify for free or reduced-price meals?

- ☐ 0-25%
- ☐ 26%-50%
- ☐ 51%-75%
- ☐ 76%-100%
- ☐ Unknown

23. What is your ethnicity?

- ☐ American Indian / Alaska Native
- ☐ Asian
- ☐ Hawaiian or Pacific Islander
- ☐ Black
- ☐ Hispanic
- ☐ Mixed (Two or more races)
- ☐ Caucasian

24. What is your gender?

- ☐ Female
- ☐ Male
- ☐ Other

25. In which community type is your district?

- ☐ Rural
- ☐ Urban
- ☐ Suburban

26. In which group will you participate in this standard setting?

- ☐ General Mathematics 3-5
- ☐ General Mathematics 6-8
- ☐ General NC Mathematics 1 / 3
- ☐ NCEXTEND1 Mathematics 3-5
- ☐ NCEXTEND1 Mathematics 6-8
- ☐ NCEXTEND1 NC Mathematics 1

27. What is the name of your school district?

28. Which of these groups do you have experience teaching?

- ☐ Special ed. (in a self-contained classroom)
- ☐ Special ed. (in a mainstream classroom)
- ☐ English language learners
- ☐ Gifted and talented education
- ☐ Vocational education
- ☐ Alternative education
- ☐ Adult education

29. In which grades and subjects (and for how many years) have you taught?

Example: Grade 8 math (5 years), grade 3 extended content standards (2yrs)

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

NC Pre-Session Survey General

1. How were you initially contacted about participating in this standard setting?

Response	Frequency	Percent	Mean: 2.65
Principal	11	18.33	
Other school administrator	4	6.67	
District personnel	17	28.33	
DRC Data Recognition Corporation	6	10.00	
Referral from a teaching staff member	7	11.67	
State department of education	15	25.00	

3. How many years has it been since your most recent standard setting attendance?

Response	Frequency	Percent	Mean: 2.33
Less than 2 years	1	1.67	
2 to 5 years	0	0.00	
Over 5 years	2	3.33	
No Response	57	95.00	

5a. Principal

Response	Frequency	Percent	Mean: 0.48
Yes	29	48.33	
No	31	51.67	

5c. Other teachers in your school

Response	Frequency	Percent	Mean: 0.37
Yes	21	35.00	
No	36	60.00	
No Response	3	5.00	

5e. Other teachers outside of your school

Response	Frequency	Percent	Mean: 0.27
Yes	15	25.00	
No	41	68.33	
No Response	4	6.67	

2. Have you ever attended a standard setting meeting before?

Response	Frequency	Percent	Mean: 1.95
Yes	3	5.00	
No	57	95.00	

4. How many previous standard settings have you attended?

Response	Frequency	Percent	Mean: 1.00
1	3	5.00	
2	0	0.00	
3 or more	0	0.00	
No Response	57	95.00	

5b. Other School administrator

Response	Frequency	Percent	Mean: 0.25
Yes	14	23.33	
No	43	71.67	
No Response	3	5.00	

5d. District personnel

Response	Frequency	Percent	Mean: 0.47
Yes	27	45.00	
No	30	50.00	
No Response	3	5.00	

5f. State department of education staff

Response	Frequency	Percent	Mean: 0.17
Yes	9	15.00	
No	43	71.67	
No Response	8	13.33	

5g. DRC meeting planning

Response	Frequency	Percent	Mean: 0.15
Yes	8	13.33	
No	44	73.33	
No Response	8	13.33	

6a. Principal

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	60	100.00	

6c. Other teachers in your school

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

6e. Other teachers outside of your school

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

6g. DRC meeting planning

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.67	
No	57	95.00	
No Response	2	3.33	

7a. An agenda from your school community

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

7c. An agenda from your other teachers

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

7e. An agenda from the state department of education

Response	Frequency	Percent	Mean: 0.10
Yes	6	10.00	
No	53	88.33	
No Response	1	1.67	

5h. DRC facilitator

Response	Frequency	Percent	Mean: 0.08
Yes	4	6.67	
No	49	81.67	
No Response	7	11.67	

6b. Other School administrator

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

6d. District personnel

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

6f. State department of education staff

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	58	96.67	
No Response	2	3.33	

6h. DRC facilitator

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.67	
No	57	95.00	
No Response	2	3.33	

7b. An agenda from your school administration

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	98.33	
No Response	1	1.67	

7d. An agenda from your district

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.67	
No	58	96.67	
No Response	1	1.67	

7f. Pressure to set cut-scores high (stringent)

Response	Frequency	Percent	Mean: 0.03
Yes	2	3.33	
No	57	95.00	
No Response	1	1.67	

7g. Pressure to set cut-scores low

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.67	
No	57	95.00	
No Response	2	3.33	

8b. Learning the statistical processes needed to make these decisions

Response	Frequency	Percent	Mean: 2.88
Not Confident	5	8.33	
Somewhat Confident	13	21.67	
Mostly Confident	26	43.33	
Very Confident	16	26.67	

8d. Making a cut score decision regardless of another panelist's opinion

Response	Frequency	Percent	Mean: 3.05
Not Confident	4	6.67	
Somewhat Confident	8	13.33	
Mostly Confident	29	48.33	
Very Confident	19	31.67	

8f. Speaking up and asking questions when needed

Response	Frequency	Percent	Mean: 3.45
Not Confident	1	1.67	
Somewhat Confident	2	3.33	
Mostly Confident	26	43.33	
Very Confident	31	51.67	

8h. Setting aside other agendas and focus on the current meeting

Response	Frequency	Percent	Mean: 3.68
Not Confident	1	1.67	
Somewhat Confident	2	3.33	
Mostly Confident	12	20.00	
Very Confident	45	75.00	

8a. Learning what is needed to make cut-score decisions

Response	Frequency	Percent	Mean: 3.00
Not Confident	5	8.33	
Somewhat Confident	10	16.67	
Mostly Confident	25	41.67	
Very Confident	20	33.33	

8c. Making cut-score decisions

Response	Frequency	Percent	Mean: 2.87
Not Confident	6	10.00	
Somewhat Confident	13	21.67	
Mostly Confident	24	40.00	
Very Confident	17	28.33	

8e. Tuning out all preconceived notions and focus on training

Response	Frequency	Percent	Mean: 3.48
Not Confident	1	1.67	
Somewhat Confident	2	3.33	
Mostly Confident	24	40.00	
Very Confident	33	55.00	

8g. Setting aside any preconceptions

Response	Frequency	Percent	Mean: 3.52
Not Confident	0	0.00	
Somewhat Confident	5	8.33	
Mostly Confident	19	31.67	
Very Confident	36	60.00	

9a. I feel confident in sharing my thoughts and opinions

Response	Frequency	Percent	Mean: 3.87
Disagree	0	0.00	
Slightly Disagree	1	1.67	
Slightly Agree	6	10.00	
Agree	53	88.33	

9b. I am usually the quiet one

Response	Frequency	Percent	Mean: 2.17
Disagree	16	26.67	
Slightly Disagree	22	36.67	
Slightly Agree	18	30.00	
Agree	4	6.67	

9d. I tend to lead

Response	Frequency	Percent	Mean: 2.85
Disagree	2	3.33	
Slightly Disagree	16	26.67	
Slightly Agree	30	50.00	
Agree	11	18.33	
No Response	1	1.67	

9f. I am good at listening to people even if I disagree

Response	Frequency	Percent	Mean: 3.65
Disagree	0	0.00	
Slightly Disagree	1	1.67	
Slightly Agree	19	31.67	
Agree	40	66.67	

10a. Item writing

Response	Frequency	Percent	Mean: 0.23
Yes	14	23.33	
No	46	76.67	

10c. Rangefinding

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.67	
No	59	98.33	

11. Have you worked with the content standards before?

Response	Frequency	Percent	Mean: 0.58
Yes	34	56.67	
No	25	41.67	
No Response	1	1.67	

13. Do you believe that your input at this standard setting will have value?

Response	Frequency	Percent	Mean: 0.90
Yes	54	90.00	
No	6	10.00	

9c. I let others talk

Response	Frequency	Percent	Mean: 3.62
Disagree	0	0.00	
Slightly Disagree	4	6.67	
Slightly Agree	15	25.00	
Agree	41	68.33	

9e. I like to listen and not speak

Response	Frequency	Percent	Mean: 2.40
Disagree	12	20.00	
Slightly Disagree	18	30.00	
Slightly Agree	24	40.00	
Agree	6	10.00	

9g. I keep an open mind and wait for all information to be presented before making my decisions

Response	Frequency	Percent	Mean: 3.55
Disagree	0	0.00	
Slightly Disagree	0	0.00	
Slightly Agree	27	45.00	
Agree	33	55.00	

10b. Performance/achievement level descriptor writing

Response	Frequency	Percent	Mean: 0.07
Yes	4	6.67	
No	56	93.33	

10d. Academic content standard development

Response	Frequency	Percent	Mean: 0.30
Yes	18	30.00	
No	42	70.00	

12. Have you worked with the achievement level descriptors before?

Response	Frequency	Percent	Mean: 0.13
Yes	8	13.33	
No	52	86.67	

10e. Development of Content Standards

Response	Frequency	Percent	Mean: 0.20
Yes	12	20.00	
No	48	80.00	

19. What is your current position? (Please choose one answer that best describes where a majority of your time is spent.)

Response	Frequency	Percent	Mean: 2.66
General education teacher	29	48.33	
Special education teacher	3	5.00	
ELL teacher	6	10.00	
Curriculum staff	16	26.67	
District assessment staff	0	0.00	
State department staff	0	0.00	
Higher education	2	3.33	
Teacher on special assignment	1	1.67	
Administrator	2	3.33	
No Response	1	1.67	

21. How many years have you been in education?

Response	Frequency	Percent	Mean: 5.66
None	0	0.00	
Less than 1	0	0.00	
1-5	4	6.67	
6-10	11	18.33	
11-15	14	23.33	
16-20	9	15.00	
21-25	14	23.33	
Over 25	7	11.67	
No Response	1	1.67	

23. What is your ethnicity?

Response	Frequency	Percent	Mean: 6.03
American Indian / Alaska Native	2	3.33	
Asian	0	0.00	
Hawaiian or Pacific Islander	0	0.00	
Black	13	21.67	
Hispanic	3	5.00	
Mixed	1	1.67	
Caucasian	41	68.33	

20. What is your educational setting? (Please choose one answer that best meets where a majority of your time is spent.)

Response	Frequency	Percent	Mean: 2.35
Elementary school	20	33.33	
Middle/junior high school	20	33.33	
High school	11	18.33	
Higher education	2	3.33	
K-8	2	3.33	
6-12	5	8.33	

22. Approximately what percent of your students qualify for free or reduced-price meals?

Response	Frequency	Percent	Mean: 3.19
0-25%	2	3.33	
26%-50%	16	26.67	
51%-75%	15	25.00	
76%-100%	21	35.00	
Unknown	5	8.33	
No Response	1	1.67	

24. What is your gender?

Response	Frequency	Percent	Mean: 1.15
Female	51	85.00	
Male	9	15.00	
Other	0	0.00	

25. In which community type is your district?

Response	Frequency	Percent	Mean: 1.62
Rural	38	63.33	
Urban	7	11.67	
Suburban	15	25.00	

26. In which group will you participate in this standard setting?

Response	Frequency	Percent	Mean: 1.95
General Mathematics 3-5	21	35.00	
General Mathematics 6-8	21	35.00	
General NC Mathematics 1 / 3	18	30.00	
NCEXTEND1 Mathematics 3-5	0	0.00	
NCEXTEND1 Mathematics 6-8	0	0.00	
NCEXTEND1 NC Mathematics 1	0	0.00	

28. Which of these groups do you have experience teaching?

Response	Frequency	Percent	Mean: -
Special ed. in a self-contained classroom	4	6.67	
Special ed. in a mainstream classroom	38	63.33	
English language learners	34	56.67	
Gifted and talented education	37	61.67	
Vocational education	2	3.33	
Alternative education	1	1.67	
Adult education	7	11.67	
No Response	8	13.33	

What influenced your bookmark placements for Round 1? <i>Please bubble one option per factor.</i>				
	Not Influential	Somewhat Influential	Influential	Very Influential
1. Opinion of fellow panelists	☐	☐	☐	☐
2. Personal experience working with students	☐	☐	☐	☐
3. Definition of threshold student	☐	☐	☐	☐
4. Percentage of students classified in each level for this grade, impact data	N/A	N/A	N/A	N/A
5. State content standards	☐	☐	☐	☐
6. Items in the ordered item booklet	☐	☐	☐	☐
7. Personal experience teaching the content at this grade level	☐	☐	☐	☐
8. Possibility of not meeting standards in my school/district	☐	☐	☐	☐
9. Table discussion	N/A	N/A	N/A	N/A
10. I felt strongly about my placements	☐	☐	☐	☐

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)									
	1	2	3	4	5	6	7	8	9	10
Most Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐
More Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐
Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐
Less Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐
Least Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐

Is there a factor that influenced you in this round that is not listed above? _____

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Grades 4, 7, & Math 1 Post Round 1 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 1.80
Not Influential	26	44.07	
Somewhat Influential	20	33.90	
Influential	12	20.34	
Very Influential	1	1.69	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.46
Not Influential	0	0.00	
Somewhat Influential	2	3.39	
Influential	28	47.46	
Very Influential	29	49.15	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.29
Not Influential	1	1.69	
Somewhat Influential	6	10.17	
Influential	27	45.76	
Very Influential	25	42.37	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.29
Not Influential	49	83.05	
Somewhat Influential	5	8.47	
Influential	3	5.08	
Very Influential	2	3.39	

Most Important

Response	Frequency	Percent	Mean: 3.60
1	1	1.69	
2	10	16.95	
3	13	22.03	
5	18	30.51	
6	5	8.47	
7	5	8.47	
8	0	0.00	
10	0	0.00	
Multiple	7	11.86	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 3.08
Not Influential	2	3.39	
Somewhat Influential	14	23.73	
Influential	20	33.90	
Very Influential	23	38.98	

5. State content standards

Response	Frequency	Percent	Mean: 3.42
Not Influential	1	1.69	
Somewhat Influential	6	10.17	
Influential	19	32.20	
Very Influential	33	55.93	

7. Personal experience teaching content at this grade level

Response	Frequency	Percent	Mean: 2.72
Not Influential	11	18.64	
Somewhat Influential	13	22.03	
Influential	15	25.42	
Very Influential	19	32.20	
No Response	1	1.69	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.59
Not Influential	4	6.78	
Somewhat Influential	23	38.98	
Influential	25	42.37	
Very Influential	7	11.86	

More Important

Response	Frequency	Percent	Mean: 3.96
1	3	5.08	
2	6	10.17	
3	14	23.73	
5	9	15.25	
6	11	18.64	
7	7	11.86	
8	0	0.00	
10	2	3.39	
No Response	3	5.08	
Multiple	4	6.78	

Important

Response	Frequency	Percent	Mean: 4.12
1	1	1.69	
2	6	10.17	
3	11	18.64	
5	13	22.03	
6	11	18.64	
7	7	11.86	
8	1	1.69	
10	1	1.69	
No Response	2	3.39	
Multiple	6	10.17	

Less Important

Response	Frequency	Percent	Mean: 3.52
1	10	16.95	
2	15	25.42	
3	3	5.08	
5	2	3.39	
6	10	16.95	
7	9	15.25	
8	2	3.39	
10	1	1.69	
No Response	6	10.17	
Multiple	1	1.69	

Least Important

Response	Frequency	Percent	Mean: 5.08
1	8	13.56	
2	3	5.08	
3	5	8.47	
5	3	5.08	
6	4	6.78	
7	3	5.08	
8	20	33.90	
10	5	8.47	
No Response	6	10.17	
Multiple	2	3.39	

What influenced your bookmark placements for Round 2? <i>Please bubble one option per factor.</i>				
	Not Influential	Somewhat Influential	Influential	Very Influential
1. Opinion of fellow panelists	☐	☐	☐	☐
2. Personal experience working with students	☐	☐	☐	☐
3. Definition of threshold student	☐	☐	☐	☐
4. Percentage of students classified in each level for this grade, impact data	☐	☐	☐	☐
5. State content standards	☐	☐	☐	☐
6. Items in the ordered item booklet	☐	☐	☐	☐
7. Personal experience teaching the content at this grade level	☐	☐	☐	☐
8. Possibility of not meeting standards in my school/district	☐	☐	☐	☐
9. Table discussion	☐	☐	☐	☐
10. I felt strongly about my placements	☐	☐	☐	☐

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)									
	1	2	3	4	5	6	7	8	9	10
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Grades 4, 7, & Math 1 Post Round 2 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.85
Not Influential	2	3.39	
Somewhat Influential	17	28.81	
Influential	28	47.46	
Very Influential	12	20.34	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.41
Not Influential	0	0.00	
Somewhat Influential	4	6.78	
Influential	27	45.76	
Very Influential	28	47.46	

5. State content standards

Response	Frequency	Percent	Mean: 3.36
Not Influential	1	1.69	
Somewhat Influential	7	11.86	
Influential	21	35.59	
Very Influential	30	50.85	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.60
Not Influential	6	10.17	
Somewhat Influential	21	35.59	
Influential	20	33.90	
Very Influential	10	16.95	
No Response	2	3.39	

9. Table discussion

Response	Frequency	Percent	Mean: 3.17
Not Influential	0	0.00	
Somewhat Influential	13	22.03	
Influential	23	38.98	
Very Influential	23	38.98	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 3.10
Not Influential	3	5.08	
Somewhat Influential	11	18.64	
Influential	22	37.29	
Very Influential	23	38.98	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 2.09
Not Influential	18	30.51	
Somewhat Influential	21	35.59	
Influential	13	22.03	
Very Influential	5	8.47	
No Response	2	3.39	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.24
Not Influential	1	1.69	
Somewhat Influential	9	15.25	
Influential	24	40.68	
Very Influential	25	42.37	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.37
Not Influential	45	76.27	
Somewhat Influential	9	15.25	
Influential	2	3.39	
Very Influential	3	5.08	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.83
Not Influential	6	10.17	
Somewhat Influential	10	16.95	
Influential	31	52.54	
Very Influential	12	20.34	

Most Important

Response	Frequency	Percent	Mean: 4.34
1	3	5.08	
2	8	13.56	
3	15	25.42	
4	1	1.69	
5	12	20.34	
6	2	3.39	
7	2	3.39	
8	0	0.00	
9	7	11.86	
10	0	0.00	
No Response	1	1.69	
Multiple	8	13.56	

More Important

Response	Frequency	Percent	Mean: 4.06
1	8	13.56	
2	6	10.17	
3	11	18.64	
4	1	1.69	
5	12	20.34	
6	8	13.56	
7	2	3.39	
8	0	0.00	
9	2	3.39	
10	1	1.69	
No Response	3	5.08	
Multiple	5	8.47	

Important

Response	Frequency	Percent	Mean: 4.84
1	3	5.08	
2	6	10.17	
3	10	16.95	
4	2	3.39	
5	10	16.95	
6	8	13.56	
7	6	10.17	
8	0	0.00	
9	6	10.17	
10	0	0.00	
No Response	1	1.69	
Multiple	7	11.86	

Less Important

Response	Frequency	Percent	Mean: 5.64
1	0	0.00	
2	8	13.56	
3	5	8.47	
4	8	13.56	
5	3	5.08	
6	7	11.86	
7	4	6.78	
8	3	5.08	
9	10	16.95	
10	2	3.39	
No Response	8	13.56	
Multiple	1	1.69	

Least Important

Response	Frequency	Percent	Mean: 6.42
1	5	8.47	
2	4	6.78	
3	2	3.39	
4	4	6.78	
5	1	1.69	
6	5	8.47	
7	4	6.78	
8	15	25.42	
9	4	6.78	
10	8	13.56	
No Response	5	8.47	
Multiple	2	3.39	

What influenced your bookmark placements for Round 3? <i>Please bubble one option per factor.</i>				
	Not Influential	Somewhat Influential	Influential	Very Influential
1. Opinion of fellow panelists	☐	☐	☐	☐
2. Personal experience working with students	☐	☐	☐	☐
3. Definition of threshold student	☐	☐	☐	☐
4. Percentage of students classified in each level for this grade, impact data	☐	☐	☐	☐
5. State content standards	☐	☐	☐	☐
6. Items in the ordered item booklet	☐	☐	☐	☐
7. Personal experience teaching the content at this grade level	☐	☐	☐	☐
8. Possibility of not meeting standards in my school/district	☐	☐	☐	☐
9. Large group discussion	☐	☐	☐	☐
10. I felt strongly about my placements	☐	☐	☐	☐

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)									
	1	2	3	4	5	6	7	8	9	10
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY									
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Grades 4, 7, & Math 1 Post Round 3 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.93
Not Influential	2	3.39	
Somewhat Influential	17	28.81	
Influential	23	38.98	
Very Influential	17	28.81	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.47
Not Influential	0	0.00	
Somewhat Influential	7	11.86	
Influential	17	28.81	
Very Influential	35	59.32	

5. State content standards

Response	Frequency	Percent	Mean: 3.24
Not Influential	3	5.08	
Somewhat Influential	6	10.17	
Influential	23	38.98	
Very Influential	26	44.07	
No Response	1	1.69	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.38
Not Influential	12	20.34	
Somewhat Influential	18	30.51	
Influential	22	37.29	
Very Influential	6	10.17	
No Response	1	1.69	

9. Large group discussion

Response	Frequency	Percent	Mean: 3.00
Not Influential	1	1.69	
Somewhat Influential	19	32.20	
Influential	18	30.51	
Very Influential	21	35.59	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.84
Not Influential	4	6.78	
Somewhat Influential	16	27.12	
Influential	23	38.98	
Very Influential	15	25.42	
No Response	1	1.69	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 2.75
Not Influential	5	8.47	
Somewhat Influential	17	28.81	
Influential	25	42.37	
Very Influential	12	20.34	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 2.98
Not Influential	1	1.69	
Somewhat Influential	14	23.73	
Influential	29	49.15	
Very Influential	15	25.42	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.49
Not Influential	39	66.10	
Somewhat Influential	11	18.64	
Influential	9	15.25	
Very Influential	0	0.00	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.83
Not Influential	3	5.08	
Somewhat Influential	14	23.73	
Influential	31	52.54	
Very Influential	10	16.95	
No Response	1	1.69	

Most Important

Response	Frequency	Percent	Mean: 4.44
1	3	5.08	
2	4	6.78	
3	20	33.90	
4	2	3.39	
5	13	22.03	
6	1	1.69	
7	1	1.69	
8	0	0.00	
9	6	10.17	
10	2	3.39	
No Response	2	3.39	
Multiple	4	6.78	
Invalid	1	1.69	

More Important

Response	Frequency	Percent	Mean: 4.90
1	6	10.17	
2	3	5.08	
3	8	13.56	
4	5	8.47	
5	11	18.64	
6	4	6.78	
7	4	6.78	
8	0	0.00	
9	8	13.56	
10	1	1.69	
No Response	1	1.69	
Multiple	7	11.86	
Invalid	1	1.69	

Important

Response	Frequency	Percent	Mean: 4.60
1	6	10.17	
2	8	13.56	
3	4	6.78	
4	4	6.78	
5	9	15.25	
6	10	16.95	
7	3	5.08	
8	0	0.00	
9	6	10.17	
10	0	0.00	
No Response	1	1.69	
Multiple	6	10.17	
Invalid	2	3.39	

Less Important

Response	Frequency	Percent	Mean: 5.33
1	5	8.47	
2	4	6.78	
3	6	10.17	
4	9	15.25	
5	3	5.08	
6	6	10.17	
7	9	15.25	
8	5	8.47	
9	3	5.08	
10	4	6.78	
No Response	3	5.08	
Multiple	2	3.39	

Least Important

Response	Frequency	Percent	Mean: 6.16
1	3	5.08	
2	8	13.56	
3	1	1.69	
4	5	8.47	
5	0	0.00	
6	5	8.47	
7	4	6.78	
8	12	20.34	
9	4	6.78	
10	7	11.86	
No Response	6	10.17	
Multiple	2	3.39	
Invalid	2	3.39	

What influenced your bookmark placements for Round 1? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Table discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
More Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Less Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Least Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	

Grades 3, 6, & Math 3 Post Round 1 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 1.81
Not Influential	26	44.07	
Somewhat Influential	19	32.20	
Influential	13	22.03	
Very Influential	1	1.69	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.64
Not Influential	11	18.64	
Somewhat Influential	16	27.12	
Influential	15	25.42	
Very Influential	17	28.81	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.32
Not Influential	0	0.00	
Somewhat Influential	8	13.56	
Influential	24	40.68	
Very Influential	27	45.76	

5. State content standards

Response	Frequency	Percent	Mean: 3.32
Not Influential	2	3.39	
Somewhat Influential	7	11.86	
Influential	20	33.90	
Very Influential	30	50.85	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.12
Not Influential	0	0.00	
Somewhat Influential	11	18.64	
Influential	29	49.15	
Very Influential	18	30.51	
No Response	1	1.69	

7. Personal experience teaching content at this grade level

Response	Frequency	Percent	Mean: 2.55
Not Influential	17	28.81	
Somewhat Influential	11	18.64	
Influential	11	18.64	
Very Influential	19	32.20	
No Response	1	1.69	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.22
Not Influential	49	83.05	
Somewhat Influential	7	11.86	
Influential	3	5.08	
Very Influential	0	0.00	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.27
Not Influential	7	11.86	
Somewhat Influential	32	54.24	
Influential	17	28.81	
Very Influential	3	5.08	

11. Percentage of students classified in each level (impact data) for other previous grade(s)

Response	Frequency	Percent	Mean: 1.46
Not Influential	37	62.71	
Somewhat Influential	13	22.03	
Influential	5	8.47	
Very Influential	1	1.69	
No Response	3	5.08	

Most Important

Response	Frequency	Percent	Mean: 3.45
1	2	3.39	
2	7	11.86	
3	20	33.90	
5	11	18.64	
6	5	8.47	
7	4	6.78	
8	0	0.00	
10	0	0.00	
11	0	0.00	
No Response	4	6.78	
Multiple	6	10.17	

More Important

Response	Frequency	Percent	Mean: 3.94
1	1	1.69	
2	10	16.95	
3	6	10.17	
5	19	32.20	
6	11	18.64	
7	5	8.47	
8	0	0.00	
10	0	0.00	
11	1	1.69	
No Response	3	5.08	
Multiple	3	5.08	

Important

Response	Frequency	Percent	Mean: 4.50
1	3	5.08	
2	5	8.47	
3	9	15.25	
5	7	11.86	
6	11	18.64	
7	9	15.25	
8	1	1.69	
10	4	6.78	
11	1	1.69	
No Response	2	3.39	
Multiple	7	11.86	

Less Important

Response	Frequency	Percent	Mean: 4.69
1	7	11.86	
2	10	16.95	
3	4	6.78	
5	2	3.39	
6	6	10.17	
7	6	10.17	
8	6	10.17	
10	6	10.17	
11	4	6.78	
No Response	6	10.17	
Multiple	2	3.39	

Least Important

Response	Frequency	Percent	Mean: 5.19
1	9	15.25	
2	5	8.47	
3	2	3.39	
5	2	3.39	
6	7	11.86	
7	6	10.17	
8	9	15.25	
10	5	8.47	
11	7	11.86	
No Response	2	3.39	
Multiple	5	8.47	

What influenced your bookmark placements for Round 2? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Table discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	

Grades 3, 6, & Math 3 Post Round 2 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.78
Not Influential	3	5.08	
Somewhat Influential	16	27.12	
Influential	31	52.54	
Very Influential	9	15.25	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.29
Not Influential	1	1.69	
Somewhat Influential	6	10.17	
Influential	27	45.76	
Very Influential	25	42.37	

5. State content standards

Response	Frequency	Percent	Mean: 3.24
Not Influential	2	3.39	
Somewhat Influential	9	15.25	
Influential	21	35.59	
Very Influential	27	45.76	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.31
Not Influential	20	33.90	
Somewhat Influential	14	23.73	
Influential	12	20.34	
Very Influential	13	22.03	

9. Table discussion

Response	Frequency	Percent	Mean: 3.02
Not Influential	0	0.00	
Somewhat Influential	16	27.12	
Influential	25	42.37	
Very Influential	17	28.81	
No Response	1	1.69	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.59
Not Influential	12	20.34	
Somewhat Influential	15	25.42	
Influential	17	28.81	
Very Influential	15	25.42	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 2.14
Not Influential	18	30.51	
Somewhat Influential	17	28.81	
Influential	16	27.12	
Very Influential	5	8.47	
No Response	2	3.39	
Multiple	1	1.69	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.14
Not Influential	1	1.69	
Somewhat Influential	9	15.25	
Influential	29	49.15	
Very Influential	19	32.20	
No Response	1	1.69	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.39
Not Influential	42	71.19	
Somewhat Influential	11	18.64	
Influential	6	10.17	
Very Influential	0	0.00	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.69
Not Influential	5	8.47	
Somewhat Influential	14	23.73	
Influential	33	55.93	
Very Influential	6	10.17	
No Response	1	1.69	

11. Percentage of students classified in each level (impact data) for other previous grade(s)

Response	Frequency	Percent	Mean: 1.75
Not Influential	26	44.07	
Somewhat Influential	20	33.90	
Influential	10	16.95	
Very Influential	1	1.69	
No Response	2	3.39	

Most Important

Response	Frequency	Percent	Mean: 4.04
1	5	8.47	
2	7	11.86	
3	18	30.51	
4	2	3.39	
5	11	18.64	
6	3	5.08	
7	2	3.39	
8	0	0.00	
9	4	6.78	
10	1	1.69	
11	0	0.00	
No Response	1	1.69	
Multiple	5	8.47	

More Important

Response	Frequency	Percent	Mean: 4.69
1	5	8.47	
2	6	10.17	
3	9	15.25	
4	2	3.39	
5	11	18.64	
6	7	11.86	
7	5	8.47	
8	0	0.00	
9	5	8.47	
10	1	1.69	
11	0	0.00	
No Response	2	3.39	
Multiple	6	10.17	

Important

Response	Frequency	Percent	Mean: 5.55
1	3	5.08	
2	4	6.78	
3	4	6.78	
4	5	8.47	
5	11	18.64	
6	8	13.56	
7	4	6.78	
8	0	0.00	
9	11	18.64	
10	1	1.69	
11	0	0.00	
No Response	1	1.69	
Multiple	7	11.86	

Less Important

Response	Frequency	Percent	Mean: 6.08
1	5	8.47	
2	3	5.08	
3	5	8.47	
4	3	5.08	
5	2	3.39	
6	10	16.95	
7	5	8.47	
8	2	3.39	
9	10	16.95	
10	5	8.47	
11	1	1.69	
No Response	6	10.17	
Multiple	2	3.39	

Least Important

Response	Frequency	Percent	Mean: 6.21
1	3	5.08	
2	8	13.56	
3	2	3.39	
4	2	3.39	
5	3	5.08	
6	5	8.47	
7	8	13.56	
8	10	16.95	
9	3	5.08	
10	6	10.17	
11	2	3.39	
No Response	2	3.39	
Multiple	5	8.47	

What influenced your bookmark placements for Round 3? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Large group discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	

Grades 3, 6, & Math 3 Post Round 3 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 3.00
Not Influential	4	6.78	
Somewhat Influential	10	16.95	
Influential	26	44.07	
Very Influential	18	30.51	
Multiple	1	1.69	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.58
Not Influential	14	23.73	
Somewhat Influential	11	18.64	
Influential	20	33.90	
Very Influential	14	23.73	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.05
Not Influential	0	0.00	
Somewhat Influential	16	27.12	
Influential	24	40.68	
Very Influential	19	32.20	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 2.92
Not Influential	5	8.47	
Somewhat Influential	13	22.03	
Influential	23	38.98	
Very Influential	18	30.51	

5. State content standards

Response	Frequency	Percent	Mean: 3.24
Not Influential	3	5.08	
Somewhat Influential	6	10.17	
Influential	24	40.68	
Very Influential	26	44.07	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 2.92
Not Influential	3	5.08	
Somewhat Influential	14	23.73	
Influential	27	45.76	
Very Influential	15	25.42	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.39
Not Influential	21	35.59	
Somewhat Influential	10	16.95	
Influential	12	20.34	
Very Influential	16	27.12	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.36
Not Influential	44	74.58	
Somewhat Influential	9	15.25	
Influential	6	10.17	
Very Influential	0	0.00	

9. Large group discussion

Response	Frequency	Percent	Mean: 3.03
Not Influential	1	1.69	
Somewhat Influential	16	27.12	
Influential	22	37.29	
Very Influential	20	33.90	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.76
Not Influential	7	11.86	
Somewhat Influential	12	20.34	
Influential	28	47.46	
Very Influential	12	20.34	

Most Important

Response	Frequency	Percent	Mean: 4.61
1	4	6.78	
2	9	15.25	
3	8	13.56	
4	7	11.86	
5	11	18.64	
6	0	0.00	
7	2	3.39	
8	0	0.00	
9	8	13.56	
10	2	3.39	
No Response	3	5.08	
Multiple	5	8.47	

More Important

Response	Frequency	Percent	Mean: 4.47
1	5	8.47	
2	3	5.08	
3	10	16.95	
4	7	11.86	
5	12	20.34	
6	7	11.86	
7	3	5.08	
8	0	0.00	
9	4	6.78	
10	0	0.00	
No Response	4	6.78	
Multiple	3	5.08	
Invalid	1	1.69	

Important

Response	Frequency	Percent	Mean: 5.06
1	7	11.86	
2	1	1.69	
3	8	13.56	
4	7	11.86	
5	6	10.17	
6	5	8.47	
7	6	10.17	
8	0	0.00	
9	5	8.47	
10	4	6.78	
No Response	1	1.69	
Multiple	7	11.86	
Invalid	2	3.39	

Less Important

Response	Frequency	Percent	Mean: 5.14
1	3	5.08	
2	8	13.56	
3	5	8.47	
4	6	10.17	
5	3	5.08	
6	10	16.95	
7	5	8.47	
8	0	0.00	
9	6	10.17	
10	3	5.08	
No Response	5	8.47	
Multiple	3	5.08	
Invalid	2	3.39	

Least Important

Response	Frequency	Percent	Mean: 6.41
1	4	6.78	
2	4	6.78	
3	2	3.39	
4	3	5.08	
5	5	8.47	
6	2	3.39	
7	5	8.47	
8	11	18.64	
9	6	10.17	
10	7	11.86	
No Response	4	6.78	
Multiple	5	8.47	
Invalid	1	1.69	

What influenced your bookmark placements for Round 1? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Table discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
More Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Less Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐
Least Important	☐	☐	☐	N/A	☐	☐	☐	☐	N/A	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	

Grades 5 & 8 Post Round 1 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.27
Not Influential	9	21.43	
Somewhat Influential	16	38.10	
Influential	12	28.57	
Very Influential	4	9.52	
No Response	1	2.38	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.36
Not Influential	0	0.00	
Somewhat Influential	4	9.52	
Influential	19	45.24	
Very Influential	19	45.24	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.21
Not Influential	1	2.38	
Somewhat Influential	7	16.67	
Influential	16	38.10	
Very Influential	18	42.86	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.29
Not Influential	33	78.57	
Somewhat Influential	7	16.67	
Influential	1	2.38	
Very Influential	1	2.38	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.76
Not Influential	8	19.05	
Somewhat Influential	7	16.67	
Influential	14	33.33	
Very Influential	13	30.95	

5. State content standards

Response	Frequency	Percent	Mean: 3.48
Not Influential	1	2.38	
Somewhat Influential	1	2.38	
Influential	17	40.48	
Very Influential	23	54.76	

7. Personal experience teaching content at this grade level

Response	Frequency	Percent	Mean: 2.63
Not Influential	10	23.81	
Somewhat Influential	8	19.05	
Influential	10	23.81	
Very Influential	13	30.95	
No Response	1	2.38	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.52
Not Influential	1	2.38	
Somewhat Influential	21	50.00	
Influential	17	40.48	
Very Influential	3	7.14	

11. Percentage of students classified in each level (impact data) for other previous grade(s)

Response	Frequency	Percent	Mean: 1.55
Not Influential	26	61.90	
Somewhat Influential	7	16.67	
Influential	6	14.29	
Very Influential	1	2.38	
No Response	2	4.76	

Most Important

Response	Frequency	Percent	Mean: 3.39
1	3	7.14	
2	5	11.90	
3	12	28.57	
5	9	21.43	
6	5	11.90	
7	2	4.76	
8	0	0.00	
10	0	0.00	
11	0	0.00	
No Response	1	2.38	
Multiple	5	11.90	

More Important

Response	Frequency	Percent	Mean: 3.86
1	1	2.38	
2	3	7.14	
3	13	30.95	
5	12	28.57	
6	2	4.76	
7	3	7.14	
8	0	0.00	
10	1	2.38	
11	1	2.38	
No Response	2	4.76	
Multiple	4	9.52	

Important

Response	Frequency	Percent	Mean: 4.56
1	4	9.52	
2	2	4.76	
3	3	7.14	
5	7	16.67	
6	12	28.57	
7	3	7.14	
8	0	0.00	
10	4	9.52	
11	1	2.38	
No Response	1	2.38	
Multiple	5	11.90	

Less Important

Response	Frequency	Percent	Mean: 5.28
1	4	9.52	
2	6	14.29	
3	0	0.00	
5	3	7.14	
6	5	11.90	
7	5	11.90	
8	3	7.14	
10	4	9.52	
11	6	14.29	
No Response	4	9.52	
Multiple	2	4.76	

Least Important

Response	Frequency	Percent	Mean: 5.46
1	5	11.90	
2	3	7.14	
3	2	4.76	
5	0	0.00	
6	3	7.14	
7	6	14.29	
8	9	21.43	
10	3	7.14	
11	4	9.52	
No Response	3	7.14	
Multiple	4	9.52	

What influenced your bookmark placements for Round 2? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Table discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	

Grades 5 & 8 Post Round 2 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.64
Not Influential	3	7.14	
Somewhat Influential	12	28.57	
Influential	24	57.14	
Very Influential	3	7.14	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.57
Not Influential	7	16.67	
Somewhat Influential	14	33.33	
Influential	11	26.19	
Very Influential	10	23.81	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.27
Not Influential	1	2.38	
Somewhat Influential	5	11.90	
Influential	17	40.48	
Very Influential	18	42.86	
No Response	1	2.38	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 2.24
Not Influential	11	26.19	
Somewhat Influential	14	33.33	
Influential	6	14.29	
Very Influential	7	16.67	
No Response	4	9.52	

5. State content standards

Response	Frequency	Percent	Mean: 3.40
Not Influential	2	4.76	
Somewhat Influential	2	4.76	
Influential	15	35.71	
Very Influential	23	54.76	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.17
Not Influential	0	0.00	
Somewhat Influential	7	16.67	
Influential	21	50.00	
Very Influential	14	33.33	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.50
Not Influential	11	26.19	
Somewhat Influential	10	23.81	
Influential	10	23.81	
Very Influential	11	26.19	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.29
Not Influential	33	78.57	
Somewhat Influential	6	14.29	
Influential	3	7.14	
Very Influential	0	0.00	

9. Table discussion

Response	Frequency	Percent	Mean: 3.10
Not Influential	0	0.00	
Somewhat Influential	9	21.43	
Influential	20	47.62	
Very Influential	13	30.95	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.79
Not Influential	2	4.76	
Somewhat Influential	13	30.95	
Influential	19	45.24	
Very Influential	8	19.05	

11. Percentage of students classified in each level (impact data) for other previous grade(s)

Response	Frequency	Percent	Mean: 1.84
Not Influential	14	33.33	
Somewhat Influential	10	23.81	
Influential	7	16.67	
Very Influential	1	2.38	
No Response	10	23.81	

Most Important

Response	Frequency	Percent	Mean: 4.89
1	1	2.38	
2	2	4.76	
3	12	28.57	
4	2	4.76	
5	9	21.43	
6	1	2.38	
7	1	2.38	
8	1	2.38	
9	4	9.52	
10	2	4.76	
11	0	0.00	
No Response	2	4.76	
Multiple	3	7.14	
Invalid	2	4.76	

More Important

Response	Frequency	Percent	Mean: 5.00
1	1	2.38	
2	4	9.52	
3	6	14.29	
4	4	9.52	
5	11	26.19	
6	3	7.14	
7	1	2.38	
8	0	0.00	
9	3	7.14	
10	3	7.14	
11	0	0.00	
No Response	1	2.38	
Multiple	3	7.14	
Invalid	2	4.76	

Important

Response	Frequency	Percent	Mean: 5.89
1	3	7.14	
2	1	2.38	
3	1	2.38	
4	2	4.76	
5	6	14.29	
6	11	26.19	
7	4	9.52	
8	1	2.38	
9	3	7.14	
10	2	4.76	
11	1	2.38	
No Response	1	2.38	
Multiple	5	11.90	
Invalid	1	2.38	

Less Important

Response	Frequency	Percent	Mean: 6.92
1	3	7.14	
2	0	0.00	
3	4	9.52	
4	0	0.00	
5	2	4.76	
6	6	14.29	
7	5	11.90	
8	1	2.38	
9	8	19.05	
10	4	9.52	
11	3	7.14	
No Response	3	7.14	
Multiple	3	7.14	

Least Important

Response	Frequency	Percent	Mean: 6.72
1	2	4.76	
2	3	7.14	
3	0	0.00	
4	3	7.14	
5	2	4.76	
6	2	4.76	
7	7	16.67	
8	9	21.43	
9	3	7.14	
10	3	7.14	
11	2	4.76	
No Response	2	4.76	
Multiple	2	4.76	
Invalid	2	4.76	

What influenced your bookmark placements for Round 3? <i>Please bubble one option per factor.</i>					Not Influential	Somewhat Influential	Influential	Very Influential
Factors	1. Opinion of fellow panelists							
	2. Personal experience working with students							
	3. Definition of threshold student							
	4. Percentage of students classified in each level for this grade, impact data							
	5. State content standards							
	6. Items in the ordered item booklet							
	7. Personal experience teaching the content at this grade level							
	8. Possibility of not meeting standards in my school/district							
	9. Large group discussion							
	10. I felt strongly about my placements							
	11. Percentage of students classified in each level (impact data) for other previous grade(s)							

Which five Factors influenced you the most, ranking in order of importance. <i>Please bubble only one factor per row.</i>	Factors (Numbers from Table Above, ONE ANSWER PER ROW)										
	1	2	3	4	5	6	7	8	9	10	11
Most Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Least Important	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Is there a factor that influenced you in this round that is not listed above? _____

FOR OFFICE USE ONLY									
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Grades 5 & 8 Post Round 3 Survey

1. Opinion of fellow panelists

Response	Frequency	Percent	Mean: 2.83
Not Influential	2	4.76	
Somewhat Influential	13	30.95	
Influential	17	40.48	
Very Influential	10	23.81	

2. Personal experience working with students

Response	Frequency	Percent	Mean: 2.62
Not Influential	7	16.67	
Somewhat Influential	10	23.81	
Influential	17	40.48	
Very Influential	8	19.05	

3. Definition of threshold student

Response	Frequency	Percent	Mean: 3.31
Not Influential	0	0.00	
Somewhat Influential	6	14.29	
Influential	17	40.48	
Very Influential	19	45.24	

4. Percentage of students classified in each level for this grade, impact data

Response	Frequency	Percent	Mean: 3.26
Not Influential	1	2.38	
Somewhat Influential	6	14.29	
Influential	16	38.10	
Very Influential	19	45.24	

5. State content standards

Response	Frequency	Percent	Mean: 3.40
Not Influential	1	2.38	
Somewhat Influential	3	7.14	
Influential	16	38.10	
Very Influential	22	52.38	

6. Items in the ordered item booklet

Response	Frequency	Percent	Mean: 3.02
Not Influential	1	2.38	
Somewhat Influential	13	30.95	
Influential	12	28.57	
Very Influential	16	38.10	

7. Personal experience teaching the content at this grade level

Response	Frequency	Percent	Mean: 2.50
Not Influential	11	26.19	
Somewhat Influential	8	19.05	
Influential	14	33.33	
Very Influential	9	21.43	

8. Possibility of not meeting standards in my school/district

Response	Frequency	Percent	Mean: 1.54
Not Influential	28	66.67	
Somewhat Influential	7	16.67	
Influential	3	7.14	
Very Influential	3	7.14	
No Response	1	2.38	

9. Large group discussion

Response	Frequency	Percent	Mean: 3.12
Not Influential	0	0.00	
Somewhat Influential	10	23.81	
Influential	16	38.10	
Very Influential	15	35.71	
No Response	1	2.38	

10. I felt strongly about my placements

Response	Frequency	Percent	Mean: 2.78
Not Influential	2	4.76	
Somewhat Influential	12	28.57	
Influential	19	45.24	
Very Influential	7	16.67	
No Response	2	4.76	

11. Percentage of students classified in each level (impact data) for other previous grade(s)

Response	Frequency	Percent	Mean: 2.49
Not Influential	9	21.43	
Somewhat Influential	10	23.81	
Influential	15	35.71	
Very Influential	7	16.67	
No Response	1	2.38	
Multiple			

Most Important

Response	Frequency	Percent	Mean: 3.89
1	5	11.90	
2	2	4.76	
3	8	19.05	
4	9	21.43	
5	8	19.05	
6	0	0.00	
7	0	0.00	
8	0	0.00	
9	3	7.14	
10	0	0.00	
11	0	0.00	
No Response	1	2.38	
Multiple	6	14.29	

More Important

Response	Frequency	Percent	Mean: 5.17
1	3	7.14	
2	1	2.38	
3	9	21.43	
4	5	11.90	
5	4	9.52	
6	5	11.90	
7	0	0.00	
8	1	2.38	
9	6	14.29	
10	0	0.00	
11	2	4.76	
No Response	1	2.38	
Multiple	5	11.90	

Important

Response	Frequency	Percent	Mean: 5.80
1	3	7.14	
2	2	4.76	
3	4	9.52	
4	3	7.14	
5	5	11.90	
6	6	14.29	
7	2	4.76	
8	0	0.00	
9	4	9.52	
10	5	11.90	
11	1	2.38	
No Response	1	2.38	
Multiple	6	14.29	

Less Important

Response	Frequency	Percent	Mean: 6.65
1	1	2.38	
2	5	11.90	
3	1	2.38	
4	3	7.14	
5	2	4.76	
6	6	14.29	
7	2	4.76	
8	3	7.14	
9	5	11.90	
10	8	19.05	
11	1	2.38	
No Response	3	7.14	
Multiple	2	4.76	

Least Important

Response	Frequency	Percent	Mean: 6.77
1	4	9.52	
2	1	2.38	
3	3	7.14	
4	1	2.38	
5	0	0.00	
6	3	7.14	
7	6	14.29	
8	7	16.67	
9	3	7.14	
10	2	4.76	
11	5	11.90	
No Response	5	11.90	
Multiple	2	4.76	

North Carolina 2019 Standard Setting Evaluation for Mathematics

The purpose of this survey is (a) to document the experience and diversity of standard setting participants, and (b) to learn about factors affecting panelists in a standard setting. Your opinions and comments are important, as they will provide a basis for judging the quality of this process. By completing this evaluation, you consent to your responses being aggregated with others and used in research. **Your name will not be associated with your responses.**

Please do not put your name on this form. While we need the information to examine various steps in the process, we want your comments to remain anonymous. At the end of the evaluation, there is an opportunity for you to ask questions should you have any. **When you have completed the evaluation, please give it to a facilitator. Thank you!**

Part 1: About the Standard Setting

Please consider the statements below and mark the level of agreement or disagreement you have with each. Please bubble only one of the four options for each statement.		Strongly Disagree	Disagree	Agree	Strongly Agree
Training & ALDs	1. The training provided a clear description of the workshop goals.	☐	☐	☐	☐
	2. The training session leader clearly explained the Bookmark Procedure.	☐	☐	☐	☐
	3. The training session leader clearly explained the materials used in the bookmark process.	☐	☐	☐	☐
	4. The training addressed many of my questions and concerns.	☐	☐	☐	☐
	5. The practice exercises were useful.	☐	☐	☐	☐
	6. The opening session provided a clear overview of the standard setting process.	☐	☐	☐	☐
	7. My role in the standard setting was well described.	☐	☐	☐	☐
	8. After the training, I felt confident I was prepared to complete the standard setting task.	☐	☐	☐	☐
	9. The achievement level descriptors (ALDs) were clear.	☐	☐	☐	☐
	10. Adequate information was provided regarding the ALDs.	☐	☐	☐	☐
	11. Enough time was provided to read and understand the ALDs.	☐	☐	☐	☐
	12. The ALDs communicate a reasonable profile of students' performance at each level.	☐	☐	☐	☐
Bookmarks	13. I understood how to make my bookmarks.	☐	☐	☐	☐
	14. I had adequate time to make my bookmarks.	☐	☐	☐	☐
	15. I considered the threshold students when making my bookmarks.	☐	☐	☐	☐
	16. There was adequate time provided for discussion.	☐	☐	☐	☐
	17. Discussing the threshold students helped me make my bookmarks.	☐	☐	☐	☐
	18. I considered the content standards when I placed my bookmarks.	☐	☐	☐	☐
Overall	19. My opinions were considered.	☐	☐	☐	☐
	20. My opinions were valued by my group.	☐	☐	☐	☐
	21. My group's work was reflected in the presentation of recommendations across grades.	☐	☐	☐	☐
	22. The facilitator in my breakout room provided clear instructions.	☐	☐	☐	☐
	23. Overall, I valued the workshop as a professional development experience.	☐	☐	☐	☐
	24. The food and service at the facility met my expectations.	☐	☐	☐	☐
	25. The breakout rooms had appropriate accommodations to facilitate our work.	☐	☐	☐	☐

Please indicate your opinion regarding the usefulness of the following materials used. Please bubble only one of the four options for each material.		Not Useful	Somewhat Useful	Useful	Very Useful
Materials	26. Achievement level descriptors (ALDs)	☐	☐	☐	☐
	27. Descriptions of threshold students	☐	☐	☐	☐
	28. Ordered item booklets (OIBs)	☐	☐	☐	☐
	29. Item maps	☐	☐	☐	☐
	30. Impact data	☐	☐	☐	☐

Please indicate the extent of your satisfaction with staff members in the following roles . Please bubble only one of the four options for each role.		Not Satisfied	Partially Satisfied	Satisfied	Very Satisfied
Roles	31. DRC content specialist (who led the ALD session on Monday)	☐	☐	☐	☐
	32. DRC general facilitator (who led the Bookmark training on Tuesday)	☐	☐	☐	☐
	33. DRC in-room facilitator (who worked with my room each day)	☐	☐	☐	☐
	34. DRC staff members in other roles	☐	☐	☐	☐

Participant Number: _____

Please indicate your opinion regarding the amount of **time allotted** for each activity.
Please bubble **only one** of the three options for each activity.

Time Allotted	Please indicate your opinion regarding the amount of time allotted for each activity. Please bubble only one of the three options for each activity.		
	Too Little Time	About Right	Too Much Time
35. Training	☐	☐	☐
36. ALD development	☐	☐	☐
37. Round 1 bookmarks	☐	☐	☐
38. Discussion after Round 1	☐	☐	☐
39. Round 2 bookmarks	☐	☐	☐
40. Discussion after Round 2	☐	☐	☐
41. Round 3 bookmarks	☐	☐	☐
42. Discussion of final recommendations	☐	☐	☐

Grade	Please indicate the level of confidence you had in recommending the cut scores for each achievement level. Please bubble only one of the four options for each cut score. Important: Only complete this section for the grade(s) you worked on.			
	Not Confident	Somewhat Confident	Mostly Confident	Very Confident
3	43. Level 3 cut score	☐	☐	☐
	44. Level 4 cut score	☐	☐	☐
	45. Level 5 cut score	☐	☐	☐
4	46. Level 3 cut score	☐	☐	☐
	47. Level 4 cut score	☐	☐	☐
	48. Level 5 cut score	☐	☐	☐
5	49. Level 3 cut score	☐	☐	☐
	50. Level 4 cut score	☐	☐	☐
	51. Level 5 cut score	☐	☐	☐
6	52. Level 3 cut score	☐	☐	☐
	53. Level 4 cut score	☐	☐	☐
	54. Level 5 cut score	☐	☐	☐
7	55. Level 3 cut score	☐	☐	☐
	56. Level 4 cut score	☐	☐	☐
	57. Level 5 cut score	☐	☐	☐
8	58. Level 3 cut score	☐	☐	☐
	59. Level 4 cut score	☐	☐	☐
	60. Level 5 cut score	☐	☐	☐
Math 1	61. Level 3 cut score	☐	☐	☐
	62. Level 4 cut score	☐	☐	☐
	63. Level 5 cut score	☐	☐	☐
Math 3	64. Level 3 cut score	☐	☐	☐
	65. Level 4 cut score	☐	☐	☐
	66. Level 5 cut score	☐	☐	☐

Part 2: About You

67. In which group did you work?

- ☐ Grades 3–5 Mathematics
☐ Grades 6–8 Mathematics
☐ High School Mathematics

In this box, please feel free to add comments about your responses, make suggestions for future workshops, or tell us what you liked or did not like about the workshop.

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

End-of-workshop evaluation for general mathematics.

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Page 2 of 4

Part 3: About Your Standard Setting Experience

68. What was the most rewarding part of this experience?

69. If you struggled with any part of the process, what was most challenging?

70. What is your definition of a *threshold student*?

71. How will your recommended cut scores be used after this meeting is over?

What is your level of confidence, if at all, with these <u>skills and characteristics</u> ?		Not Confident	Somewhat Confident	Mostly Confident	Very Confident
Skills & Characteristics	72. Learning what is needed to make cut-score decisions	☐	☐	☐	☐
	73. Learning the statistical processes needed to make these decisions	☐	☐	☐	☐
	74. Making cut-score decisions	☐	☐	☐	☐
	75. Making a cut score decision regardless of another panelist's opinion	☐	☐	☐	☐
	76. Tuning out all preconceived notions and focus on training	☐	☐	☐	☐
	77. Speaking up and asking questions when needed	☐	☐	☐	☐
	78. Setting aside any preconceptions	☐	☐	☐	☐
	79. Setting aside other agendas and focus on the current meeting (An agenda can be defined as a specific plan or motive to follow.)	☐	☐	☐	☐

Participant Number: _____

When you arrived at the meeting today, did you feel that any of the following provided direction for your participation in the standard setting meeting today? In questions 80-84, an agenda can be defined as a specific plan or motive to follow.

Agendas		Yes	No
	80. An agenda from your school community	☐	☐
	81. An agenda from your school administration	☐	☐
	82. An agenda from your other teachers	☐	☐
	83. An agenda from your district	☐	☐
	84. An agenda from the state department of education	☐	☐
	85. Pressure to set cut-scores high (stringent)	☐	☐
	86. Pressure to set cut-scores low	☐	☐

87. Do you have any questions at this time?

Thank you for your participation!

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①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

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Page 4 of 4

1. The training provided a clear description of the workshop goals.

Response	Frequency	Percent	Mean: 3.46
Strongly Disagree	1	1.69	
Disagree	1	1.69	
Agree	27	45.76	
Strongly Agree	30	50.85	

3. The training session leader clearly explained the materials used in the bookmark process.

Response	Frequency	Percent	Mean: 3.73
Strongly Disagree	0	0.00	
Disagree	0	0.00	
Agree	16	27.12	
Strongly Agree	43	72.88	

5. The practice exercises were useful.

Response	Frequency	Percent	Mean: 3.37
Strongly Disagree	0	0.00	
Disagree	3	5.08	
Agree	31	52.54	
Strongly Agree	25	42.37	

7. My role in the standard setting was well described.

Response	Frequency	Percent	Mean: 3.36
Strongly Disagree	0	0.00	
Disagree	5	8.47	
Agree	27	45.76	
Strongly Agree	26	44.07	
No Response	1	1.69	

9. The achievement level descriptors (ALDs) were clear.

Response	Frequency	Percent	Mean: 2.81
Strongly Disagree	1	1.69	
Disagree	16	27.12	
Agree	35	59.32	
Strongly Agree	7	11.86	

2. The training session leader clearly explained the Bookmark Procedure.

Response	Frequency	Percent	Mean: 3.75
Strongly Disagree	0	0.00	
Disagree	0	0.00	
Agree	15	25.42	
Strongly Agree	44	74.58	

4. The training addressed many of my questions and concerns.

Response	Frequency	Percent	Mean: 3.39
Strongly Disagree	0	0.00	
Disagree	3	5.08	
Agree	30	50.85	
Strongly Agree	26	44.07	

6. The opening session provided a clear overview of the standard setting process.

Response	Frequency	Percent	Mean: 3.31
Strongly Disagree	1	1.69	
Disagree	5	8.47	
Agree	28	47.46	
Strongly Agree	25	42.37	

8. After the training, I felt confident I was prepared to complete the standard setting task.

Response	Frequency	Percent	Mean: 3.37
Strongly Disagree	0	0.00	
Disagree	7	11.86	
Agree	23	38.98	
Strongly Agree	29	49.15	

10. Adequate information was provided regarding the ALDs.

Response	Frequency	Percent	Mean: 3.00
Strongly Disagree	1	1.69	
Disagree	14	23.73	
Agree	27	45.76	
Strongly Agree	16	27.12	
No Response	1	1.69	

11. Enough time was provided to read and understand the ALDs.

Response	Frequency	Percent	Mean: 2.83
Strongly Disagree	2	3.39	
Disagree	19	32.20	
Agree	25	42.37	
Strongly Agree	13	22.03	

13. I understood how to make my bookmarks.

Response	Frequency	Percent	Mean: 3.61
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	21	35.59	
Strongly Agree	37	62.71	

15. I considered the threshold students when making my bookmarks.

Response	Frequency	Percent	Mean: 3.69
Strongly Disagree	0	0.00	
Disagree	0	0.00	
Agree	18	30.51	
Strongly Agree	41	69.49	

17. Discussing the threshold students helped me make my bookmarks.

Response	Frequency	Percent	Mean: 3.54
Strongly Disagree	0	0.00	
Disagree	0	0.00	
Agree	27	45.76	
Strongly Agree	32	54.24	

19. My opinions were considered.

Response	Frequency	Percent	Mean: 3.48
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	28	47.46	
Strongly Agree	29	49.15	
No Response	1	1.69	

12. The ALDs communicate a reasonable profile of students' performance at each level.

Response	Frequency	Percent	Mean: 3.00
Strongly Disagree	1	1.69	
Disagree	9	15.25	
Agree	38	64.41	
Strongly Agree	11	18.64	

14. I had adequate time to make my bookmarks.

Response	Frequency	Percent	Mean: 3.54
Strongly Disagree	0	0.00	
Disagree	2	3.39	
Agree	23	38.98	
Strongly Agree	34	57.63	

16. There was adequate time provided for discussion.

Response	Frequency	Percent	Mean: 3.64
Strongly Disagree	0	0.00	
Disagree	2	3.39	
Agree	17	28.81	
Strongly Agree	40	67.80	

18. I considered the content standards when I placed my bookmarks.

Response	Frequency	Percent	Mean: 3.59
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	22	37.29	
Strongly Agree	36	61.02	

20. My opinions were valued by my group.

Response	Frequency	Percent	Mean: 3.63
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	20	33.90	
Strongly Agree	38	64.41	

21. My group's work was reflected in the presentation of recommendations across grades.

Response	Frequency	Percent	Mean: 3.47
Strongly Disagree	1	1.69	
Disagree	0	0.00	
Agree	28	47.46	
Strongly Agree	30	50.85	

23. Overall, I valued the workshop as a professional development experience.

Response	Frequency	Percent	Mean: 3.83
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	8	13.56	
Strongly Agree	50	84.75	

25. The breakout rooms had appropriate accommodations to facilitate our work.

Response	Frequency	Percent	Mean: 3.64
Strongly Disagree	1	1.69	
Disagree	1	1.69	
Agree	16	27.12	
Strongly Agree	41	69.49	

27. Descriptions of threshold students

Response	Frequency	Percent	Mean: 3.64
Not Useful	0	0.00	
Somewhat Useful	3	5.08	
Useful	15	25.42	
Very Useful	41	69.49	

29. Item maps

Response	Frequency	Percent	Mean: 3.32
Not Useful	1	1.69	
Somewhat Useful	5	8.47	
Useful	26	44.07	
Very Useful	25	42.37	
No Response	2	3.39	

22. The facilitator in my breakout room provided clear instructions.

Response	Frequency	Percent	Mean: 3.64
Strongly Disagree	0	0.00	
Disagree	1	1.69	
Agree	19	32.20	
Strongly Agree	39	66.10	

24. The food and service at the facility met my expectations.

Response	Frequency	Percent	Mean: 3.81
Strongly Disagree	1	1.69	
Disagree	1	1.69	
Agree	6	10.17	
Strongly Agree	51	86.44	

26. Achievement level descriptors (ALDs)

Response	Frequency	Percent	Mean: 3.27
Not Useful	0	0.00	
Somewhat Useful	7	11.86	
Useful	29	49.15	
Very Useful	23	38.98	

28. Ordered item booklets (OIBs)

Response	Frequency	Percent	Mean: 3.66
Not Useful	0	0.00	
Somewhat Useful	3	5.08	
Useful	14	23.73	
Very Useful	42	71.19	

30. Impact data

Response	Frequency	Percent	Mean: 3.48
Not Useful	1	1.69	
Somewhat Useful	4	6.78	
Useful	19	32.20	
Very Useful	34	57.63	
No Response	1	1.69	

31. DRC content specialist (who led the ALD session on Monday)

Response	Frequency	Percent	Mean: 3.49
Not Satisfied	0	0.00	
Partially Satisfied	5	8.47	
Satisfied	20	33.90	
Very Satisfied	34	57.63	

33. DRC in-room facilitator (who worked with my room each day)

Response	Frequency	Percent	Mean: 3.76
Not Satisfied	0	0.00	
Partially Satisfied	1	1.69	
Satisfied	12	20.34	
Very Satisfied	46	77.97	

35. Training

Response	Frequency	Percent	Mean: 2.14
Too Little Time	1	1.69	
About Right	49	83.05	
Too Much Time	9	15.25	

37. Round 1 bookmarks

Response	Frequency	Percent	Mean: 1.97
Too Little Time	4	6.78	
About Right	53	89.83	
Too Much Time	2	3.39	

39. Round 2 bookmarks

Response	Frequency	Percent	Mean: 1.98
Too Little Time	2	3.39	
About Right	55	93.22	
Too Much Time	1	1.69	
No Response	1	1.69	

41. Round 3 bookmarks

Response	Frequency	Percent	Mean: 2.02
Too Little Time	2	3.39	
About Right	54	91.53	
Too Much Time	3	5.08	

32. DRC general facilitator (who led the Bookmark training on Tuesday)

Response	Frequency	Percent	Mean: 3.78
Not Satisfied	0	0.00	
Partially Satisfied	0	0.00	
Satisfied	13	22.03	
Very Satisfied	46	77.97	

34. DRC staff members in other roles

Response	Frequency	Percent	Mean: 3.54
Not Satisfied	0	0.00	
Partially Satisfied	1	1.69	
Satisfied	25	42.37	
Very Satisfied	33	55.93	

36. ALD development

Response	Frequency	Percent	Mean: 1.71
Too Little Time	21	35.59	
About Right	34	57.63	
Too Much Time	4	6.78	

38. Discussion after Round 1

Response	Frequency	Percent	Mean: 2.00
Too Little Time	1	1.69	
About Right	57	96.61	
Too Much Time	1	1.69	

40. Discussion after Round 2

Response	Frequency	Percent	Mean: 2.00
Too Little Time	2	3.39	
About Right	55	93.22	
Too Much Time	2	3.39	

42. Discussion of final recommendations

Response	Frequency	Percent	Mean: 1.97
Too Little Time	5	8.47	
About Right	50	84.75	
Too Much Time	3	5.08	
No Response	1	1.69	

43. Grade 3 Level 3 cut score

Response	Frequency	Percent	Mean: 2.86
Not Confident	1	1.69	
Somewhat Confident	7	11.86	
Mostly Confident	7	11.86	
Very Confident	6	10.17	
No Response	38	64.41	

45. Grade 3 Level 5 cut score

Response	Frequency	Percent	Mean: 3.24
Not Confident	0	0.00	
Somewhat Confident	3	5.08	
Mostly Confident	10	16.95	
Very Confident	8	13.56	
No Response	38	64.41	

47. Grade 4 Level 4 cut score

Response	Frequency	Percent	Mean: 3.10
Not Confident	0	0.00	
Somewhat Confident	4	6.78	
Mostly Confident	10	16.95	
Very Confident	6	10.17	
No Response	39	66.10	

49. Grade 5 Level 3 cut score

Response	Frequency	Percent	Mean: 3.20
Not Confident	0	0.00	
Somewhat Confident	4	6.78	
Mostly Confident	8	13.56	
Very Confident	8	13.56	
No Response	39	66.10	

51. Grade 5 Level 5 cut score

Response	Frequency	Percent	Mean: 2.90
Not Confident	1	1.69	
Somewhat Confident	6	10.17	
Mostly Confident	7	11.86	
Very Confident	6	10.17	
No Response	39	66.10	

44. Grade 3 Level 4 cut score

Response	Frequency	Percent	Mean: 3.00
Not Confident	0	0.00	
Somewhat Confident	7	11.86	
Mostly Confident	7	11.86	
Very Confident	7	11.86	
No Response	38	64.41	

46. Grade 4 Level 3 cut score

Response	Frequency	Percent	Mean: 3.05
Not Confident	0	0.00	
Somewhat Confident	4	6.78	
Mostly Confident	11	18.64	
Very Confident	5	8.47	
No Response	39	66.10	

48. Grade 4 Level 5 cut score

Response	Frequency	Percent	Mean: 3.40
Not Confident	0	0.00	
Somewhat Confident	1	1.69	
Mostly Confident	10	16.95	
Very Confident	9	15.25	
No Response	39	66.10	

50. Grade 5 Level 4 cut score

Response	Frequency	Percent	Mean: 2.90
Not Confident	1	1.69	
Somewhat Confident	5	8.47	
Mostly Confident	9	15.25	
Very Confident	5	8.47	
No Response	39	66.10	

52. Grade 6 Level 3 cut score

Response	Frequency	Percent	Mean: 2.95
Not Confident	1	1.69	
Somewhat Confident	3	5.08	
Mostly Confident	13	22.03	
Very Confident	4	6.78	
No Response	38	64.41	

53. Grade 6 Level 4 cut score

Response	Frequency	Percent	Mean: 3.24
Not Confident	0	0.00	
Somewhat Confident	2	3.39	
Mostly Confident	12	20.34	
Very Confident	7	11.86	
No Response	38	64.41	

55. Grade 7 Level 3 cut score

Response	Frequency	Percent	Mean: 3.14
Not Confident	1	1.69	
Somewhat Confident	2	3.39	
Mostly Confident	11	18.64	
Very Confident	7	11.86	
No Response	38	64.41	

57. Grade 7 Level 5 cut score

Response	Frequency	Percent	Mean: 3.29
Not Confident	0	0.00	
Somewhat Confident	1	1.69	
Mostly Confident	13	22.03	
Very Confident	7	11.86	
No Response	38	64.41	

59. Grade 8 Level 4 cut score

Response	Frequency	Percent	Mean: 2.48
Not Confident	3	5.08	
Somewhat Confident	7	11.86	
Mostly Confident	9	15.25	
Very Confident	2	3.39	
No Response	38	64.41	

61. Math 1 Level 3 cut score

Response	Frequency	Percent	Mean: 3.24
Not Confident	0	0.00	
Somewhat Confident	3	5.08	
Mostly Confident	7	11.86	
Very Confident	7	11.86	
No Response	42	71.19	

54. Grade 6 Level 5 cut score

Response	Frequency	Percent	Mean: 3.24
Not Confident	0	0.00	
Somewhat Confident	2	3.39	
Mostly Confident	12	20.34	
Very Confident	7	11.86	
No Response	38	64.41	

56. Grade 7 Level 4 cut score

Response	Frequency	Percent	Mean: 3.14
Not Confident	0	0.00	
Somewhat Confident	2	3.39	
Mostly Confident	14	23.73	
Very Confident	5	8.47	
No Response	38	64.41	

58. Grade 8 Level 3 cut score

Response	Frequency	Percent	Mean: 2.48
Not Confident	4	6.78	
Somewhat Confident	5	8.47	
Mostly Confident	10	16.95	
Very Confident	2	3.39	
No Response	38	64.41	

60. Grade 8 Level 5 cut score

Response	Frequency	Percent	Mean: 2.57
Not Confident	3	5.08	
Somewhat Confident	5	8.47	
Mostly Confident	11	18.64	
Very Confident	2	3.39	
No Response	38	64.41	

62. Math 1 Level 4 cut score

Response	Frequency	Percent	Mean: 3.35
Not Confident	0	0.00	
Somewhat Confident	0	0.00	
Mostly Confident	11	18.64	
Very Confident	6	10.17	
No Response	42	71.19	

63. Math 1 Level 5 cut score

Response	Frequency	Percent	Mean: 3.12
Not Confident	1	1.69	
Somewhat Confident	3	5.08	
Mostly Confident	6	10.17	
Very Confident	7	11.86	
No Response	42	71.19	

65. Math 3 Level 4 cut score

Response	Frequency	Percent	Mean: 3.35
Not Confident	0	0.00	
Somewhat Confident	0	0.00	
Mostly Confident	11	18.64	
Very Confident	6	10.17	
No Response	42	71.19	

67. In which group did you work?

Response	Frequency	Percent	Mean: 1.96
Grades 3-5 Mathematics	19	32.20	
Grades 6-8 Mathematics	21	35.59	
High School Mathematics	17	28.81	
No Response	2	3.39	

73. Learning the statistical processes needed to make these decisions

Response	Frequency	Percent	Mean: 2.81
Not Confident	3	5.08	
Somewhat Confident	17	28.81	
Mostly Confident	27	45.76	
Very Confident	12	20.34	

75. Making a cut score decisions regardless of another panelist's opinion

Response	Frequency	Percent	Mean: 3.42
Not Confident	0	0.00	
Somewhat Confident	2	3.39	
Mostly Confident	30	50.85	
Very Confident	27	45.76	

64. Math 3 Level 3 cut score

Response	Frequency	Percent	Mean: 3.18
Not Confident	0	0.00	
Somewhat Confident	4	6.78	
Mostly Confident	6	10.17	
Very Confident	7	11.86	
No Response	42	71.19	

66. Math 3 Level 5 cut score

Response	Frequency	Percent	Mean: 3.41
Not Confident	0	0.00	
Somewhat Confident	1	1.69	
Mostly Confident	8	13.56	
Very Confident	8	13.56	
No Response	42	71.19	

72. Learning what is needed to make cut-score decisions

Response	Frequency	Percent	Mean: 3.41
Not Confident	0	0.00	
Somewhat Confident	5	8.47	
Mostly Confident	25	42.37	
Very Confident	29	49.15	

74. Making cut-score decisions

Response	Frequency	Percent	Mean: 3.29
Not Confident	0	0.00	
Somewhat Confident	5	8.47	
Mostly Confident	32	54.24	
Very Confident	22	37.29	

76. Tuning out all preconcieved notions and focus on training

Response	Frequency	Percent	Mean: 3.41
Not Confident	0	0.00	
Somewhat Confident	5	8.47	
Mostly Confident	25	42.37	
Very Confident	29	49.15	

77. Speaking up and asking questions when needed

Response	Frequency	Percent	Mean: 3.59
Not Confident	0	0.00	
Somewhat Confident	5	8.47	
Mostly Confident	14	23.73	
Very Confident	40	67.80	

79. Setting aside other agendas and focus on the current meeting (An agenda can be defined as a specific plan or motive to follow.)

Response	Frequency	Percent	Mean: 3.71
Not Confident	0	0.00	
Somewhat Confident	1	1.69	
Mostly Confident	15	25.42	
Very Confident	43	72.88	

81. An agenda from your school administration

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	100.00	

83. An agenda from your district

Response	Frequency	Percent	Mean: 0.02
Yes	1	1.69	
No	58	98.31	

85. Pressure to set cut-scores high (stringent)

Response	Frequency	Percent	Mean: 0.12
Yes	7	11.86	
No	52	88.14	

78. Setting aside any preconceptions

Response	Frequency	Percent	Mean: 3.47
Not Confident	0	0.00	
Somewhat Confident	4	6.78	
Mostly Confident	23	38.98	
Very Confident	31	52.54	
No Response	1	1.69	

80. An agenda from your school community

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	100.00	

82. An agenda from your other teachers

Response	Frequency	Percent	Mean: 0.00
Yes	0	0.00	
No	59	100.00	

84. An agenda from the state department of education

Response	Frequency	Percent	Mean: 0.24
Yes	14	23.73	
No	45	76.27	

86. Pressure to set cut-scores low

Response	Frequency	Percent	Mean: 0.12
Yes	7	11.86	
No	52	88.14	