

APPENDIX L

STANDARD SETTING REPORT



Pearson

**MCAS Standard Setting Meeting
English Language Arts and Mathematics
Grades 3–8**

August 2017

Pearson

Version 1.0

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Executive Report

August 2017

This report summarizes the process and results of setting achievement levels for the Massachusetts Comprehensive Assessment System (MCAS) English language arts (ELA) and mathematics assessments for grades 3 through 8. The Massachusetts Department of Elementary and Secondary Education (ESE) partnered with Measured Progress and Pearson (the MCAS assessment contractors) to collect recommendations for cut scores associated with the achievement levels for the MCAS assessments.

MCAS Standard Setting Process and Results

Achievement levels are used to classify student achievement on an assessment. In order to classify student achievement into the four different achievement levels, the following components are required: 1) policy-level definitions, 2) Achievement Level Descriptors (ALDs), and 3) cut scores. Policy-level definitions provide general descriptions of the knowledge, skills, and abilities students must demonstrate to be classified into each achievement level that apply to all courses or subject areas. ALDs illustrate the achievement levels in terms that are specific to a course or subject area. Cut scores represent the lowest boundary of each achievement level on the scale.

The process of recommending performance standards for the MCAS ELA and mathematics tests for grades 3–8 was based on standard setting procedures in line with national best practice and with review and approval of the MA technical advisory committee (TAC). Results and details of that process are presented in the following sections.

Policy-level Definitions

Policy-level definitions for the MCAS achievement levels are shown in Table 1. The titles and descriptions of the achievement levels were defined to be part of a cohesive assessment system. The achievement levels indicate a student’s ability to demonstrate proficiency in relation to subject- and grade-specific expectations, as defined in the Massachusetts curriculum framework, as indicators of a student’s readiness for the next grade level or college and career.

The Commissioner and the Board of Elementary and Secondary Education approved the final policy-level definitions for MCAS in March 2017.

Table 1. Policy-level definitions for MCAS Achievement Levels

Achievement Level	Policy-level Definition
Exceeding Expectations	A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.
Meeting Expectations	A student who performed at this level met grade-level expectations and is academically on track to succeed in the current grade in this subject.
Partially Meeting Expectations	A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.
Not Meeting Expectations	A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

Achievement Level Descriptors (ALDs)

Draft sets of ALDs for the grades 3–8 ELA and mathematics tests, shown in Appendix A, indicate the knowledge and skills that students performing at a given achievement level should be able to demonstrate within each specific content area and at each grade-level. A multi-step process was used in developing, reviewing, and approving the ALDs for each assessment. Prior to the standard setting committee, the ESE content staff worked in cooperation with staff from the Center for Instructional Support (CIS) to create a draft set of ALDs for each content and grade-level specific course. Educators from the ESE's Assessment Development Committees also reviewed the drafts. The set of ALDs for each grade within each subject was created, such that they represented a gradual increase in expectations across the achievement levels within a grade and across the grades. Descriptors were developed for *Partially Meeting Expectations*, *Meeting Expectations*, and *Exceeding Expectations* only, since the most accurate way to describe the performance of a student classified as *Not Meeting Expectations* is a student who has not demonstrated the knowledge, skills, and abilities necessary to achieve *Partially Meeting Expectations*.

Teachers who participated in the standard setting committees had the opportunity to provide suggestions and edits to the draft set of ALDs, based on their recommended cut score for each achievement level and the items reviewed during the standard setting meeting. To produce the final set of ALDs, the DESE content staff will edit the set of draft ALDs based on suggestions generated by the participants in the standard setting meeting.

Cut Scores

The cut scores that were recommended for adoption for the MCAS ELA and mathematics assessments are based on a standardized set of procedures implemented during the standard

setting meeting and vertical articulation meeting. Details pertaining to the general methods used during these meetings for obtaining the recommended cut scores and the resulting recommendations are provided below.

Standard Setting Meeting

From August 14 to August 17, 2017, after the first year of operational administration in spring 2017, a standard setting meeting was conducted to obtain cut score recommendations for each test. There were six committees, with each committee recommending cut scores for two adjacent grades:

- ELA Committees:
 - ELA grades 3 and 4
 - ELA grades 5 and 6
 - ELA grades 7 and 8
- Math Committees:
 - Math grades 3 and 4
 - Math grades 5 and 6
 - Math grades 7 and 8

Each committee was composed of between 18 to 24 individuals, including teachers and non-teacher educators (e.g., administrators, curriculum specialists, professors of higher education). The participants were selected for the standard setting committee to provide content and grade-level expertise during the committee meeting and be representative of the state teaching population, including geographic region, gender, ethnicity, educational experience, community size, and community socioeconomic status.

The Extended Modified (Yes/No) Angoff standard setting method was used for the standard setting meeting (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Budkendahl, 2005). This is a content- and item-based method which leads participants through a standardized process through which they consider student expectations, as defined by ALDs, and the individual items administered to students to recommend cut scores for each achievement level. The standardized process was used by the committees for each grade, which resulted in cut score recommendations for each grade.

The process started with participants experiencing the test from the spring 2017 administration within the online testing system. Based on their experience with the test items and a review of the draft ALDs, participants created borderline achievement level descriptors. During this process, participants worked within their committees to modify the draft ALDs to create descriptors of the knowledge, skills, and abilities the “borderline” students, or those students who just barely enter an achievement level, would be expected to demonstrate.

During the judgment process, participants reviewed each item on the test, referencing the borderline achievement level descriptors, and answered the following question for each achievement level:

“How many points would a borderline student at the [specific] achievement level likely earn if he or she answered the question?”

The cut score recommendation for each individual participant was the expected raw score a borderline student at the respective achievement level would likely earn, calculated as the sum of the individual item judgments. For the purposes of the standard setting, “likely” was defined as 2 out of 3 students at the borderline level. Each recommended cut score from the standard setting committee is the median of the recommendations from the individual participants in the committee.

Additionally, the percentage of students who would be classified into each achievement level based on committee recommendations—also known as impact data—was calculated. The impact data was determined using student data from the spring 2017 online administration only. Since grades 4 and 8 administrations were required to be online for spring 2017, except for approved instances, the impact data for these grades represented approximately 95% of the overall population. For the remaining grades, 3, 5, 6, and 7, the impact data is based on a sample approximately 20,000 students from the online administration, which was selected to be representative of the overall population. This method was used to provide impact data to the standard setting committees that would be representative of the overall population.

The results (Round 3 recommendation) from the standard setting meeting for ELA and math are presented in Tables 2 and 3, respectively.

Table 2. Standard Setting Recommendations for ELA Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 10	6	11 to 23	44	24 to 34	46	35 to 42	4
4	0 to 12	5	13 to 27	39	28 to 37	51	38 to 42	5
5	0 to 11	3	12 to 27	34	28 to 39	56	40 to 46	7
6	0 to 10	7	11 to 27	42	28 to 39	43	40 to 49	8
7	0 to 13	8	14 to 29	37	30 to 42	50	43 to 49	5
8	0 to 15	8	16 to 31	41	32 to 42	45	43 to 49	6

Table 3. Standard Setting Recommendations for Mathematics Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 11	9	12 to 28	40	29 to 42	43	43 to 48	8
4	0 to 13	8	14 to 32	41	33 to 48	45	49 to 54	6
5	0 to 10	4	11 to 30	48	31 to 47	41	48 to 54	7
6	0 to 7	7	8 to 27	45	28 to 43	37	44 to 54	11
7	0 to 8	10	9 to 30	58	31 to 43	24	44 to 54	8
8	0 to 10	5	11 to 30	48	31 to 44	34	45 to 54	13

Figure 1 presents the impact data from the final recommendations from the standard setting meeting as stacked bar graphs.

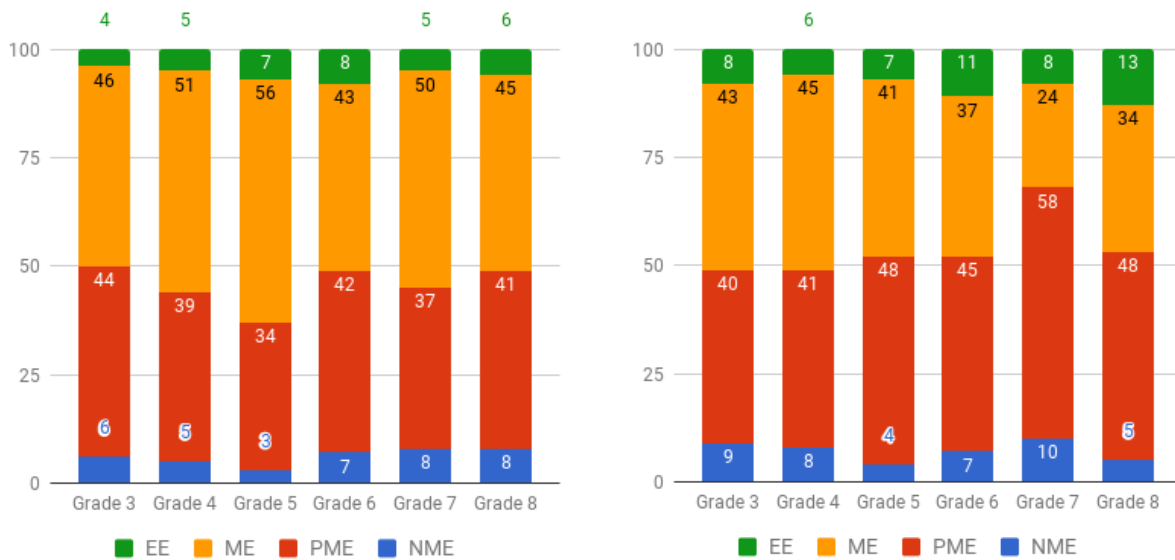


Figure 1. Impact Data for ELA and Math Tests based on Standard Setting Recommendations

Vertical Articulation Meeting

Subsequent to the standard setting meeting, on August 18, 2017, a vertical articulation meeting was convened. The meeting consisted of two committees, one that reviewed the ELA cut score recommendations and another which reviewed the math cut score recommendations. The participants of the vertical articulation meeting consisted of table leaders from each of the standard setting committees, selected prior to the standard setting meeting. The focus of the

vertical articulation meeting was to review the cut score recommendations from the standard setting meeting along with impact data to consider whether and to what extent adjustments to the recommended cut scores might be warranted based on both content and policy. The adjustments to the recommendations made by the vertical articulation committees were influenced by a desire to honor the content-based recommendations of the standard setting process, maintain high expectations for achievement across the MCAS assessments, and ensure the relationship among standards was coherent and defensible.

Tables 4 and 5 present the results from the vertical articulation meeting for ELA and math, respectively.

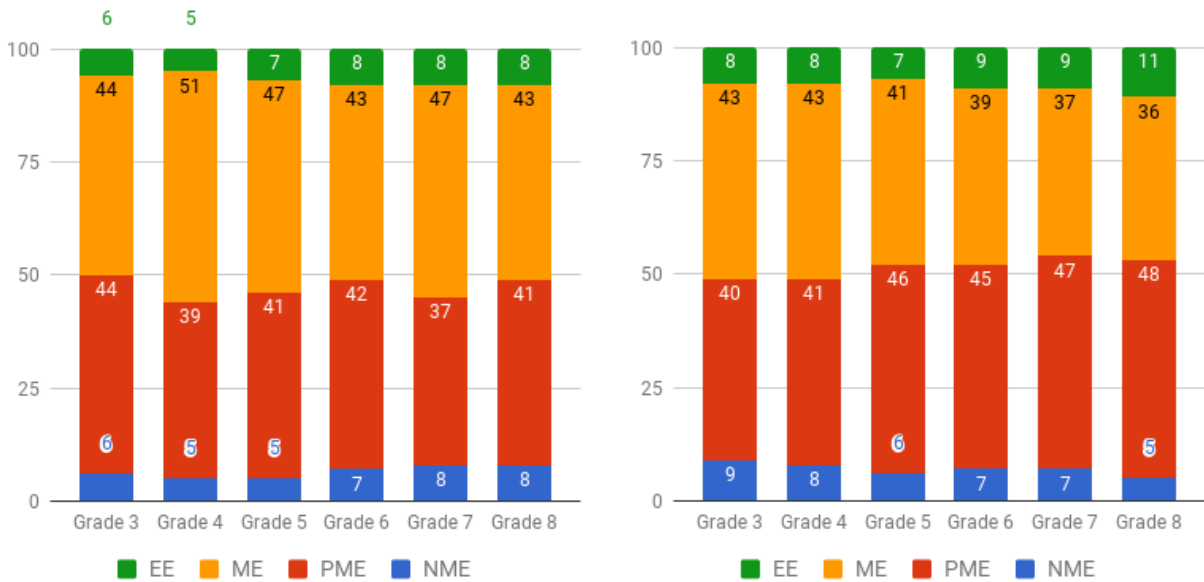
Table 4. Vertical Articulation Recommendations for ELA Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 10	6	11 to 23	44	24 to 33	44	34 to 42	6
4	0 to 12	5	13 to 27	39	28 to 37	51	38 to 42	5
5	0 to 13	5	14 to 29	41	30 to 39	47	40 to 46	7
6	0 to 10	7	11 to 27	42	28 to 39	43	40 to 49	8
7	0 to 13	8	14 to 29	37	30 to 41	47	42 to 49	8
8	0 to 15	8	16 to 31	41	32 to 41	43	42 to 49	8

Table 5. Vertical Articulation Recommendations for Mathematics Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 11	9	12 to 28	40	29 to 42	43	43 to 48	8
4	0 to 13	8	14 to 32	41	33 to 47	43	48 to 54	8
5	0 to 11	6	12 to 30	46	31 to 47	41	48 to 54	7
6	0 to 7	7	8 to 27	45	28 to 44	39	45 to 54	9
7	0 to 7	7	8 to 24	47	25 to 42	37	43 to 54	9
8	0 to 10	5	11 to 30	48	31 to 45	36	46 to 54	11

Figure 2 presents the impact data from the final recommendations from the vertical articulation meeting as stacked bar graphs.



ELA Math
Figure 2. Impact Data for ELA and Math Tests Based on Vertical Articulation Recommendations

Reporting Scale

The process of determining the transformation rules from the Item Response Theory (IRT) scale to the final reporting scale was guided by several principals identified by ESE:

1. Respect the cut score recommendations from the vertical articulation committees by the final scaling solution maintaining the final cut scores as close as possible to the recommendations.
2. The impact data from the final scaling solution should reflect a coherent assessment system across the grades.
3. The reporting scaled scores for the three achievement level cuts should be the same across grades and tests.
4. The scaling solution should involve a single linear transformation, from the IRT scale to the reporting scale.
5. The reporting scaled score range should be the same across grades and tests.

An iterative process involving Pearson, Measured Progress, and ESE was used to determine a final reporting scale and transformation rules for each test. First, based on recommended raw score cuts for the three achievement levels, the IRT scale cuts were adjusted so that the differences between every two IRT scale cuts were the same, allowing for a single linear transformation rule. Based on the adjusted IRT cut scores, scaling constants for the linear transformation were determined. Using the scaling constants, lookup tables for each grade and test were created, displaying the relationship between the raw scores and reporting scaled scores. Based on the lookup tables, adjusted raw score cuts for each achievement level were

determined. Finally, the resulting impact data based on the adjusted raw score cuts was calculated and reviewed to ensure a coherent system across grades. This process was repeated several times until a final scaling solution was determined.

The recommended reporting scale ranges from a lowest obtainable scale score (LOSS) of 440 to a highest obtainable scale score (HOSS) of 560. In order to create common points of reference across the assessments, the same scaled score cuts for each achievement level were defined, with a *Partially Meeting Expectations* cut of 470, a *Meeting Expectations* cut of 500, and an *Exceeding Expectations* cut of 530. While the cut scores were defined with the same scaled scores and descriptions across the grades, they are not identical, and direct comparisons through averaging and aggregation across grades should not be made without study and/or statistical adjustments. The scaled scores and distributions of students resulting from the cuts set for English language arts and mathematics were not designed for direct comparison.

Tables 6 and 7 present the results from the final scaling solution for ELA and math, respectively.

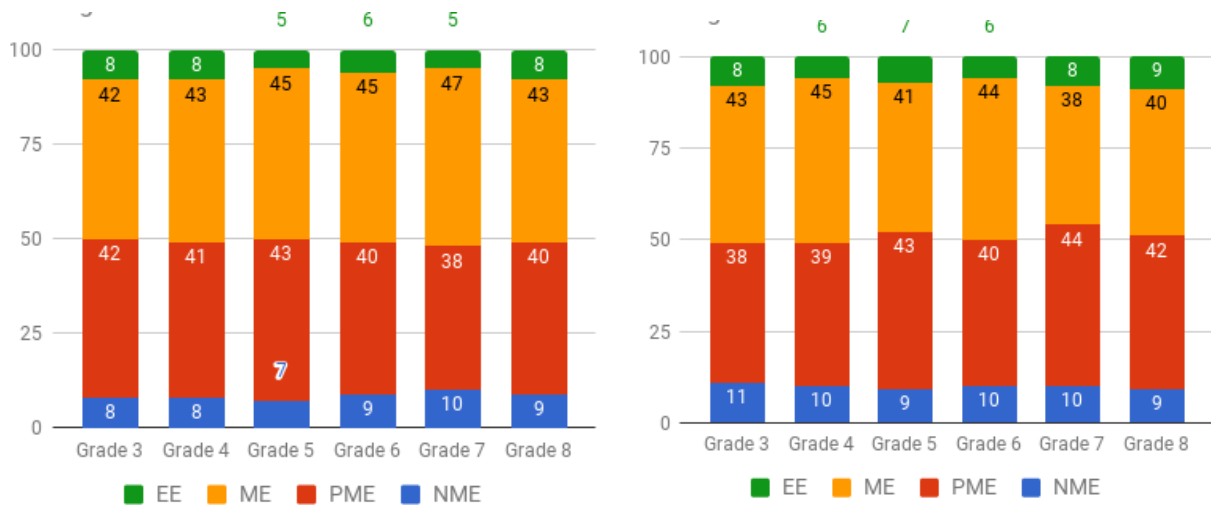
Table 6. Final Recommendations for ELA Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 11	8	12 to 23	42	24 to 32	42	33 to 42	8
4	0 to 14	8	15 to 28	41	29 to 36	43	37 to 42	8
5	0 to 15	7	16 to 30	43	31 to 40	45	41 to 46	5
6	0 to 11	9	12 to 27	40	28 to 40	45	41 to 49	6
7	0 to 14	10	15 to 30	38	31 to 42	47	43 to 49	5
8	0 to 16	9	17 to 31	40	32 to 41	43	42 to 49	8

Table 7. Final Recommendations for Mathematics Tests (Grades 3–8)

Grade	Achievement Level							
	Not Meeting Expectations		Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level	Raw Score Range	% in Level
3	0 to 12	11	13 to 28	38	29 to 42	43	43 to 48	8
4	0 to 15	10	16 to 32	39	33 to 48	45	49 to 54	6
5	0 to 13	9	14 to 30	43	31 to 47	41	48 to 54	7
6	0 to 9	10	10 to 26	40	27 to 46	44	47 to 54	6
7	0 to 8	10	9 to 24	44	25 to 43	38	44 to 54	8
8	0 to 12	9	13 to 29	42	30 to 46	40	47 to 54	9

Figure 3 presents the impact data from the final recommendations as stacked bar graphs.



ELA Math
Figure 3. Impact Data for ELA and Math Tests Based on Final Recommendations

Next Steps

Since the mode of administration for the MCAS is planned to transition over the next three years from dual modes of paper and online (based on grade) to a priority mode of online for all grades, the standard setting was performed using online test forms and analysis of data from the online administrations. The final recommended cut scores and constants for the scaling transformation, displayed in Appendix B, are based on analysis using data from the online administrations only. The final cut score recommendations from this process will be used to classify student performance on tests from both administration modes, paper and online, into achievement levels for each grade and test.

Before the final scoring and reporting using the final recommended cut scores can be completed, an analysis of the student results from the paper administrations for each grade will be performed to place the results on the same reporting scale as the online result, so the online and paper results are comparable. This process will involve several steps. The paper results will be placed on an IRT scale for the paper administration for the grade and test. Using a mode comparison process, the results from online and paper administrations will be compared and, if needed, a mode adjustment will be defined to transform the IRT paper scale to the IRT online scale. Since the scaling constants and achievement level cuts are based on the online scale, they can then be used on the adjusted paper scale. When this is completed, all student results for a grade and test will be on the same scale and final results, including impact data, will be calculated and reported.

The final approved result from this standard setting will be used for future administrations of the MCAS ELA and math tests for grades 3 through 8 to classify student results into achievement levels for reporting until it is determined that new standards need to be established for the MCAS by the ESE.

Chapter 1 – Overview of the Standard Setting Process

This chapter provides an overview of the standard setting process used for the MCAS ELA and mathematics assessments for grades 3–8, and includes the following sections:

- Goals of setting cut scores
- MCAS achievement levels
- MCAS cut score setting process

Goals of the Standard Setting Meeting

Once students are administered an assessment, various groups, including student, parents, educators, administrators and policy makers, want to know how the students performed on the assessment and how to interpret that performance. By establishing achievement levels associated with different student performance on the assessment, a frame of reference is developed for interpreting student scores. Setting the level of achievement on an assessment sufficient for student achievement to be classified into each achievement level is one of the most critical steps in developing an assessment program.

For a criterion standards-based assessment, such as the next-generation MCAS program, achievement on the assessment is compared to a set of predefined content standards. The standards communicated within the *Massachusetts Curriculum Framework* define a set of knowledge, skills, and abilities the students taking the assessment are expected to demonstrate upon completion of each course or grade. The cut scores established represent the level of competence students are expected to demonstrate on the assessment to be classified into each achievement level.

MCAS Achievement Levels

Federal statute requires that any statewide assessment used for accountability purposes include at least three achievement levels. The achievement levels relate student performance on the MCAS assessments directly to what students are expected to learn, based on the standards in the *Massachusetts Curriculum Framework*. Student achievement on all MCAS assessments will be classified into four achievement levels that delineate the knowledge, skills, and abilities for which students are able to demonstrate mastery.

The policy-level definitions for the achievement levels provide general descriptions of the knowledge, skills, and abilities students must demonstrate on the MCAS assessments to be classified into each achievement level. These do not differentiate student performance between content areas and grade levels. The achievement levels and policy definitions for the next-generation MCAS assessments were developed with input from the standard setting policy committee and approved by the Commissioner and Board of Elementary and Secondary Education.

The four performance levels with their respective policy definition are shown in Table 8.

Table 8. Policy Level Achievement Level Descriptors for the Next-Generation MCAS Tests

Label	Definition
Exceeding Expectations	A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.
Meeting Expectations	A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.
Partially Meeting Expectations	A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.
Not Meeting Expectations	A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

The MCAS Standard Setting Process

The recommendations by the standard setting committees represent the level of competence students are expected to demonstrate to be classified into each of the achievement levels. To establish the achievement levels for each assessment, the Extended Modified (Yes/No) Angoff Method (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Budkendahl, 2005) was used to guide participants as they determined their achievement level cut score recommendations. This standard setting procedure is a systematic method for combining various considerations into the process for recommending cut scores for the different achievement levels, including content standards and educator judgments about what students should know based on the *Massachusetts Curriculum Framework* and be able to demonstrate at each achievement level.

The following steps were used for the MCAS standard setting process.

- Pre-meeting development – In anticipation of the standard setting meetings, various tasks were completed, including the development of draft ALDs for each grade and subject assessed, the development of materials for the participants, preparation of the Moodle site for participants and facilitators, presentation materials for the facilitators, development of data analysis sources and procedures.
- Standard setting meetings – Committees of participants referenced the grade- and subject-specific ALDs to make recommendations for cut scores that define the different achievement levels for each assessment.
- Vertical articulation meeting – The recommended cut scores for each assessment were reviewed for reasonableness and alignment of achievement-level expectations across grades by select members of the standard setting committees.
- Linear scaling – Using the recommended cut scores from the vertical articulation meeting, a scaling transformation process was conducted to transform the IRT scale scores to MCAS scale scores.

The following chapters will describe what specific occurred during each of these steps.

Chapter 2 – Pre-meeting Development

This chapter provides an overview of the work that was completed prior to the standard setting meetings for the next-generation MCAS ELA and mathematics assessments for grades 3–8, and includes the following sections:

- MCAS achievement level descriptors
- Development of participant materials
- Development presentation materials
- Facilitator training
- Preparation for data analysis during the meetings

MCAS Achievement Level Descriptors

ALDs are statements that articulate the knowledge, skills, and abilities that students classified into a particular achievement level should be able to do to demonstrate mastery. All assessments within MCAS, grades 3–8 and 10, have four achievement levels, as defined in Table 8. The performance levels range from *Not Meeting Expectations*, representing the lowest level of student achievement, to *Exceeding Expectations*, representing the highest level of student achievement.

The ALDs are associated with the achievement levels in the following way.

- *Achievement levels* indicate a student’s level of mastery of the standards defined in the *Massachusetts Curriculum Framework* through classification of their achievement on an assessment for a specific grade and subject as *Not Meeting Expectations*, *Partially Meeting Expectations*, *Meeting Expectations*, and *Exceeding Expectations*.
- *Performance level descriptors* indicate the knowledge, skills, and abilities expected of students to demonstrate mastery within each specific content area and at each grade level to be classified in each achievement level.
- *Cut scores* partition the test scale and represent the minimum test score that a student must earn on an assessment for each subject and grade level to be classified into a given achievement level.

The use of a well-defined set of ALDs is critical to ensuring the validity of the standard setting process.

The development of draft ALDs for each content area (ELA and mathematics) and for each grade (grades 3 through 8) were completed by ESE test development staff, in consultation with staff from the Center for Instructional Support (CIS). In developing the ALDs, descriptors were written for each reporting category associated with the respective grade and subject, for each of the achievement levels, *Partially Meeting Expectations*, *Meeting Expectations*, and *Exceeding Expectations*. The knowledge, skills, and abilities described at each achievement level were cumulative, assuming that students at an achievement level would be able to demonstrate mastery at each of the preceding achievement levels, for the same reporting category. ALDs were not developed for the lowest achievement level, *Not Meeting Expectations*, since the most accurate way to describe the achievement of a student at this achievement level is that they have not demonstrated the knowledge skills and abilities necessary to achieve *Partially Meeting Expectations*.

The set of ALDs developed by ESE was designated as “draft” ALDs for each content area and grade for use during the standard setting meeting. During the standard setting meetings, participants were given the opportunity to provide suggestions for revising the ALDs for their respective subject and grades. The final set of ALDs will be based on the draft ALDs after they are revised by ESE using the suggestions provided by the standard setting participants.

Development of Participant Materials

The MCAS standard setting required a large number of materials for use by the participants during the standard setting meetings. The Pearson standard setting team worked with the content specialists at ESE to develop the materials used during the meeting and to ensure that all materials provided to meeting participants communicated correct information. The following materials were developed for use by participants during the meeting.

- Meeting agenda
- Participant information survey*
- MCAS non-disclosure agreement
- Test form for each grade*
- Experience the test activity response form for each grade
- Test form answer key
- Open-ended item rubrics and exemplars
- Item comment form
- Practice item judgment set
- Practice item judgment set answer key
- Practice item judgment record form
- Practice item judgment survey*
- Item judgment round record form
- Item judgment round survey* – rounds 1, 2, and 3
- ALD comment form
- Process evaluations*

Since the standard setting meetings utilized the Pearson Standard Setting Moodle as a tool for facilitating the meeting, the Moodle site for each committee needed to be developed. Several of the documents developed, indicated with an asterisk (*), were presented online through the Moodle site.

The process for developing the materials and Moodle site started with developing templates for each document, which were reviewed and approved by ESE. Using the approved templates, the specific documents were then created for each specific committee meeting by the Pearson standard setting team. The committee specific documents were reviewed by content staff at ESE before being finalized for publication for the meetings.

A sample set of materials for a committee are provided in Appendix C.

Development of Presentation Materials

PowerPoint presentations were developed to guide facilitators through the presentation of information and materials throughout the standard setting meetings. The Pearson standard setting team developed the initial PowerPoint presentations, using the ESE presentation template. Staff from ESE had the opportunity to review and provide suggested edits to the

presentations, which were resolved by the Pearson standard setting team. The following PowerPoint presentations were created for the standard setting meetings.

- MCAS Plenary Session Presentation – Presented by ESE staff
- General Session Standard Setting Overview
- Standard Setting Table Leader Training
- Standard Setting Breakout Meeting – Day 1
- Standard Setting Breakout Meeting – Day 2
- Standard Setting Breakout Meeting – Day 3
- Standard Setting Breakout Meeting – Day 4
- Vertical Articulation Meeting

The PowerPoint presentations for the breakout meetings, Day 1 through Day 4, were customized to reflect the specific information for the subject and grades for each committee. Additionally, specific information was added to the notes section within each presentation to guide the facilitators through the presentations.

Facilitator Training

Each standard setting meeting is specific to the project and procedures. So, even though the process facilitators for the MCAS standard setting meeting had prior experience in facilitating standard setting meetings, several training sessions were held to discuss the unique aspects of the MCAS standard setting and to walk through the process utilized for this meeting, demonstrate the use of the Pearson Standard Setting Moodle site, and display and discuss the PowerPoint presentations used during the standard setting meetings. The facilitator training meetings were held for 90 minutes each on July 27 and August 8, 2017. Additionally, there was a final training and discussion held on-site on August 13, the day before the meeting to address any final topics.

Preparation for Data Analysis during the Meetings

An important part of the standard setting meetings is analysis of the participant judgments and the creation of feedback data. Preparations for this part of the standard setting meetings included the creation and testing of analysis programs and the calculation of impact data lookup tables.

The analysis process planned for implementation during the standard setting meeting included having two analysts independently retrieve the participant judgments from the Moodle site and running the required analysis for each judgment round. To facilitate this process, each analyst independently completed the programming necessary to conduct all analysis using the SAS statistical software. Testing of the analysis program was completed by creating test participant judgment data within the Moodle standard setting system for rounds 1 and 2 for a committee, having the analysts implement their analysis program and verify that the independent analysis results matched.

Impact data is the percent of students fall within an achievement level based on the recommended cut scores at the given judgment round, for a particular grade and subject test and testing mode. The impact data is provided to participants during the standard setting meeting to present the expected results of their recommendations on student achievement level classifications. The analysis programs use impact data look up tables to produce this output

during the meetings, which need to be created prior to the standard setting meetings.

The impact data lookup tables were created using the data from student’s taking the online form of each subject and grade assessment during the spring 2017 administration. During the Spring 2017 administration of MCAS, all schools were required to administer the test online to students in grades 4 and 8, unless they were provided an exception, with other grades having the option to administer the test online or paper. Because of this requirement, the majority of students across the state took the assessments at grades 4 and 8 using the online mode, with only about 5% of students taking the test at these grades on paper. The impact data for grades 4 and 8 was calculated using all students taking the test online. For all other grades, grades 3, 5, 6, and 7, the impact data lookup tables were created using a sample of student from the online administration that would be representative of the overall state student population, based on the following demographic variables:

- Gender
- Race/Ethnicity
- Economically disadvantaged
- Limited English Proficient (LEP)
- Special Education

Table 9 displays the number of students in the sample that were used to create the impact data lookup tables. After the sample of students were selected to represent the population, the data analysts created the impact data lookup tables by calculating, for each possible raw score associated with the test, the percent of overall student in the sample that earned that specific raw score or greater.

Table 9. Number of Students Used to Calculate Impact Data

Subject	Grade	Impact Data Sample Size	Students Administered the Test		
			Online	Paper	Total
ELA	3	19,790	26,459	42,947	69,406
	4	63,918	63,918	5,778	69,696
	5	19,858	28,547	39,597	68,144
	6	19,871	29,369	38,221	67,590
	7	19,962	30,209	38,540	68,749
	8	65,314	65,314	4,054	69,368
Math	3	19,849	26,659	43,353	70,012
	4	64,473	64,473	5,861	70,334
	5	19,910	29,285	39,872	69,157
	6	19,920	29,704	39,214	68,918
	7	20,000	30,144	39,980	70,124
	8	66,077	66,077	4,069	70,146

Chapter 3 – Standard Setting Meetings

This chapter provides details about the cut score setting meeting process. The sections of this chapter include:

- Purpose of standard setting meetings
- Committee participant composition
- Standard setting meeting facilitators and staff
- Standard setting meeting proceedings
- Recommended achievement level cut scores

Purpose of the Standard Setting Meetings

Standard setting is based, to a large degree, on the judgment of educators. Committees of educators make expert recommendations about the level of performance expected for each achievement level, based on their experience with different groups of students and knowledge of the assessed content. A specific process, or standard setting method, is used to capture the educator judgments and to translate these into cut scores for the achievement levels. The purpose of the next generation MCAS standard setting meetings was to gather expert recommendations from groups of educators from across Massachusetts for the cut scores that define the different achievement levels on each MCAS assessment for grades 3 through 8 in ELA and mathematics.

Student performance on each of the MCAS assessment is classified into one of four achievement levels. Each committee was asked to recommend three cut scores that would define the boundaries between the different achievement levels. These recommended cut scores represent the performance on each assessment that a student would need to meet or exceed to be classified into the specific performance level.

Committee Participant Composition

All participants for the standard setting committees were selected by the ESE, then recruited and invited to participate in the standard setting meeting by Measured Progress. The process of selecting committee participants included selecting a sample of participants that would be as representative of the state as possible, including demographic variables (gender, race, etc.), geographic representation, and background (educational experience, education, etc.). When selecting participants, ESE placed an emphasis on those educators who had relevant content knowledge as well as experience with a variety of student groups.

There was a total of 125 participants at the standard setting meetings, who were divided between six committees. Each committee focused on providing cut score recommendations for two tests from the same subject at adjacent grades. The participants were assigned to the committee prior to the meetings, based on their teaching experience. Table 10 displays the total number of participants in each of the standard setting committees. The tables in Appendix D summarize the characteristics and experience of the participants in each committee. These tables provide demographic information about the committee participants as well as information about the participant's current positions in education, their experience working with various types of student populations, and the types of districts they represent. Participant's responses to the gender and ethnicity questions was voluntary.

Table 10. Number of Participants in Each Standard Setting Committee

Grades	Subject	
	ELA	Mathematics
3 & 4	18	20
5 & 6	22	23
7 & 8	23	19

The participants in each committee were assigned to table groups. The table groups were selected prior to the meeting to ensure that, to the greatest extent possible, the participants at each table were representative of the committee. The participants were placed into table groups to facilitate discussions during the standard setting meeting and ensure that each participant had the opportunity to fully engage in the process.

Prior to the standard setting meeting, individuals were selected from the participants to serve as table leaders for each committee. One table leader was assigned to each table group. The table leaders assisted the process facilitator during the meeting by facilitating the group discussions, ensuring that all participants had the opportunity to participate and that the discussion remained relevant to the meeting. To assist the table leaders in understanding and fulfilling their role during the meeting a specific table leader training was provided on the first day of the standard setting, facilitated by the Eric L. Moyer, Ph.D., the lead facilitator for the meeting.

Standard Setting Meeting Facilitators and Staff

Staff members from ESE, Measured Progress, and Pearson collaborated to conduct the MCAS standard setting meeting. These staff members worked in facilitative and observational roles and did not contribute to the cut score recommendations during the meeting.

Meeting Facilitators

The lead facilitator of the standard setting meeting was Eric L. Moyer, Ph.D. from Pearson. For each of the six breakout committees at the standard setting meeting there were two facilitators assigned, a process facilitator and a content facilitator. The process facilitator was a member of the Pearson psychometric staff with experience in facilitating standard setting meetings and was responsible for leading the participants through the standard setting process. The content facilitator was a content specialist familiar with the content for the MCAS assessment from either ESE or Measured Progress and was responsible for leading the participants through the information associated with the development of the test and procedures for scoring the items. Table 11 presents the process and content facilitators for each standard setting committee.

Table 11: Process and Content Facilitators for Standard Setting Committees

Committee		Facilitators	
Subject	Grades	Process Facilitator	Content Facilitator
ELA	3 & 4	Jenna Coppella, Ph.D.	Amy Carithers
	5 & 6	Robert Schwartz, Ph.D.	Marjorie Wine
	7 & 8	Steve Fitzpatrick, Ph.D.	Jen Malonson
Math	3 & 4	Mark Robeck, Ph.D.	Mary Lou Beasley
	5 & 6	Jennifer Galindo, Ph.D.	Simone Johnson
	7 & 8	Melinda Taylor, Ph.D.	Kristin Crawford

Meeting Data Analysts

For the standard setting meeting, two data analysts performed all of the analysis for all six committees. The data analysts were George Liao and Nathan Michen, Ph.D.. During the meeting, the analysts collected participant judgment data, performed independent analysis to verify analysis results, and prepared participants feedback.

ESE Staff

ESE staff members attended the standard setting meeting to observe the process, answer assessment and curriculum questions, and address policy questions. ESE staff also monitored the cut score recommendations for each achievement level throughout the standard setting meetings. ESE was represented at the cut score setting meeting by Michol Stapel, the Associate Commissioner for Student Assessment, and Robert Lee, the MCAS Chief Analyst. These were assisted by additional ESE staff to monitor the standard setting meeting, including content and assessment specialists.

Technical Advisors

A technical advisor, Charlie DePascale, Ph.D., a member of the MA Technical Advisory Committee (TAC), monitored the standard setting meetings for ESE. The technical advisors observed the standard setting meetings and gave their advice and findings to the ESE after the meeting. The technical advisor did not participate in the meeting or contribute to the cut score recommendations during the meeting.

Materials

The following section describes the materials used by the committee members during the standard setting breakout sessions. Separate materials were developed for the standard setting meeting.

Moodle

The Pearson Standard Setting Moodle site was used as the online platform for housing the

materials for the standard setting meeting and collecting participant judgments throughout the standard setting process. Moodle is an open source e-learning platform that provides access to the necessary information for completing the standard setting meeting. Since some components of the MCAS assessments were administered through an online environment, TestNav 8, the Moodle site provided participants access for viewing the items within the same online used by the students during the spring 2017 administration. The Moodle site also provided participants access to online documents that provided background information about the MCAS assessments. Each cut score setting meeting had a unique site within the Pearson Standard Setting Moodle site.

Binders

In addition to the online resources provided through Moodle site, participants were provided with a meeting binder to organize a variety of hard copy materials they would need to work with throughout the meeting. These materials included:

- Agenda
- ALDs
- ALDs comment form
- Experience the test response form
- Answer keys
- Open-response item scoring rubrics and student exemplars
- Item comment form
- Item judgment record forms

The binders were prepared in advance. Participants were required to check out and check in their binders at the start and end of each day of their meetings. Participants were provided additional materials throughout the meeting, which they were instructed to insert into their binders.

Computers

Each participant was provided a laptop computer within their meeting room to access the online resources through the Moodle site. The laptops were Dell latitudes with 15.6” screens, standard keyboards with full-size number pad, and an external mouse. Participants were not provided with external keyboards, numeric keypads or external monitors. Participants were seated in table groups in pod configuration, to provide each participant with enough space to work with the computer and binder materials. The power supplies were centrally located in the middle of each table. The participants used Google Chrome to access the Moodle site, which was programmed with a white list of websites to restrict participants use of the computers to work associated with the cut score setting meeting.

Procedure

The Extended Modified (Yes/No) Angoff Method (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Budkendahl, 2005) was used during the standard setting meeting to assist participants in recommending achievement level cut scores for each assessment. This method asked participants to review each item from the operational administration and answer the following question:

“How many points would a borderline student at the [specific] achievement level likely earn if he or she answered the question?”

For the standard setting meeting, “likely” was defined statistically as the student having at least a 2/3 chance of earning the number of points. The participants completed the task for each achievement level.

Participants completed three rounds of item judgments. Between the item judgment rounds, they were provided feedback information including data relative to participant agreement, student performance on the items, and student performance on the test as a whole.

Standard Setting Meeting Proceedings

The standard setting meetings were conducted across four days, August 14–17, 2017, in Danvers, Massachusetts. Appendix E includes the complete agenda for the standard setting meetings. Table 12 presents a high-level agenda for the standard setting committee meetings.

Table 12: Cut Score Setting Meeting Agenda Topics

General Session	<ul style="list-style-type: none"> · Welcome and Introductions · History and Overview of MCAS Assessment System · Overview of Cut Score Setting Process
Breakout Sessions	<ul style="list-style-type: none"> · Introductions · <i>Upper Grade Assessment</i> <ul style="list-style-type: none"> · Experience the Assessment · Borderline Achievement Level Descriptors · Standard Setting Training · Round 1: Judgment and Feedback · Round 2: Judgment and Feedback · Round 3: Judgment and Feedback · <i>Lower Grade Assessment</i> <ul style="list-style-type: none"> · Experience the Assessment · Borderline Achievement Level Descriptors · Round 1: Judgment and Feedback · Round 2: Judgment and Feedback · Round 3: Judgment and Feedback · Evaluation and Closing Remarks

The following will describe the steps used to guide the participants through the entire standard setting process.

Standard Setting Meeting Pre-Work

The standard setting meeting participants were provided access to a set of activities prior to attending the onsite meetings. The purpose of the pre-work was to expedite the training of the participants, by providing the participants an opportunity to familiarize themselves with information that would be used throughout meeting. The pre-work included:

- Moodle – The pre-work was provided via documentation or links embedded within the secure Moodle site developed for the standard setting meeting. This allowed participants

to access the Moodle site and gain some familiarity with navigation in the site prior to the meeting.

- Participant survey – Participants were provided a survey to document their demographic information as well as current teaching position, experience, and school information. Participants were able to access this survey before and during the meetings.
- *MCAS Curriculum Framework* – Participants were provided access to the current version of the *MCAS Curriculum Framework* for the subject associated with their meeting.
- ALDs - Participants reviewed policy level and achievement level descriptors for the specific grade and course, which is a key set of information that was used throughout the cut score setting meeting.
- Security and Non-disclosure – Participants were provided access to the security and non-disclosure agreement for the standard setting meeting, so they would familiar with its content before signing the agreement at the meeting.

To provide the participants access to the pre-work materials prior to the meeting, they were supplied their unique login and a temporary password for the Moodle site to the email they provided when they registered for the meeting. This login provided them access to the specific section of the Moodle site associated with the standard setting meeting for which they were registered. Participant access was restricted to only the respective site for the standard setting meeting they were attending.

General Session

The purpose of the general session was to welcome the participants, provide background information about the next-generation MCAS assessment system, and introduce the standard setting process. A single general session including all 125 standard setting participants was conducted on Monday morning, at the beginning of the standard setting meeting. Jeff Wulfson, the acting Commissioner of Elementary and Secondary Education, provided a welcome to the Massachusetts educators and an overview of history of the MCAS assessment program. The official charge for the meeting along with a review of related student performance statistics was provided by Michol Stapel and Robert Lee. An overview of the cut score setting process was provided by Eric Moyer, the lead research scientist from Pearson facilitating the standard setting process.

Breakout Session

After the general session, participants moved into grade- and subject-specific breakout sessions for the remainder of the standard setting meeting. Each committee was responsible for providing recommendations for cut scores for each of the achievement levels for two tests from consecutive grades for the same subject. The committee provided recommendations for the higher grade first and then the lower grade, using each of the activities described below.

Experience the Test. Participants experienced the specific operational test form that the students were administered during the spring 2017 administration. The participants experienced the test just as students did, online administered through the TestNav 8 system, which was accessed through the Moodle site.

Since the version of the online testing system used during the standard setting meetings did not store and score participant responses, participants recorded their responses on a separate item response form, provided in the participant binder. During this activity, if the participants identified any issues with items on the test form, they were asked to record the comments on an Item

Comment Form, which was collected at the end of the meeting.

After the participants completed the Experience the Test activity for the first (higher grade) test, the content facilitators provided instruction on how to score the items based on the scoring rules used for MCAS. An answer key document and open-ended item rubric and exemplar document were provided to participants so they could score their responses to the items. The answer key documents provided information about the item, including a unique item number, reporting category, maximum possible score, the correct response for the item, and any specific scoring rules for the item. For open-ended items, the answer key provided a reference to the open-ended item rubric and exemplar document, so the participant could see what was expected to earn each possible score point.

Borderline Achievement Level Descriptors. An essential component to the standard setting process is the development of borderline achievement level descriptors. To help inform this activity during the standard setting meeting, the process facilitators reviewed the achievement levels and the achievement level descriptors for the respective grade and subject. The participants reviewed the grade- and subject-specific ALDs, providing them with a common understanding of the knowledge, skills and abilities a typical students should demonstrate within each achievement level for the respective assessment. During this group activity, participants were asked to discuss the differences between the expectations at the different performance levels.

The participants were then introduced to the difference between a *typical* student and *borderline* student within an achievement level. The borderline student was described as the minimally qualified student to be classified within a particular achievement level, possessing just enough knowledge, skills, and abilities to achieve the specific achievement level classification. They worked through a three-step jigsaw process to develop the borderline achievement level descriptors.

- Step 1: Representatives from each table were assigned an achievement level. These groups met first to discuss the ALDs for their assigned level and identify general characteristics of a borderline student within the specific achievement level across reporting categories.
- Step 2: Original table groups reconvened and discussed what they learned about each borderline achievement level and then worked as a table group to develop borderline achievement level descriptors for each achievement level for an assigned reporting category. The borderline ALDs were developed cooperatively in a google document for the table group access through the Moodle site.
- Step 3: The facilitator collected the borderline ALDs from each group into a single master document. The collected borderline ALDs are reviewed with the whole group and edited based on participant feedback for consistency in student expectations across achievement levels.

The final list of borderline ALDs were printed and provided to each participant to place in their binders as a reference for subsequent activities.

Item Judgment Process Training. The process facilitator for the committee provided the participants with training on the Extended Modified (Yes/No) Angoff standard setting process (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Budkendahl, 2005) and how to use the

Moodle site to record their individual item judgments. They were instructed to review each item from the assessment, which was accessed through the Moodle site, review the borderline ALDs, the answer key, and, if needed, the rubric and student exemplars for the item. Based on their review of the item and the related materials, the participants answered the following question:

“How many points would a borderline student at the [specific] achievement level likely earn if he or she answered the question?”

The response to judgment question for each item was recorded within the judgment survey in the Moodle site. Figure 4 presents an example item judgment survey in the Moodle site. Participants completed the item judgments for each achievement level for an item before moving on to the next item.

For each of the items, answer the following question:
 "How many points would a borderline student at each performance level likely earn if they answered the question?"

Item: VF557869

	0 Points	1 Point	2 Points
Partially Meeting Expectations	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exceeding Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Item: VF557858

	0 Points	1 Point	2 Points
Partially Meeting Expectations	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exceeding Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 4: Example Item Judgment Survey from Moodle Site

The participants also kept a record of their item judgments on the Judgment Round Record Sheet. This document was provided to them as part of the materials in their binder. It included the unique item number, reporting category, and maximum possible points for the item. The participants were shown how to use the unique item number to ensure that they were referencing the correct item on all documents, within the judgment survey, and in the online system.

To provide the participants practice in making item judgments, they completed a practice judgment task. The participants made judgment for the all achievement levels on a set of practice items, including both dichotomously and polytomously scored item. They were expected to complete their judgments independently and without discussion from other participants. After all the participants completed the practice judgment activity, a group discussion was used to review the judgment process, review the participant responses, demonstrate how their item judgments were used to determine a test level recommendation, and answer any questions that they had about the judgment process.

Item Judgment Rounds. After receiving training on the standard setting process, the participants participated in three rounds of judgments. Before starting each of the three bookmark judgment rounds, the participants were required to complete a readiness survey in the Moodle site indicating that they understood the task and process used to complete the item judgments. The participants had to answer “yes” to all readiness survey questions before

continuing with the bookmark judgment round. If they responded “no” to any question, they were asked to notify a facilitator for additional assistance. Figure 5 present an example of the readiness quiz participants needed to complete before starting the item judgment task.

Readiness Survey:
 Before starting the activity, select a response for each of the following questions.

Do you understand your task for the Item Judgment activity?

Select one:

Yes

No

Are you ready to begin the Item Judgment activity?

Select one:

Yes

No

Figure 5: Example Readiness Quiz Before Item Judgment Task

Each judgment round consisted of a review of the judgment process by the process facilitator, with explicit instruction on which materials would be needed to complete the task, followed by participants working independently on their item judgments. Participants were required by the Moodle system to provide judgments for each item before they could submit their judgment survey.

Once all the participants had completed their item judgments, data analysts from Pearson collected the data from the Moodle site and performed the analysis to determine an aggregate recommendation for the committee. The participants were provided feedback after each judgment round which could be used to inform subsequent judgments. Table 13 displays the type of feedback that was provided to participants after each round of judgments.

Table 13: Feedback Data Provided to Participants After Each Judgment Round

Feedback	Round		
	1	2	3
Individual item-level judgment record	Yes	Yes	Yes
Individual test-level recommendations	Yes	Yes	No
Table test-level recommendations	Yes	Yes	No
Committee test-level recommendations	Yes	Yes	Yes
Item-level participant agreement	Yes	Yes	No
Test-level participant agreement	Yes	Yes	No
Item score mean and score distribution	Yes	Yes	No
Impact data	Yes	Yes	Yes

Appendix F provides examples of each of the feedback data provided to participants, along with

a brief description of the feedback presented.

After feedback from round 1 judgments were provided to participants, they participated in table-level discussion of the rationale for each of their round 1 item judgments, facilitated by the table leaders. After feedback from the round 2 judgments were provided to participants, both table-level and committee discussions were facilitated where participants could discuss feedback data and rationale for individual round 2 judgments. Since the round 3 judgments were the participants' final judgments, the feedback data was provided to facilitate the participants' evaluation of the final recommendation by the committee and to discuss any additional changes they would like to see, to assist the table leaders during the vertical articulation meeting.

Process Evaluations. After the round 3 judgments and feedback, participants were asked to complete a process evaluation survey in the Moodle site. The purpose of these surveys was to collect information about each participants experience in recommending cut scores for the achievement levels associated with the MCAS assessments. The survey asked participants to provide feedback on the following:

- The level of success of the various components of the meeting
- The usefulness of the activities conducted during the meeting
- The adequacy of the various components of the meeting
- The adequacy of opportunities to ask questions, etc. the meeting
- How confident participants were that the recommended cut scores accurately reflected student performance at each achievement level
- Whether committee members thought that their judgments and opinions were treated with respect by facilitators and fellow participants

All participants were also allowed to provide any additional information concerning their evaluation of the process of the standard setting meeting through an open response question.

Recommended MCAS Cut Scores from Standard Setting Committees

During the cut score setting meeting, it was expected that there would be variation between participants' cut score recommendations for each achievement level. To determine a single cut score recommendation for an achievement level for a committee, the cut score recommendations for the achievement level were averaged across participants. Specifically, the median cut score from a set of participants' cut score recommendations was used to determine the recommended cut score for an achievement level for the committee. The recommendation resulting from the round 3 judgments was considered as the committee's recommendation for the standard setting meeting. Table 14 displays the recommended cut scores for each achievement level based on the round 3 recommendations for each course and subject. Figures 6 and 7 display the impact data for ELA and mathematics, respectively, based on the recommended cuts scores from round 3 from each committee.

The recommended cut scores for each achievement level from the three judgment rounds for each standard setting committee, represented as raw scores, are presented in Appendix G. The summary statistics for the recommended cut scores for each achievement level from the three judgment rounds for each standard setting committee are shown in Appendix H. The participant agreement data for each performance level for judgment rounds 1 and 2 for each standard setting meeting are shown in Appendix I. The estimated impact data after judgment round 3 for each achievement level for each standard setting committee are shown in Appendix J.

Table 14: Cut Score Recommendations from Standard Setting Committees

Subject	Grade	Maximum Score	Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
			Raw Score	% Correct	Raw Score	% Correct	Raw Score	% Correct
ELA	3	42	11	26.2	24	57.1	35	83.3
	4	42	13	31.0	28	66.7	38	90.5
	5	46	12	26.1	28	60.9	40	87.0
	6	49	11	22.4	28	57.1	40	81.6
	7	49	14	28.6	30	61.2	43	87.8
	8	49	16	32.6	32	65.3	43	87.8
Math	3	48	12	25.0	29	60.4	43	89.6
	4	54	14	25.9	33	61.1	49	90.7
	5	54	11	20.4	31	57.4	48	88.9
	6	54	8	14.8	28	51.9	44	81.4
	7	54	9	16.7	31	57.4	44	81.5
	8	54	11	20.4	31	57.4	45	83.3

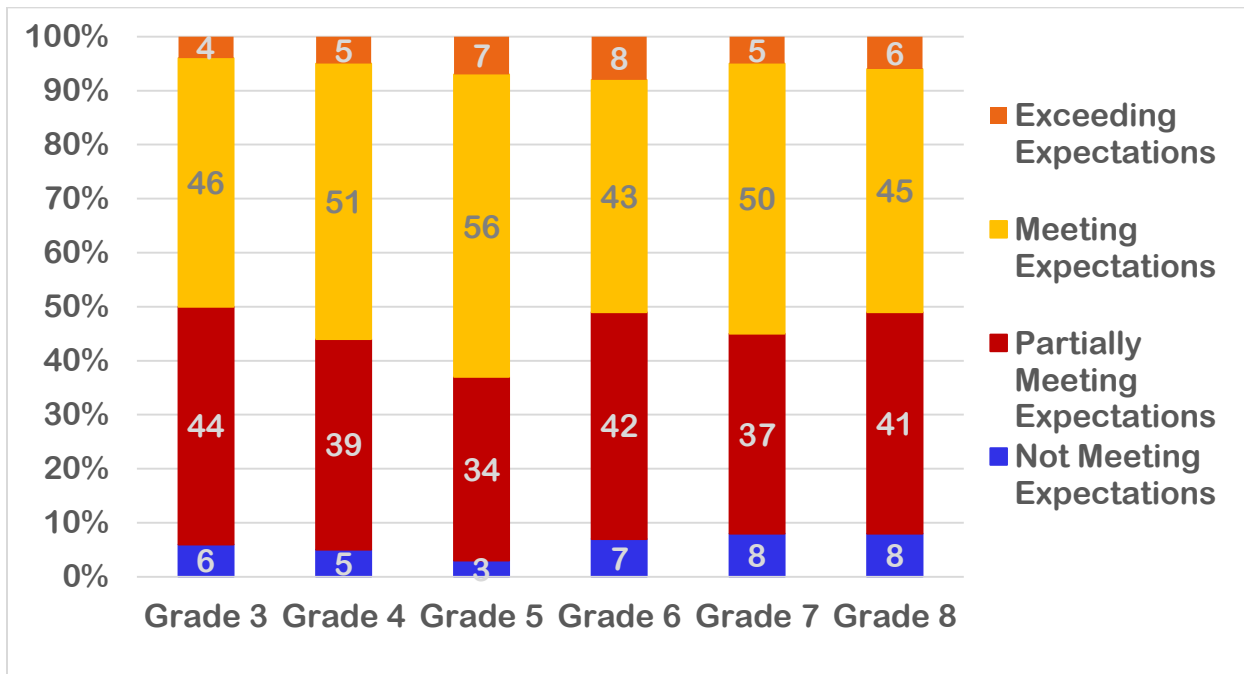


Figure 6: ELA Impact Data from Round 3 Recommendations

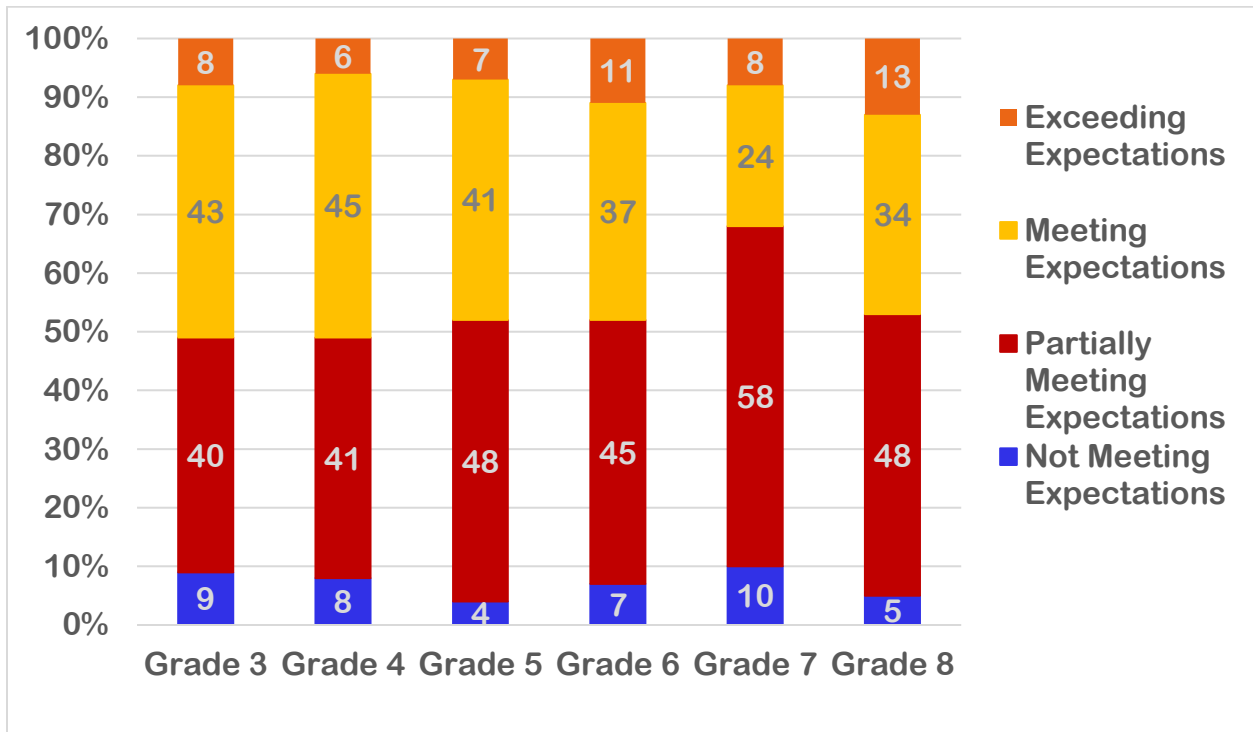


Figure 7: Mathematics Impact Data from Round 3 Recommendations

Chapter 4 – Post-Standard Setting

This chapter provides details about the work completed after the standard setting committee meetings. The sections of this chapter include:

- Vertical articulation meeting
- Linear scaling process

Vertical Articulation Meeting

The purpose of the vertical articulation meeting was to review the cut score recommendations from the standard setting committees within a content area and evaluate the reasonableness of the recommendation. Where the recommendations from the standard setting committees were made with a specific focus on the respective content for this committee, the focus of the vertical articulation committee was to view the cut score recommendations across grades within a content area, to evaluate whether the recommendation resulted in a cohesive assessment system. The participants of the vertical articulation meeting were guided through a specific process where they would review the recommendations from the standard setting committee and, if necessary, recommend and review changes to the recommendation, resulting in a set of recommended cut scores from the vertical articulation committee.

The vertical articulation committees were convened as a separate meeting after the standard setting committee concluded, on Friday, August 24, from 8 to 12. There were two separate vertical articulation meetings, focused on ELA and mathematics separately. The participants of the vertical articulation meetings were the table leaders from the individual standard setting committee. Within the vertical articulation meeting, the participants were assigned to table groups, where they worked with the other table leaders from their standard setting committee. The facilitators for the ELA and mathematics vertical articulation meetings were Robert Schwartz, Ph.D. and Eric L. Moyer, Ph.D., respectively.

Meeting Process

The vertical articulation process involved three steps:

- Review and discussion of the cross-grade impact data
- ALD cross-grade review activity
- Review and recommendation to recommended cut scores

At the beginning of the meeting, the participants had the opportunity to introduce themselves to the rest of the committee participants. After these introductions, the participants were instructed to the purpose of the vertical articulation meeting, as the opportunity to review the recommended cut scores from the standard setting meetings across the grades within the same subject, ensuring that they represented a cohesive assessment system. In the previous standard setting meetings, they were focused primarily on the content related to the grades within their committees, where in this meeting they would review the recommendation from all the standard setting committees from a more policy perspective.

The participants were presented with the cross-grade impact data chart reflecting the results from the round 3 judgments of all standard setting committees for their subject area. The impact data they were presented for grades 3 through 8 is shown in Figures 6 and 7, for ELA and

mathematics vertical articulation committees, respectively. The groups had the opportunity to discuss how the results looked across grades, based on their initial expectations.

In the next step of the vertical articulation process, the participants were provided the opportunity to independently review the ALDs for all grades 3 through 8 for their respective subject. The instructions for this activity were to look for differences or similarities in student expectation across grades that could be used to explain the articulation of student impact across grades. After looking the ALDs independently, the participants had the opportunity to discuss the ALDs as a table group.

Based on their expectations of student impact relative to their review of the ALDs, the participants were provided the opportunity to investigate changes to the recommended cut scores from round 3 using an interactive spreadsheet, which they accessed through the Moodle site. Figure 8 presents the interactive spreadsheet for the ELA vertical articulation meeting.

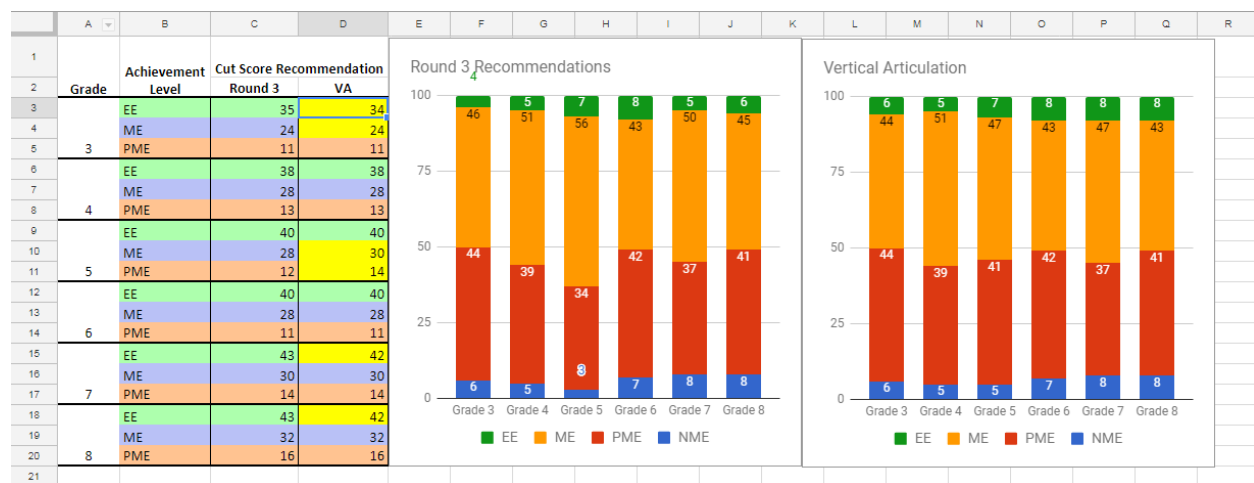


Figure 8: Interactive Spreadsheet for ELA Vertical Articulation Meeting

The interactive spreadsheet that allowed them to only investigate possible changes to the cut scores from their committee. The participants were instructed to investigate changes to the recommended cuts scores, if they felt that the pattern of the impact data across grades was inconsistent with what they expected, based on their review of the ALDs and their understanding of a cohesive assessment system. The changes would be made directly at the cut score level and did not involve changes to the item level judgments. The range of individual participant’s cut score recommendations from round 3 were used as a guide when evaluating how much change would be reasonable to make. The participants were aware of the need to honor the work the standard setting committees had done and were judicious in making changes.

After the participants had time in their group to investigate possible cut score changes, the table groups had the opportunity to recommend changes to cut scores for achievement levels for the grades associated with their standard setting committee. When a change in cut score was recommended by a table group, it was entered into a master interactive spreadsheet by the meeting facilitator for the entire committee to view the change in cut score and pattern of impact data across grades and achievement levels. One recommended change at a time was viewed, discussed, and then either accepted or rejected by the vertical articulation committee. This process was repeated until all recommended changes were discussed and the vertical

articulation committee agreed with the entire set of cut score recommendation across all grades.

Participants were aware of the need to honor the work the standard setting committees had done and were selective in making change so that the number and magnitude of changes were limited to only those changes necessary to support the articulation across grades. Table 15 displays the changes made to the recommended cut scores from the standard setting committees. The largest change made by the ELA committee was adding 2 raw score points to the *Partially Meeting Expectation* and *Meeting Expectations* cut scores. The largest change made by the mathematics committee was subtracting 6 raw score points from the *Meeting Expectations* cut score. Except for two changes, all changes resulted in raw score recommendations that were between the Q1 and Q3 recommendation from round 3 for the respective committee. The changes to the mathematics grade 4 *Exceeding Expectations* cut and the mathematics grade 7 *Meeting Expectations* cut resulted in changes that were within the minimum and maximum range from the round 3 cut, but the committees believed that the changes were warranted to communicate reasonable student expectations across all grades.

Table 15: Changes to the Cut Score Recommendations by the Vertical Articulation Committees

Subject	Grade	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
ELA	3	0	0	-1
	4	0	0	0
	5	+2	+2	0
	6	0	0	0
	7	0	0	-1
	8	0	0	-1
Math	3	0	0	0
	4	0	0	-1
	5	+1	0	0
	6	0	0	+1
	7	-1	-6	-1
	8	0	0	+1

Table 16 displays the recommended cut scores for each achievement level based on the final vertical articulation recommendations for each course and subject. Figures 9 and 10 display the impact data for ELA and mathematics, respectively, based on the recommended cuts scores from the vertical articulation committee.

Table 16: Cut Score Recommendations from the Vertical Articulation Committees

Subject	Grade	Maximum Score	Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
			Raw Score	% Correct	Raw Score	% Correct	Raw Score	% Correct
ELA	3	42	11	26.2	24	57.1	34	81.0
	4	42	13	31.0	28	66.7	38	90.5
	5	46	14	30.4	30	65.2	40	87.0
	6	49	11	22.4	28	57.1	40	81.6
	7	49	14	28.6	30	61.2	42	85.7
	8	49	16	32.6	32	65.6	42	85.7
Math	3	48	12	25.0	29	60.4	43	89.6
	4	54	14	25.9	33	61.1	48	88.9
	5	54	12	22.2	31	57.4	48	88.9
	6	54	8	14.8	28	51.9	45	83.3
	7	54	8	14.8	25	46.3	43	79.6
	8	54	11	20.4	31	57.4	46	85.2

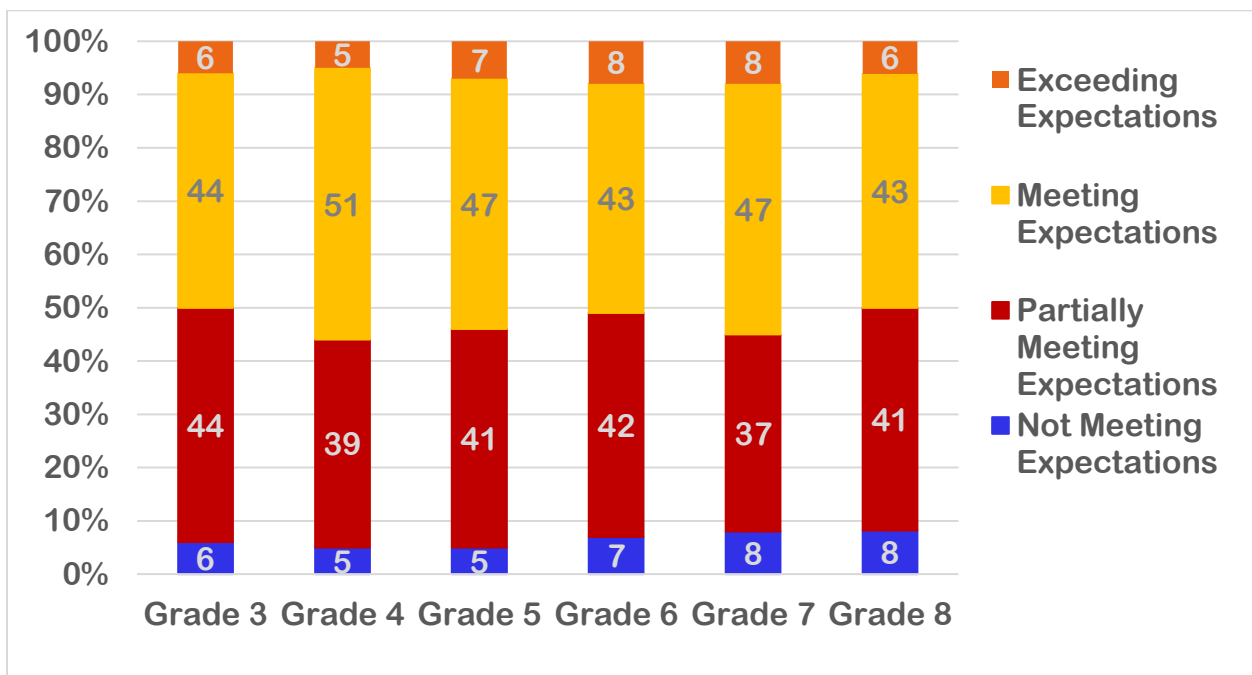


Figure 9: ELA Impact Data from Vertical Articulation

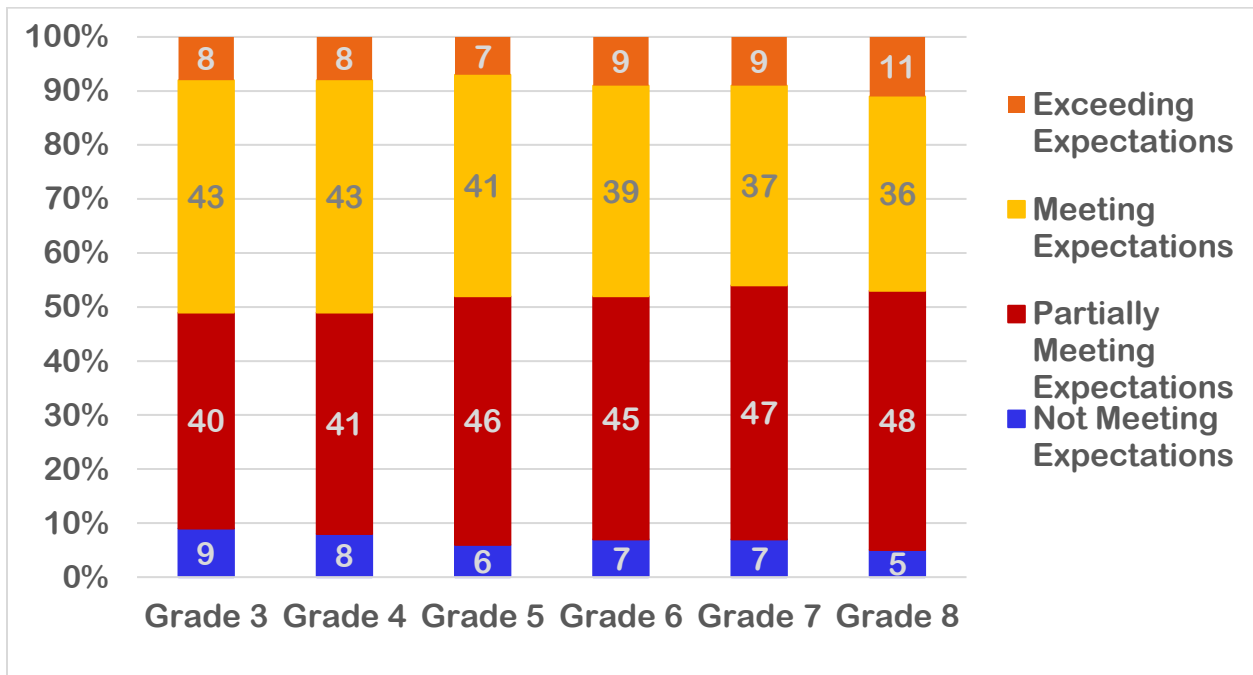


Figure 10: Mathematics Impact Data from Vertical Articulation

Process Evaluation Survey

At the end of the vertical articulation meeting, participants were asked to complete a process evaluation survey in the Moodle site. The purpose of the evaluation was to collect information about each participants experience in the vertical articulation meeting. The evaluation asked participants to provide feedback on the following:

- The level of success of the various component of the meeting
- The usefulness of the activities conducted during the meeting
- The adequacy of the various components of the meeting
- The level of support the participants had in setting the recommended cut scores for each achievement level across all grades

All participants were also allowed to provide any additional information concerning their evaluation of the process of the vertical articulation meeting through an open response question.

Linear Scaling Process

The recommendations from the standard setting and vertical articulation committees were cut scores in terms of raw scores on the test. Student results are not reported as raw scores, since the overall difficulty of tests may change from year to year, so results would not be able to be compared across years. To address this, student results on the MCAS are reported using scale scores, which are comparable across administration years. After the vertical articulation meeting, a process was implemented to determine the process for transforming the raw scores from the spring 2017 administration to MCAS scale scores.

The process of determining the rules for transforming the raw scores to the final MCAS reporting scale was guided by several principals identified by ESE:

1. Respect the cut score recommendations from the vertical articulation committees by the final scaling solution maintaining the final cut scores as close as possible to the vertical articulation cut score recommendations
2. The impact data from the final scaling solution should reflect a coherent assessment system across the grades
3. The reporting MCAS scaled scores for the three achievement level cuts should be the same across grades and tests
4. The scaling solution should involve a single linear transformation, from the underlying IRT scale to the reporting MCAS scale
5. The reporting MCAS scaled score range should be the same across grades and tests.

This process, involving Pearson, Measured Progress, and ESE, was used to determine a final reporting scale and transformation rules for each test. A more extensive description of the development of the scaling process will be included in the overall MCAS technical report.

The following iterative process was used to determine the final cut scores for the achievement levels for the MCAS assessments, starting with the raw score cuts recommended from the vertical articulation meeting:

- The raw score cuts for the three achievement levels were translated to cuts on the IRT scale using the raw score to theta (IRT) lookup table for the specific assessment.
- The cuts on the IRT scale were adjusted so that the differences between consecutive cuts were the same, allowing for the use of a single linear transformation rule.
- Based on the adjusted IRT cut scores, scaling constants for the linear transformation from the IRT cuts to MCAS scale score cuts were determined.
- Using the scaling constants, lookup tables for each grade and test were created, displaying the relationship between the raw scores and reporting MCAS scaled scores.
- Based on the lookup tables, adjusted raw score cuts for each achievement level were determined.
- Finally, the resulting impact data based on the adjusted raw score cuts was calculated and reviewed to ensure a coherent system across grades.

This process was repeated several times until a final scaling solution was determined, which met, as closely as possible, ESE requirements.

For this process the LOSS of 440 and HOSS of 560, were held constant for all assessments across grades and subjects. Additionally, in order to create common points of reference across the assessments, the same cuts on the MCAS scale for each achievement level were defined, with a *Partially Meeting Expectations* cut of 470, a *Meeting Expectations* cut of 500, and an *Exceeding Expectations* cut of 530. These requirements were established through discussion between ESE and MP psychometric staff.

As with the vertical articulation committees, the participants of this process were aware of the need to honor the work the vertical articulation committees had done and were selective in making change so that the number and magnitude of changes were limited to only those changes necessary to meet the ESE requirement for scaling and reasonableness across

grades. Table 17 displays the changes made to the recommended cut scores from the vertical articulation committees. The largest change made to the cut scores of any assessment was a change of 2 raw score points. More significant changes were made to the *Partially Meeting Expectations* and *Exceeding Expectations* cuts to see the percent of students in the extreme ranges be more reasonable across grades. Except for five instances, all changes resulted in raw score recommendations that were between the Q1 and Q3 recommendation from round 3 for the respective standard setting committee. The changes to the cuts for grade 5 ELA *Exceeding Expectations*, grade 5 mathematics *Partially Meeting Expectations*, and grade 6 mathematics *Partially Meeting Expectations* and *Exceeding Expectations* resulted in raw score cuts that were within the minimum and maximum range from the round 3 cut for the respective standard setting committee. The change to the grade 5 ELA *Partially Meeting Expectations* cut was outside of the minimum and maximum range for round 3, but was within the minimum and maximum range for the round 2 recommendations for the standard setting committee.

Table 17: Changes to the Cut Score Recommendations for Linear Scaling

Subject	Grade	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
ELA	3	+1	0	-1
	4	+2	+1	-1
	5	+2	+1	+1
	6	+1	0	+1
	7	-1	+1	+1
	8	-1	0	0
Math	3	+1	0	0
	4	+2	0	+1
	5	+2	0	0
	6	+2	-1	-2
	7	+2	0	+1
	8	+2	-1	-1

Table 18 displays the final recommended cut scores for each achievement level based on the results of this process for each course and subject. Figures 11 and 12 display the impact data for ELA and mathematics, respectively, based on the final recommended cut scores from the results of this process.

Table 18: Final Cut Score Recommendations from the Linear Smoothing

Subject	Grade	Maximum Score	Partially Meeting Expectations		Meeting Expectations		Exceeding Expectations	
			Raw Score	% Correct	Raw Score	% Correct	Raw Score	% Correct
ELA	3	42	12	28.6	24	57.1	33	78.6
	4	42	15	35.7	29	69.0	37	88.1
	5	46	16	34.8	31	67.4	41	89.1
	6	49	12	24.5	28	57.1	41	83.7
	7	49	15	30.6	31	63.3	43	87.8
	8	49	17	34.7	32	65.3	42	85.7
Math	3	48	13	27.1	29	60.4	43	89.6
	4	54	16	29.6	33	61.1	49	90.7
	5	54	14	25.9	31	57.4	48	88.9
	6	54	10	18.5	27	50.0	47	87.0
	7	54	10	18.5	25	46.3	44	81.5
	8	54	9	16.7	30	55.6	47	87.0

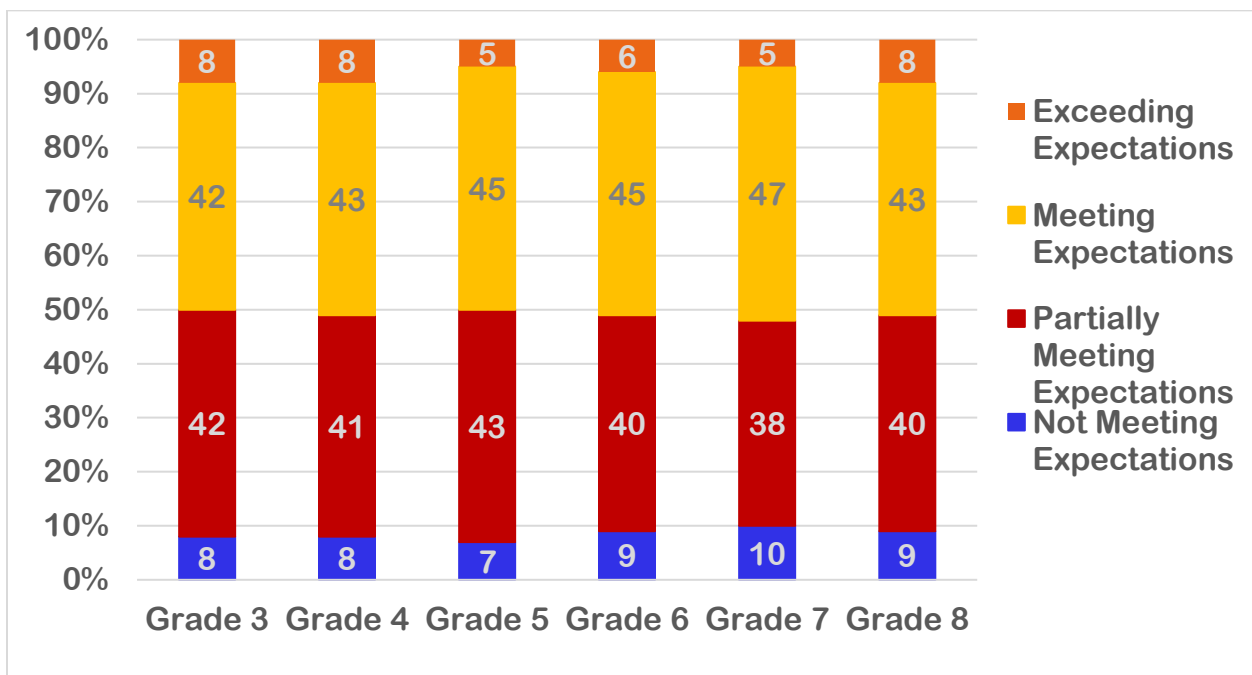


Figure 11: ELA Impact Data from Final Recommendation

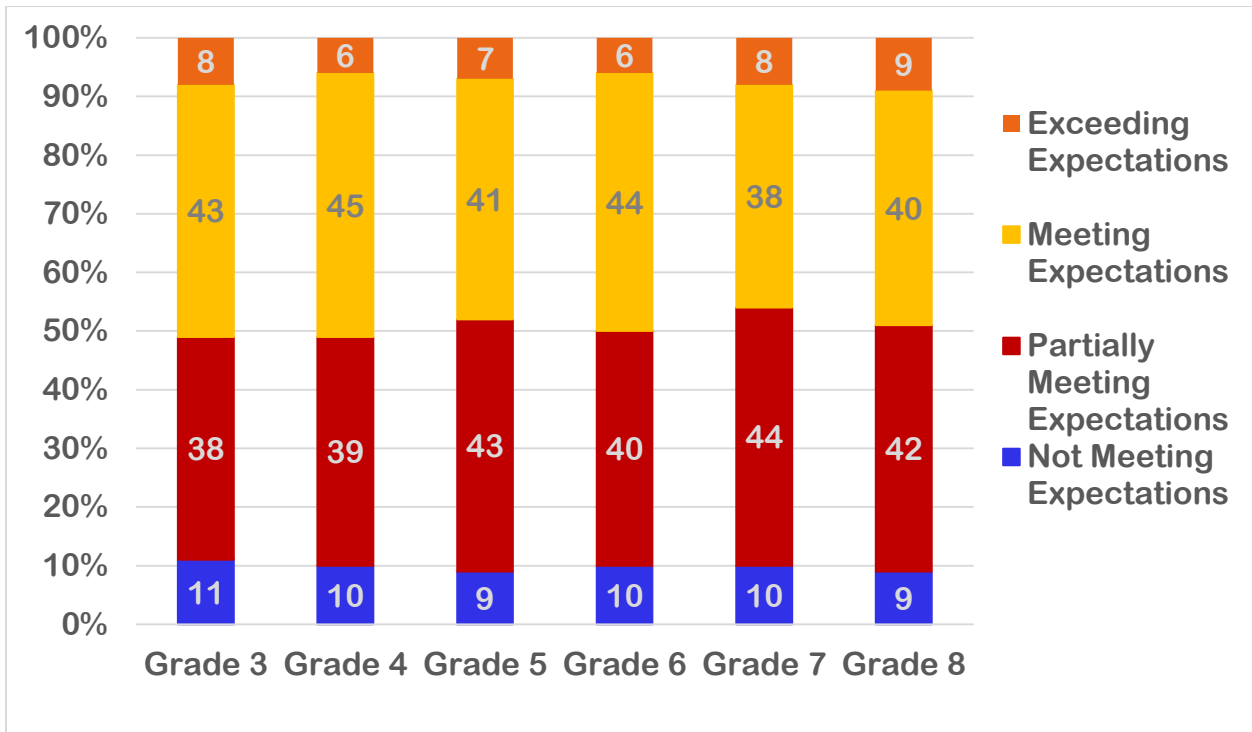


Figure 12: Mathematics Impact Data from Final Recommendation

Chapter 5 – Evidence of Procedural Validity of the Standard Setting Process

This chapter details various evidence for the validity of process used during the standard setting meetings. The sections in this chapter include the following:

- Committee representation
- Committee training
- Participants' perceived validity of the meeting
- Technical advisors perceived validity of the meeting

Committee Representation

As part of the standard setting evaluation, participants completed a demographic survey which collected information about their background relevant to educational experience. The results of the self-reported demographic characteristics of the participants are documented in Appendix D. Only one participant did not complete the demographic survey, from the ELA grades 5 & 6 standard setting committee.

As part of the survey, participants were asked to report their highest level of education (Table D.6), their current position (Table D.1), their number of years in education (Table D.2), and the number of years teaching a course related to their standard setting meeting (Table D.4). In each of the committees, the participants that had master's or doctoral degrees composed a majority of the committee. At least 50% of the participants of each committee were teachers in grades K-12. The teachers in the committees had a range of teaching experience, with at least 50% of the teachers in each committee having at least 11 years of experience in education.

The experience of the teachers in each committee was relevant to the recommendations they were making, with a large majority of participants in each committee indicating they had experience teaching the subject in the grades relevant to their committee, as presented in Table D.4. In most committees, except grades 7 and 8 mathematics, at least half of the participants had experience teaching the subject in grades beyond the grades relevant to their committee, increasing the cohesiveness of recommendations across grades, presented in Table D.3. The experience of the teachers in the committees included experience teaching different populations of students, as displayed in Table D.5. A large majority of participants of each committee had experience teaching general education, mainstream special education, and English language learners.

A large majority of participants were currently working in school districts, as presented in Table D.10. The participants that worked within school districts represented the various types of districts across the state, including size, type, and socioeconomic status. The set of participants for this standard setting was well selected for representing the teachers across the state in this process, which was noticed consistently by the facilitators of the meeting.

Committee Training

During the cut score setting meeting, it was essential that participants understood how to make judgments as part of the Extended Modified (Yes/No) Angoff standard setting methodology. The

participants were initially provided training in the standard setting methodology, during the general session and in the individual standard setting committees. The training that was provided to panellists concerning the implementation of the standard setting process was standardized across committees through the breakout session PowerPoint training slides. To provide the participants the opportunity to implement the standard setting methodology without consequence, including making judgments within the Moodle site, they participated in a practice item judgment round. During the practice item judgment round, the participants reviewed a reduced set of items and provided item judgments for the three achievement levels, *Partially Meeting Expectation*, *Meeting Expectations*, and *Exceeding Expectations*. After the practice judgment round, a whole group discussion was facilitated by the process facilitator to identify and respond to any questions or issues the participant encountered while implementing the standard setting process. Additionally, before each judgement round, participants responded to a readiness survey which asked whether participants were prepared for making their bookmark judgments. Participants were not able to continue to the item judgment survey unless they answer yes to both questions on the readiness survey and were encouraged to ask the facilitator questions, if they responded “no” to either question.

At various points within the standard setting meeting, participants were asked to complete a process evaluation survey to record their impressions of the effectiveness of the materials and methods employed during the standard setting meeting. The results of these process evaluations are presented in Appendix K. As part of the evaluation survey, the participants were specifically asked about the effectiveness of the training they received on the standard setting process. One question asked participants to rate how successful the initial introduction to the standard setting process during the general session was, to which more than 50% of participants across all committees responded that it was either *Successful* or *Very Successful*. Another question asked about the success of the overview of the standard setting process in the breakout session, which more than 50% of the participants in each committee responded that it was either *Successful* or *Very Successful*. More than 50% of participants in each committee indicated that the practice activity for the standard setting process was either *Successful* or *Very Successful*. In many committees the percentage of participants that indicated that the training on the standard setting process was greater than 70%, which indicates that most participants believed that they were prepared to implement the standard setting procedure to provide cut score recommendations for each assessment for which they were responsible.

During the vertical articulation meeting, the participants were provided training on the process and tools used during the meeting. At the end of the meeting the participant completed a process evaluation form to record their opinion on the training provided. The results of this process evaluation are presented in Appendix K. For each committee, all participants indicated that the introduction to the vertical articulation process was either *Successful* or *Very Successful*.

Perceived Validity of the Workshop

Participants and reviewers communicated their perceived validity of the workshop and the recommended cut scores. Participants indicated their perceived validity of the workshop as part of the workshop evaluation. Evaluations are important evidence for establishing the validity of recommended cut scores for the performance levels.

Participant Evaluations

Generally, the participants were satisfied with their recommendations and with the workshop as a whole. As part of the process evaluation from each committee, the participants had the opportunity to indicate their confidence that the Achievement Level Descriptors were reasonable for each of the achievement level. As shown in Appendix K, in the majority of the committees, at least 50% of the participants were *Confident* or *Very Confident* that the ALDs were reasonable for the achievement levels. For the *Partially Meeting Expectations* ALDs, only 30% of the participants indicated that they were *Confident*, but over 80% of the participant indicated that they were *Somewhat Confident* or *Confident*. For the *Meeting Expectation* ALDs, both the grades 4 and 7 math had 35% of the participants indicate that they were either *Confident* or *Very Confident*. For the *Exceeding Expectations* ALDs, both grades 4 and 7 math provided the lowest rating with at least 45% of the participants indicating they were either *Confident* or *Very Confident*. These responses provide evidence that the ALD's, which, as a foundation for the standard setting process, were perceived as providing reasonable expectations for each achievement level, by the participants.

The panellists were also provided the opportunity to indicate their confidence in the cut scores recommended by the standard setting committees. For the *Partially Meeting Expectations* achievement level, the majority of committees had at least 50% of the participants indicating that they were *Confident* or *Very Confident* in the cut score recommendations. For the *Meeting Expectations* achievement level, the majority of committees had over 65% of participants indicating that they were either *Confident* or *Very Confident* in the cut score recommendations. For the *Exceeding Expectations* achievement level, all of the committees had at least 55% of the participants indicating that they were *Confident* or *Very Confident* with the cut score recommendation. The only exception was that the participants in the grade 7 mathematics committee, indicated a lower level of confidence with the *Partially Meeting Expectations* and *Meeting Expectations* cut score recommendation, with at least 40% and 35% indicating that they were confident with the recommendations, respectively.

The participants were also provided the opportunity to provide additional feedback which indicated overall agreement with the process and the cut score recommendations.

“All members were respectful of each other and were able to discuss their viewpoints professionally, even if they had a different viewpoint. In the end, we were all in agreement over the final results, even if it took some compromise to get there. This was a very valuable process to experience and am thankful to have been chosen to participate in this process.” Grades 3 and 4 ELA participant

“In the end, I feel proud of the work we completed as panelists in determining cut scores and confident about the fact that these decisions were based on content likely student responses.” Grades 3 and 4 mathematics participant

“I found the standard setting process to be very interesting. The facilitators were skillful in leading this work with their knowledge in assessment and the content. After completing this process I am confident that we assigned appropriate cutoff scores for the levels based on the standards.” Grades 5 and 6 mathematics participant

Overall, this feedback from the cut score setting participants provides evidence for the validity of the cut score recommendations for each of the achievement levels from the standard setting

committee.

The participants in the vertical articulation meetings were also provided the opportunity to provide their opinion concerning the cut score recommendations for each achievement level resulting from the vertical articulation process. Based on the results, shown in Appendix K, the large majority of participants, at least 80%, from each committee indicated that they were *Confident* or *Very Confident* of the cut score recommendations from the vertical articulation process. These results provide further evidence for the validity of the process and the results used to create the cut scores for achievement levels for each assessment.

Technical Reviewer Evaluations

After the standard setting meeting, a technical advisor, Charlie DePascale, Ph.D., provided a written review of the standard setting process used during the meetings. Dr. DePascale was asked by ESE to serve as an independent observer of the standard setting meetings. During the standard setting meetings, he was provided access to all meeting and the materials provided to each participant. The full report of his review of the standard setting process was presented to the Massachusetts TAC during their meeting held in October 2017.

His review of the standard setting meeting, what that it could be described as “Meeting Expectations”, using the terminology of the MCAS assessments.

“Overall, the planned processes and procedures were implemented with fidelity across all of the standard setting panels from the opening plenary presentation on Monday, through the vertical articulation meeting on Friday.”

A major component to the standard setting process is the standardization process across the multiple committees being simultaneously run by different facilitators. Although there were areas indicated in Dr. DePascale’s review in which standardization could have been increased, there were no significant deviations from the procedures observed that could have impacted the final cut score recommendations. The results of this independent review of the process, provides additional evidence for the validity of the process developed and implemented during the standard setting meetings.

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Appendix A – Achievement Level Descriptors

English Language Arts (ELA) – Grades 3–8

MCAS Next Generation Achievement Level Descriptors English Language Arts General: Grades 3-8

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; cites limited textual support for conclusions; incompletely summarizes key details and ideas; provides a partial analysis of a character, event, or idea in grade-appropriate texts</p> <p>Demonstrates partial understanding of words and phrases used in a text; provides limited understanding of how structural elements, point of view or purpose affects the content and style in text(s)</p> <p>Makes basic comparisons between texts; shows partial understanding of content in diverse media; partially evaluates and analyzes claims and evidence in text(s)</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; cites solid textual support for conclusions; appropriately summarizes key details and ideas; provides a mostly complete analysis of a character, event, or idea in grade-appropriate texts</p> <p>Demonstrates general understanding of words and phrases used in a text; provides general understanding of how structural elements, point of view or purpose affects the content and style in text(s)</p> <p>Makes appropriate comparisons between texts; shows solid understanding of content in diverse media; appropriately evaluates and analyzes claims and evidence in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; cites in-depth textual support for conclusions; skillfully summarizes key details and ideas; provides a sophisticated analysis of a character, event, or idea in grade-appropriate texts</p> <p>Demonstrates in-depth understanding of words and phrases used in a text; provides sophisticated understanding of how structural elements, point of view or purpose affects the content and style in text(s)</p> <p>Makes insightful comparisons between texts; shows sophisticated understanding of content in diverse media; insightfully evaluates and analyzes claims and evidence in text(s)</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces clear writing with skillful selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea or sequenced events, effective organization, and clear expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts</p> <p>Demonstrates limited understanding of unfamiliar words in text and shows partial understanding of word parts and word relationships in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts</p> <p>Demonstrates solid understanding of unfamiliar words in text and shows sufficient understanding of word parts and word relationships in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text and shows full understanding of word parts and word relationships in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

MCAS Next Generation Achievement Level Descriptors
English Language Arts
Grade 3

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text states explicitly; cites limited textual support; demonstrates incomplete understanding of key details and how they support the main idea; provides a partial description of a character, event, or idea in grade 3 texts</p> <p>Demonstrates partial understanding of words and phrases (e.g. figurative language); demonstrates a limited understanding of structural elements, and different points of view</p> <p>Makes basic comparisons between texts; shows partial understanding of information presented in illustrations; partially compares and contrasts important points in text(s)</p>	<p>Demonstrates sufficient understanding of what a text states explicitly; cites solid textual support; demonstrates appropriate understanding of key details and how they support the main idea; provides a mostly complete description of a character, event, or idea in grade 3 texts</p> <p>Demonstrates general understanding of words and phrases (e.g. figurative language); demonstrates a general understanding of structural elements and different points of view</p> <p>Makes appropriate comparisons between texts; shows solid understanding of information presented in illustrations; appropriately compares and contrasts important points in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text states explicitly; cites in-depth textual support; demonstrates in-depth understanding of key details and how they support the main idea; provides a comprehensive description of a character, event, or idea in grade 3 texts</p> <p>Demonstrates in-depth understanding of words and phrases (e.g. figurative language); demonstrates a clear understanding of structural elements and different points of view</p> <p>Makes effective comparisons between texts; shows clear understanding of information presented in illustrations; effectively compares and contrasts important points in text(s)</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of facts and details related to grade 3 texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of facts and details related to grade 3 text, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces clear writing with effective selection and explanation of facts and details related to grade 3 texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea or sequenced events, effective organization, and clear expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of grade 3 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text; shows partial understanding of word parts and word relationships in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 3 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text; shows sufficient understanding of word parts and word relationships in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 3 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text; shows full understanding of word parts and word relationships in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

**MCAS Next Generation Achievement Level Descriptors
English Language Arts
Grade 4**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; cites limited textual support; incompletely summarizes key details and main ideas; provides a partial description of a character, event, or idea in grade 4 texts</p> <p>Demonstrates partial understanding of words and phrases (e.g. figurative language); provides a limited understanding of structural elements and different points of view</p> <p>Makes basic comparisons between texts; shows partial understanding of information presented in media; partially explains important points and themes in text(s)</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; cites solid textual support; appropriately summarizes key details and main ideas; provides a mostly complete description of a character, event, or idea in grade 4 texts</p> <p>Demonstrates general understanding of words and phrases (e.g. figurative language); provides a general understanding of structural elements and different points of view</p> <p>Makes appropriate comparisons between texts; shows solid understanding of information present in media; appropriately explains important points and themes in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; cites in-depth textual support; skillfully summarizes key details and main ideas; provides a comprehensive description of a character, event, or idea in grade 4 texts</p> <p>Demonstrates in-depth understanding of words and phrases (e.g. figurative language); provides a clear understanding of structural elements and different points of view</p> <p>Makes effective comparisons between texts; shows clear understanding of information present in media; effectively explains important points and themes in text(s)</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of facts and details related to grade 4 texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of facts and details related to grade 4 texts, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces clear writing with effective selection and explanation of facts and details related to grade 4 texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea or sequenced events, effective organization, and clear expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of grade 4 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text; shows partial understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 4 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text; shows sufficient understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 4 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text; shows full understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

**MCAS Next Generation Achievement Level Descriptors
English Language Arts
Grade 5**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; cites limited textual support; incompletely summarizes key details and main ideas; provides a partial analysis of a character, event, or idea in grade 5 texts</p> <p>Demonstrates partial understanding of words and phrases (e.g. figurative language); provides a limited explanation of how structural elements or points of view influence text(s)</p> <p>Makes basic comparisons between texts; shows partial understanding of information present in multiple sources or media; partially analyzes important points and themes in text(s)</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; cites solid textual support; appropriately summarizes key details and main ideas; provides a mostly complete analysis of a character, event, or idea in grade 5 texts</p> <p>Demonstrates general understanding of words and phrases(e.g. figurative language); provides a general explanation of how structural elements or points of view influence text(s)</p> <p>Makes appropriate comparisons between texts; shows solid understanding of information present in multiple sources or media; appropriately analyzes important points and themes in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; cites in-depth textual support; skillfully summarizes key details and main ideas; provides a comprehensive analysis of a character, event, or idea in grade 5 texts</p> <p>Demonstrates in-depth understanding of words and phrases (e.g. figurative language); provides a clear explanation of how structural elements or points of view influence text(s)</p> <p>Makes effective comparisons between texts; shows clear understanding of information present in multiple sources or media; effectively analyzes important points and themes in text(s)</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of facts and details related to grade 5 texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of facts and details related to grade 5 texts, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces clear writing with effective selection and explanation of facts and details related to grade 5 texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea or sequenced events, effective organization, and clear expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of grade 5 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text; shows partial understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 5 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text; shows sufficient understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 5 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text; shows full understanding of word parts, word relationships, and nuances in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

**English Language Arts
Grade 6**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; uses quotations and paraphrases to partially support conclusions; incompletely summarizes text; provides a partial analysis of a character, event, or idea in grade 6 texts</p> <p>Demonstrates partial understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates limited understanding of how structural elements and point of views contribute to the development of ideas</p> <p>Makes basic comparisons between texts; partially integrates information in different media or formats; partially analyzes important claims, arguments, or themes in text(s)</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; uses quotations and paraphrases to generally support conclusions; appropriately summarizes text; provides a mostly complete analysis of a character, event, or idea in grade 6 texts</p> <p>Demonstrates general understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates general understanding of how structural elements and point of views contribute to the development of ideas</p> <p>Makes appropriate comparisons between texts; solidly integrates information in different media or formats; appropriately analyzes important claims, arguments, or themes in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; uses quotations and paraphrases to insightfully support conclusions; skillfully summarizes text; provides a sophisticated analysis of a character, event, or idea in grade 6 texts</p> <p>Demonstrates in-depth understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates sophisticated understanding of how structural elements and point of views contribute to the development of ideas</p> <p>Makes insightful comparisons between texts; skillfully integrates information in different media or formats; insightfully analyzes important claims, arguments, or themes in text(s)</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea, claim or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea, claim or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces sophisticated writing with skillful selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea, claim or sequenced events, skillful organization, and rich expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of grade 6 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text and shows partial understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 6 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text and shows sufficient understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 6 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text and shows full understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

**MCAS Next Generation Achievement Level Descriptors
English Language Arts
Grade 7**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; uses quotations and paraphrases to partially support conclusions; incompletely summarizes text; provides a partial analysis of the interactions of characters, events, or ideas in grade 7 texts</p> <p>Demonstrates partial understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates limited understanding of how structural elements and point of view contribute to the development of ideas</p> <p>Makes basic comparisons between texts; partially integrates information in different media or formats; partially analyzes important claims, arguments, or themes in text(s)</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; uses quotations and paraphrases to generally support conclusions; appropriately summarizes text; provides a mostly complete analysis of the interactions of characters, events, or ideas in grade 7 texts</p> <p>Demonstrates general understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates general understanding of how structural elements and point of view contribute to the development of ideas</p> <p>Makes appropriate comparisons between texts; solidly integrates information in different media or formats; appropriately analyzes important claims, arguments, or themes in text(s)</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; uses quotations and paraphrases to insightfully support conclusions; skillfully summarizes text; provides a sophisticated analysis of the interactions of characters, events, or ideas in grade 7 texts</p> <p>Demonstrates in-depth understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates sophisticated understanding of how structural elements and point of view contribute to the development of ideas</p> <p>Makes insightful comparisons between texts; skillfully integrates information in different media or formats; insightfully analyzes important claims, arguments, or themes in text(s)</p>
Writing	<p>Produces basic writing with limited selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas</p>	<p>Produces solid writing with appropriate selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas</p>	<p>Produces sophisticated writing with skillful selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas</p>

	<p>Produces writing with little development of a central idea, claim or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces writing with appropriate development of a central idea, claim or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces writing with full development of a central idea, claim or sequenced events, skillful organization, and rich expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
Language	<p>Demonstrates limited reading vocabulary of grade 7 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text and shows partial understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 7 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text and shows sufficient understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 7 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text and shows full understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

**MCAS Next Generation Achievement Level Descriptors
English Language Arts
Grade 8**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Reading	<p>Demonstrates partial understanding of what a text implies and states explicitly; uses quotations and paraphrases to partially support conclusions; incompletely summarizes text; provides a partial analysis of connections among characters, events, or ideas in grade 8 texts</p> <p>Demonstrates partial understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates limited understanding of how structural elements and point of view contributes to the development of ideas</p> <p>Provides a basic analysis between texts; partially integrates information from different media or formats; partially analyzes important claims, arguments, or themes in multiple texts</p>	<p>Demonstrates sufficient understanding of what a text implies and states explicitly; uses quotations and paraphrases to generally support conclusions; appropriately summarizes text; provides a mostly complete analysis of connections among characters, events, or ideas in grade 8 texts</p> <p>Demonstrates general understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates general understanding of how structural elements and point of view contributes to the development of ideas</p> <p>Provides an appropriate analysis between texts; solidly integrates information from different media or formats; appropriately analyzes important claims, arguments, or themes in multiple texts</p>	<p>Demonstrates comprehensive understanding of what a text implies and states explicitly; uses quotations and paraphrases to insightfully support conclusions; skillfully summarizes text; provides a sophisticated analysis of connections among characters, events, or ideas in grade 8 texts</p> <p>Demonstrates in-depth understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates sophisticated understanding of how structural elements and point of view contributes to the development of ideas</p> <p>Provides an insightful analysis between texts; skillfully integrates information from different media or formats; insightfully analyzes important claims, arguments, or themes in multiple texts</p>

<p>Writing</p>	<p>Produces basic writing with limited selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas</p> <p>Produces writing with little development of a central idea, claim or sequenced events, limited organization, and basic expression of ideas</p> <p>Exhibits partial awareness of task, purpose, and audience</p>	<p>Produces solid writing with appropriate selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas</p> <p>Produces writing with appropriate development of a central idea, claim or sequenced events, moderate organization, and adequate expression of ideas</p> <p>Exhibits sufficient awareness of task, purpose, and audience</p>	<p>Produces sophisticated writing with skillful selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas</p> <p>Produces writing with full development of a central idea, claim or sequenced events, skillful organization, and rich expression of ideas</p> <p>Exhibits full awareness of task, purpose, and audience</p>
<p>Language</p>	<p>Demonstrates limited reading vocabulary of grade 8 academic and domain-specific words and phrases</p> <p>Demonstrates limited understanding of unfamiliar words in text and shows partial understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates little control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates solid reading vocabulary of grade 8 academic and domain-specific words and phrases</p> <p>Demonstrates solid understanding of unfamiliar words in text and shows sufficient understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates mostly consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>	<p>Demonstrates comprehensive reading vocabulary of grade 8 academic and domain-specific words and phrases</p> <p>Demonstrates comprehensive understanding of unfamiliar words in text and shows full understanding of word parts, figurative language, word relationships, and nuances in word meanings</p> <p>Demonstrates consistent control of the standard English conventions of sentence structure, grammar, usage, and mechanics</p>

Mathematics – Grades 3-8

MCAS Achievement Level Descriptors
Mathematics: Grades 3 through 8

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
Conceptual Understanding and Procedural Knowledge	<ul style="list-style-type: none"> • Demonstrates partial understanding of the grade appropriate numeration system • Performs some calculations and estimations • Identifies examples of basic math facts or mathematical concepts • Mostly reads and sometimes constructs graphs, tables and charts 	<ul style="list-style-type: none"> • Applies understanding of the base-ten system and fractions to interpret numbers and solve problems • Performs most calculations and estimations • Describes mathematical concepts and generates examples and counterexamples of concepts • Represents data and mathematical relationships using equations, verbal descriptions, tables, and graphs 	<ul style="list-style-type: none"> • Performs complex calculations and estimations • Selects the best representations for a given set of data • Explains relationships between models such as equations, verbal descriptions, tables, and graphs • Applies math facts and connects mathematical concepts from various areas of mathematics, and uses the concepts to develop generalizations • Recognizes and makes use of structure, discerning patterns by seeing complicated things as single objects
Problem Solving	<ul style="list-style-type: none"> • Applies learned procedures to solve routine problems • Uses concrete objects or pictures to help conceptualize and solve problems. 	<ul style="list-style-type: none"> • Applies learned procedures and mathematical concepts to solve a variety of problems, including multi-step problems • Solves problems using multiple methods • Demonstrates the relationships between operations used to solve problems and the context of the problems 	<ul style="list-style-type: none"> • Generates strategies and procedures to solve non-routine problems • Solves problems using multiple methods, evaluating reasonableness of intermediate steps leading to the standard algorithms • Draws connections between strategies • Analyzes givens, constraints, and relationships in problems, using multiple methods and appropriate tools
Mathematical Reasoning	<ul style="list-style-type: none"> • Applies some reasoning methods to solve routine problems 	<ul style="list-style-type: none"> • Uses a variety of reasoning methods to solve routine and non-routine problems • Uses symbols to solve routine mathematical problems 	<ul style="list-style-type: none"> • Reasons abstractly and quantitatively, using multiple reasoning methods to solve complex problems and provides justification for the reasoning • Decontextualizes situations and represents them symbolically

<p>Mathematical Communication</p>	<ul style="list-style-type: none"> Identifies and uses basic terms 	<ul style="list-style-type: none"> Uses logical forms of representation (e.g., text, graphs, symbols) to illustrate steps to a solution 	<ul style="list-style-type: none"> Uses logical forms of representation (e.g., text, graphs, symbols) to justify solutions and solution strategies Constructs viable arguments and critiques the reasoning of others, attending to precision
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**MCAS Achievement Level Descriptors
Mathematics: Grade 3**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Operation and Algebraic Thinking	<ul style="list-style-type: none"> • Determines products and quotients of whole numbers • Solves one-step word problems by multiplying and dividing within 100 with limited accuracy • Determines the unknown whole number in a multiplication or division equation • Recognizes simple arithmetic patterns 	<ul style="list-style-type: none"> • Interprets products and quotients of whole numbers • Solves word problems by multiplying and dividing within 100 accurately • Solves two-step word problems with unknowns in equations involving all four operations • Applies the properties of multiplication • Recognizes arithmetic patterns • Recognizes products of two single-digit numbers • Uses equal groups and arrays to solve word problems involving multiplication and division within 100 • Consistently uses estimation strategies to assess the reasonableness of answers 	<ul style="list-style-type: none"> • Creates and solves equations with unknown factors to solve word problems • Explains arithmetic patterns using the properties of operations • Uses area models to solve word problems involving multiplication and division within 100 • Recognizes products of two single-digit numbers and the related division facts
Number and Operations in Base Ten	<ul style="list-style-type: none"> • Uses place value to round two-digit numbers to the nearest 10 • Solves problems by adding and subtracting within 1000 using various strategies with limited accuracy 	<ul style="list-style-type: none"> • Uses place value to round three digit numbers to the nearest 10 • Fluently adds and subtracts within 1000 using various strategies • Solves problems involving multiplication of a one-digit whole number by multiples of 10 in the range 10-90 	<ul style="list-style-type: none"> • Uses algorithms to add and subtract within 1000 and multiply one-digit whole numbers by multiples of 10 in the range 10-90, and explain why they work • Recognizes the relationship between addition and subtraction

<p>Number and Operations – Fractions</p>	<ul style="list-style-type: none"> • Visually identifies fractional parts of a whole • Recognizes equivalent fractions • Compares two fractions with like numerators or like denominators 	<ul style="list-style-type: none"> • Identifies fractional parts of a whole • Identifies and represents fractions on number lines or other visual fraction models that are already created • Generates equivalent fractions • Represents whole numbers as fractions • Compares fractions with like numerators and denominators by reasoning about their size using visual fraction models that are already created, and symbols $<$, $>$ and $=$ 	<ul style="list-style-type: none"> • Explains fraction equivalence • Recognizes and explains fractional equivalence of whole numbers • Creates visual fraction models to justify the size comparison made about two fractions that refer to the same whole.
<p>Measurement and Data</p>	<ul style="list-style-type: none"> • Tells, writes and measures time to the nearest minute • Identifies appropriate tools and units of measurement to solve problems • Uses line plots to solve problems • Uses scaled picture graphs and bar graphs to solve problems • Finds area by using non-standard units • Solves mathematical problems involving perimeters of polygons, including finding the perimeter given the side length 	<ul style="list-style-type: none"> • Solves word problems involving addition and subtraction of time intervals in minutes • Selects and uses appropriate tools and units of measure to solve problems • Draws simple scaled picture graphs and bar graphs and uses them to solve one-step problems • Generates measurement data using rulers marked with halves and fourths of an inch • Creates line plots with whole numbers, halves and fourths to record and show data to solve problems • Finds area by using standard units • Relates multiplication and addition to area • Determines area by decomposing shapes into non-overlapping rectangles and adding the areas of the non-overlapping parts • Solves mathematical problems involving perimeters of polygons, including finding an unknown side length and identifies rectangles with the same perimeter and different area 	<ul style="list-style-type: none"> • Uses estimation to solve word problems involving measurement • Draws scaled picture graphs and scaled bar graphs and uses them to solve two-step problems • Differentiates perimeter from area • Interprets scaled picture and bar graphs, and line plots • Solves mathematical and real-world problems involving perimeters of polygons, including finding an unknown side length and is able to reproduce rectangles with the same perimeter and different area

<p>Geometry</p>	<ul style="list-style-type: none"> • Identifies two-dimensional shapes based on their sides and angles • Partitions shapes into parts 	<ul style="list-style-type: none"> • Describes two-dimensional shapes based their sides and angles • Partitions shapes into parts with equal areas and expresses the area as a unit fraction of the whole 	<ul style="list-style-type: none"> • Compares and classifies two-dimensional shapes based on their sides and angles
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**MCAS Achievement Level Descriptors
Mathematics: Grade 4**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Operation and Algebraic Thinking	<ul style="list-style-type: none"> • Interprets a multiplication equation as a comparison • Solves multiplication and division word problems • Solves two-step word problems using the four operations with whole numbers, including problems where remainders must be interpreted • Identifies multiplication facts through 12 x 12 • Identifies factor pairs in the 1-100 range • Identifies a pattern that follows a rule 	<ul style="list-style-type: none"> • Recognizes verbal statements of multiplicative comparisons as multiplication equations. • Represents multiplication and division word problems using drawings and equations • Uses the four operations to solve multi-step word problems and represents the problems by equations • Identifies related multiplication and division facts through 12 x 12 • Finds factor pairs in the 1-100 range and recognizes that a whole number is a multiple of each of its factors • Distinguishes between prime and composite numbers in the range 1-100 • Identifies a pattern that follows a rule and, generates a pattern, given a rule 	<ul style="list-style-type: none"> • Explains the difference between multiplicative and additive comparison • Uses equations to represent problems, and justifies solutions with estimation • Identifies multiples and their corresponding factors, and distinguishes between prime and composite numbers. • Generates patterns not explicit to the rule • Uses estimation to assess the reasonableness of answers
Number and Operations in Base Ten	<ul style="list-style-type: none"> • Reads and writes whole numbers using base-ten number names and expanded form • Uses place value understanding to round whole numbers to the thousands place • Solves problems involving multiplication of four digit numbers by a one-digit numbers • Solves problems involving quotients and remainders with up to three-digit dividends and one-digit divisors based on place value and properties of operations 	<ul style="list-style-type: none"> • Uses place value to recognize that in a multi-digit number, a digit in any place represents 10 times as much as it represents in the place to its right • Compares two multi-digit numbers based on place value position using $<$, $>$ and $=$ • Uses place value understanding to round whole numbers to the ten thousands place • Adds and subtracts whole numbers using the standard algorithm • Solves problems involving multiplication of two-digit numbers by two-digit numbers • Solves problems involving quotients and remainders with up to four-digit dividends and one-digit divisors, using p the relationship between multiplication and division understanding 	<ul style="list-style-type: none"> • Uses place value understanding to round whole numbers up to one million • Uses understanding of structure to explain the standard algorithm for addition and subtraction. • Solves problems involving multiplication of four digit numbers by one-digit, and justifies solutions by using equations, rectangular arrays or area models. • Justifies solutions using equations, rectangular arrays, and/or area models

<p>Number and Operations – Fractions</p>	<ul style="list-style-type: none"> • Recognizes equivalency in fractions • Compares fractions with different numerators and different denominators by using common denominators or common numerators • Decomposes fractions into a sum of fractions and uses visual fraction models to solve problems • Multiplies a fraction by a whole number 	<ul style="list-style-type: none"> • Explains why fractions are equivalent using visual fraction models • Consistently compares two fractions when the two fractions refer to the same whole • Consistently compares two decimals when the two decimals refer to the same whole • Compares fractions with different numerators and different denominators by comparing to a benchmark fraction • Adds and subtracts fractions with like denominators • Decomposes fractions into a sum of fractions and uses equations to solve problems • Adds and subtracts mixed numbers with like denominators by replacing with equivalent fraction and by using properties of operations or the relationship of addition and subtraction • Uses visual fraction models and equations to solve word problems involving multiplication of a fraction by a whole number • Uses decimal notation to represent fractions with denominators of 10 and 100 • Compares decimals to hundredths by reasoning about their size 	<ul style="list-style-type: none"> • Generates equivalent fractions including fractions greater than 1 • Decomposes fractions into a sum of fractions and justifies solutions to problems with visual fraction models and equations • Justifies the conversion of a fraction with denominator of 10 to an equivalent fraction with a denominator of 100 and expresses it as a decimal
<p>Measurement and Data</p>	<ul style="list-style-type: none"> • Solves measurement problems involving whole numbers using all four operations • Solves measurement problems involving perimeter and area • Interprets data presented in line plots (dot plots) and uses addition and subtraction of fractions to solve problems involving line plots • Identifies concepts of angles and angle measurement 	<ul style="list-style-type: none"> • Solves problems involving converting measurements from larger units to smaller units • Creates line plots (dot plots) in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$), to display given data, and uses addition and subtraction of fractions solve problems involving line plots • Uses a protractor to measure , sketch or interpret an angle • Finds unknown angles in diagrams • Justifies solutions to perimeter and area problems 	<ul style="list-style-type: none"> • Reasons about relative sizes of measurement units within one system of units • Sketches an angle without a protractor
<p>Geometry</p>	<ul style="list-style-type: none"> • Identifies right triangles, points, lines, line segments, rays, angles, perpendicular and parallel lines, lines of symmetry 	<ul style="list-style-type: none"> • Identifies right triangles and draws points, lines, line segments, rays, angles, perpendicular and parallel lines, in two dimensional shapes • Classifies two-dimensional shapes based on their attributes, including the presence and absence of parallel or perpendicular lines or angles of a specified size. 	<ul style="list-style-type: none"> • Draws two-dimensional shapes based on attributes.

		<ul style="list-style-type: none">• Recognizes lines of symmetry in two-dimensional figures and identifies line-symmetric figures	
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**MCAS Achievement Level Descriptors
Mathematics: Grade 5**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
Operation and Algebraic Thinking	<ul style="list-style-type: none"> Recognizes when parentheses, brackets, or braces are appropriately used in numerical expressions Given two rules, generates numerical patterns 	<ul style="list-style-type: none"> Uses parentheses, brackets, or braces to write, interpret and evaluate numerical expressions Interprets numerical expressions without evaluating Given two rules, identifies the relationship between corresponding terms 	<ul style="list-style-type: none"> Given two rules, forms and graphs ordered pairs and interprets the relationship between corresponding terms
Number and Operations in Base Ten	<ul style="list-style-type: none"> Recognizes that in a multi-digit number, including a decimal, a digit in any place represents 10 times as much as it represents in the place to its right or 1/10 of what it represents in the place to its left Reads decimals to thousandths using base 10 numerals, number names, and expanded form Identifies which comparison symbols to use when comparing decimals to hundredths Uses various strategies to solve problems involving all operation with whole numbers including quotients with division limited to four digit dividends and 2 digit divisors Solves problems involving addition and subtraction with decimals to tenths Identifies the quotient of whole numbers 	<ul style="list-style-type: none"> Uses whole number exponents to denote powers of 10 Uses place value to round decimals to any place Fluently multiplies multi-digit whole numbers Writes decimals to thousandths using base ten numerals, number names, expanded form and comparison symbols Compares decimals using base ten numerals, number names and comparison symbols $<$, $>$ and $=$ Uses various strategies to solve problems involving all operation with whole numbers including quotients with division limited to four digit dividends and 2 digit divisors and explains using rectangular arrays and/or area models Applies understandings of models for decimals, place value, and properties of operations to add, subtract, multiply and divide decimals to hundredths Solves mathematical and real-world problems involving multiplication of whole numbers and decimals to hundredths using the standard algorithm. Uses models to find the quotients of whole numbers. Solves problems involving all operations on decimals to hundredths. 	<ul style="list-style-type: none"> Uses place value understanding of multi-digit numbers including decimals to explain patterns in the number of zeros and the placement of the decimal point, when multiplying a number by powers of 10. Compares decimals using expanded form Makes reasonable estimates of decimal results Explains understandings of models for decimals, decimal notation, and properties of operations to add, subtract, multiply and divide decimals to hundredths Uses the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers to understand and explain why the procedures for multiplying and dividing finite decimals make sense.

<p>Number and Operations – Fractions</p>	<ul style="list-style-type: none"> • Adds and subtracts fractions with like denominators (including mixed numbers) • Uses visual fraction models to multiply fractions or whole numbers by fractions • Finds areas or rectangles with fractional side lengths by tiling with unit squares • Recognizes multiplication as scaling by comparing the factors with computation 	<ul style="list-style-type: none"> • Adds and subtracts fractions with unlike denominators (including mixed numbers) • Uses visual fraction models to solve real-world problems by multiplying fractions or whole numbers by fractions, and fractions by mixed numbers • Shows that the area of rectangles with fractional side lengths, found by tiling with unit squares, is the same as multiplying the side lengths • Recognizes multiplication as scaling by comparing the factors without computation • Interprets division of a unit fraction by a non-zero whole number and division of a whole number • Solves real-world and mathematical problems involving division of a unit fraction by a non-zero whole number and a whole number by a unit fraction 	<ul style="list-style-type: none"> • Applies understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators in the context of solving word problems. • Uses understanding of fraction equivalence to make sense of sums and differences of fractions, and makes reasonable estimates of them. • Uses the relationship between multiplication and division of fractions to solve and explain mathematical and real-world problems including finding the area of rectangles with fractional side lengths, finding quotients of division of non zero whole number by unit fractions
<p>Measurement and Data</p>	<ul style="list-style-type: none"> • Converts among different-sized measurement units within a given measurement system • Interprets and represents data presented in line plots (dot plots) to solve problems • Recognizes volume as an attribute of solid figures and calculates volume of right rectangular prisms by packing it with unit cubes, counting unit cubes, and with standard and non-standard units 	<ul style="list-style-type: none"> • Applies conversion among different-sized measurement units within a given measurement system to solve multi-step real-world problems • Uses a line plot (dot plot) to represent data and uses operations on fractions to solve problems involving the line plots • Recognizes volume as additive and calculates volume by finding the total number of same-size units of volume required to fill a space without gaps or overlaps. • Decomposes three-dimensional shapes and finds volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes 	<ul style="list-style-type: none"> • Uses appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume with application of the volume formula • Decomposes three-dimensional shapes and finds volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes and relate to the volume formula • Solves real world application problems requiring the application of $V = lwh$ and $V = Bh$
<p>Geometry</p>	<ul style="list-style-type: none"> • Represents mathematical and real-world problems by locating points in the first quadrant • Identifies two-dimensional figures based on properties 	<ul style="list-style-type: none"> • Represents mathematical and real-world problems by locating and graphing in the first quadrant • Classifies two-dimensional figures in a hierarchy based on properties 	<ul style="list-style-type: none"> • Solves mathematical and real-world problems by graphing in the first quadrant and interpreting the coordinate values of points based on the context of the situation • Applies knowledge of number and length to the order and distance relationships of a coordinate plane

**MCAS Achievement Level Descriptors
Mathematics: Grade 6**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
The Number System	<ul style="list-style-type: none"> • Interprets quotients of fractions to solve problems • Identifies greatest common factors or least common multiples • Uses positive and negative numbers to describe quantities having opposite directions or values • Solves mathematical problems by using all operations on multi-digit decimals • Graphs ordered pairs in all four quadrants to solve problems • Interprets statements of order for rational numbers 	<ul style="list-style-type: none"> • Computes quotients of fractions to solve problems • Uses prime factorization to find the greatest common factors, least common multiples to solve problems • Represents quantities in real-world context on a number line, explaining the meaning of zero • Uses the understanding of structure to explain the standard algorithm to divide multi-digit numbers • Uses the standard algorithm to fluently operate on multi-digit decimals • Finds the absolute value of a rational number by recognizing its distance from zero on the number line • Uses the standard algorithm to divide multi-digit numbers • Computes all operations on multi-digit decimals • Solve problems by graphing in all four quadrants and finds distances between points with same first coordinate or same second coordinate • Interprets and writes statements of order for rational numbers 	<ul style="list-style-type: none"> • Applies interpretation of quotients of fractions to solving word problems • Uses visual fraction models to solve word problems involving computing quotients of fractions • Applies number theory concepts to the solution of problems. • Solves problems involving order and absolute value of rational numbers

<p>Ratios and Proportional Relationships</p>	<ul style="list-style-type: none"> Identifies part to part and part to whole relationships Uses rate language in the context of a ratio relationship Sometimes solves unit rate problems 	<ul style="list-style-type: none"> Solves problems requiring part to part ratios to be converted to part to whole ratios Consistently solves unit rate problems Uses rate reasoning to solve problems Finds the percent of a quantity Uses ratio reasoning to convert measurement units within measurement systems Interprets and manipulates models with ratios such as tape diagrams, tables and double number lines to compare ratios 	<ul style="list-style-type: none"> Determines what percent of a quantity is a given amount Explains when to use part to part ratios, and when to use part to whole ratios to solve problems Uses ratio reasoning to convert measurement units between measurement systems Creates models with ratios such as tape diagrams, tables and double number lines to compare ratios Relates mass of an object to its volume to solve problems
<p>Expressions and Equations</p>	<ul style="list-style-type: none"> Evaluates given expressions and equations involving whole-number exponents to solve problems Identifies parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient) 	<ul style="list-style-type: none"> Interprets, evaluates and writes expressions and equations involving whole-number exponents Views one or more parts of an expression as a single entity Generate and identify equivalent expressions Relates tables and graphs to equations Writes and solves equations of the form $x + p = q$ and $px = q$ Solves and graphs inequalities that represent a constraint or condition in a mathematical or real-world problem. Analyzes the relationships between dependent and independent variables in real-world problems. 	<ul style="list-style-type: none"> Writes and graphs inequalities that represent a constraint or condition in a mathematical or real-world problem Creates equations of the form $x + p = q$ and $px = q$ from a given situation Uses equations to describe relationships between quantities
<p>Geometry</p>	<ul style="list-style-type: none"> Solves mathematical problems involving areas of triangles, including right triangles and quadrilaterals Solves mathematical problems involving volume of right rectangular prisms with whole number edge lengths Represents three-dimensional figures using nets Given coordinates of a polygon, draws the polygon on a coordinate plane 	<ul style="list-style-type: none"> Solves real-world problems involving areas of triangles, including right triangles and quadrilaterals by decomposing shapes, rearranging or removing pieces, and relating shapes to rectangles Finds volume of right rectangular prisms with fractional edge lengths Uses nets of three-dimensional figures to find the surface area Given coordinates of a polygon on a coordinate plane, finds lengths of the sides of the polygon 	<ul style="list-style-type: none"> Reasons about geometric shapes and their measurements Develops, and justifies formulas to solve mathematical and real-world problems that involve areas of triangles, including right triangles, and quadrilaterals Applies the formula for volume of right rectangular prisms with fractional edge lengths Applies knowledge of nets to solve mathematical and real-world problems involving surface area Given coordinates of a polygon (without a coordinate plane), finds lengths of the sides of the polygon and applies these techniques to solve real-world problems

<p>Statistics and Probability</p>	<ul style="list-style-type: none"> • Recognizes a statistical question • Visually recognizes measures of center and variability • Interprets dot plots and histograms 	<ul style="list-style-type: none"> • Solve problems involving finding the measures of center and variability • Constructs dot plots, histograms, box plots and circle graphs given real-world situations 	<ul style="list-style-type: none"> • Recognizes that a data distribution may not have a definite center, and different ways to measure center can yield different values, and uses this understanding to interpret a situation • Describes and summarizes numerical data sets, identifying clusters, peaks, gaps, and symmetry in a real-world problem
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**MCAS Achievement Level Descriptors
Mathematics: Grade 7**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
The Number System	<ul style="list-style-type: none"> Represents addition and subtraction on a horizontal and vertical number line Operates with rational numbers 	<ul style="list-style-type: none"> Recognizes situations in which opposite quantities combine to make zero Operates with rational numbers in mathematical and real world problems Translates between rational numbers and decimals 	<ul style="list-style-type: none"> Translates from repeating decimal form of a rational number to fraction form Interprets quotient and remainder of rational numbers Applies properties of operations as strategies to add, subtract, multiply and divide
Ratios and Proportional Relationships	<ul style="list-style-type: none"> Recognizes a proportional relationship Uses ratios and proportionality to solve simple mathematical problems, including percent problems 	<ul style="list-style-type: none"> Represents a proportional relationship by equations Sometimes uses ratios and proportionality to solve multi-step mathematical and real world problems, including percent problems Interprets the meaning of any point on a graph of a proportional relationship 	<ul style="list-style-type: none"> Consistently uses ratios and proportionality to solve multi-step mathematical and real world problems, including percent problems
Expressions and Equations	<ul style="list-style-type: none"> Uses properties of operations to add and subtract linear expressions Solves simple mathematical problems using numerical and algebraic expressions and equations Identifies simple arithmetic and geometric sequences from tables, graphs, words and expressions. Extends patterns in simple arithmetic and geometric sequences from tables, graphs, words and expressions. 	<ul style="list-style-type: none"> Uses properties of operations to expand linear expressions Uses properties of operations to factor linear expressions Given a real-world problem, rewrites expressions in different forms to show understanding of the problem Interprets the solution of an inequality in a real-world problem Solves multi-step mathematical and real-world problems using numerical and algebraic expressions and equations Fluently converts between different forms Create equations and inequalities to solve problems Graphs the solutions of an inequality 	<ul style="list-style-type: none"> Uses properties of operations to factor linear expressions and interprets the result in the context of a problem Justifies solutions to multi-step problems Analyzes patterns and determines expressions for simple arithmetic and geometric sequences using tables, graphs, words and expressions

<p>Geometry</p>	<ul style="list-style-type: none"> • Draws triangles with given conditions • Applies the formulas to find the circumference of circles • Applies the formulas to find the area of two-dimensional figures, including circles • Recognizes attributes of angles (supplementary, complementary, vertical, adjacent) 	<ul style="list-style-type: none"> • Constructs triangles with given conditions and describes some of their attributes • Describes the shape of the two-dimensional face of the figure that results from slicing three-dimensional figures. • Solves problems involving the relationship between area and circumference of circles • Solves problems involving the surface area and volume of three-dimensional shapes • Solves mathematical problems involving scale drawings • Solves multi-step problems using attributes of angles (supplementary, complementary, vertical, adjacent) 	<ul style="list-style-type: none"> • Finds unknown supplementary, complementary, vertical, and adjacent angles by solving equations
<p>Statistics and Probability</p>	<ul style="list-style-type: none"> • Makes inferences about a population by examining the sample population • Visually compares two populations based on measures of center and variability • Differentiates between representative and non-representative samples • Identifies probability as a number between 0 and 1 • Finds probabilities of simple events 	<ul style="list-style-type: none"> • Uses random sampling to draw inferences about a population • Recognizes the probabilities of 0 through 1 as likely, unlikely, or neither. • Develops probability models and uses it to find probabilities of events • Finds probabilities for compound events using organized lists, tables, and tree diagrams 	<ul style="list-style-type: none"> • Evaluates probability models • Designs and uses a simulation to generate frequencies for compound events • Computes the differences of the centers as a multiple of the measure of variability for two populations

**MCAS Achievement Level Descriptors
Mathematics: Grade 8**

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations*, *Meeting Expectations*, *Partially Meeting Expectations*, and *Not Meeting Expectations*. The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	On MCAS, a student at this level:	On MCAS, a student at this level:	On MCAS, a student at this level:
The Number System	<ul style="list-style-type: none"> Distinguishes between rational and irrational numbers 	<ul style="list-style-type: none"> Recognizes that rational and irrational numbers have decimal expansions Uses rational approximations of irrational numbers to compare the size of irrational numbers Finds approximate location of irrational numbers on the number line Finds rational approximations of irrational numbers 	<ul style="list-style-type: none"> Estimates the values of expressions with irrational numbers Converts a decimal expansion which repeats eventually to a rational number
Expressions and Equations	<ul style="list-style-type: none"> Identifies the properties of integer exponents Know that $\sqrt{2}$ is irrational Uses and evaluates square roots of small squares Graphs proportional relationships, and identifies the unit rate as the slope Solves one-variable linear equations with one or many solutions Recognizes that the point of intersection of two linear equations is the solution 	<ul style="list-style-type: none"> Applies the properties of integer exponents to generate equivalent expressions Performs operations with decimals and scientific notation Uses and evaluates cube roots of small cubes Uses numbers in the form of a single digit times an integer power of 10 to estimate the magnitude and relationships of quantities Uses scientific notation and chooses appropriate units of measurement for varying magnitudes Uses linear equations and systems of linear equations to represent and solve problems. Compares proportional relationships represented in different ways Recognizes the difference between proportional and non-proportional in linear relationships Solves one-variable linear equations with rational coefficients Solves systems of two linear equations algebraically or graphically in real-world and mathematical problems 	<ul style="list-style-type: none"> Uses numbers in the form of a single digit times an integer power of 10 to estimate the magnitude and interpret relationships of quantities in word problems Uses linear equations and systems of linear equations to represent, analyze, and solve problems. Use similar triangles to explain why the slope is the same between any two distinct points on a non-vertical line in the coordinate plane Derives the equation $y=mx$ for a line through the origin and the equation $y=mx + b$ for a line intercepting the vertical axis b Estimates solutions to systems of two equations from a graph Uses understanding of a proportional relationship and structure to interpret the meaning of b, the vertical axis intercept

<p>Functions</p>	<ul style="list-style-type: none"> • Identifies a relationship as a function • Interprets the equation of a linear function 	<ul style="list-style-type: none"> • Determines the rate of change and initial value of a function from a table or graph • Compares the properties of functions represented in different ways • Writes a function to model a linear relationship • Determines the rate of change of a function from a table, graph or description • Describes or sketches functional relationships represented graphically 	<ul style="list-style-type: none"> • Identifies functions as linear and non-linear from graphs or equations • Interprets the rate of change of a function from a table, graph, equation or description
<p>Geometry</p>	<ul style="list-style-type: none"> • Identifies the properties of rotations, reflections and translations • Uses the relationship among the sides of a right triangle to solve problems • Translates and reflects two dimensional figures • Uses Pythagorean theorem to find the hypotenuse 	<ul style="list-style-type: none"> • Describes the congruence relationship between two congruent figures • Describes the effect of transformations on two-dimensional figures using coordinates • Describes the similarity relationship between two similar figures • Rotates two-dimensional figures around the origin • Finds angle sum and exterior angle of triangles, angles created when parallel lines are cut by a transversal, and angle-angle criterion for similarity of triangles • Applies the Pythagorean theorem to find distances between points on the coordinate plane • Applies the Pythagorean theorem to determine the unknown side lengths in right triangles in mathematical and real-world problems • Solves mathematical and real-world problems involving volume of cones, cylinders, and spheres 	<ul style="list-style-type: none"> • Use informal arguments to establish facts about the angle sum and exterior angle of triangles, angles created when parallel lines are cut by a transversal, and angle-angle criterion for similarity of triangles • Justifies Pythagorean theorem and its converse • Given the volume of a cone, finds unknown dimensions of the cone • Given the volume of a cylinder, finds unknown dimensions of the cylinder • Given the volume of a sphere, finds unknown dimensions of the sphere
<p>Statistics and Probability</p>	<ul style="list-style-type: none"> • Describes the patterns associated with bivariate data • Identifies and constructs a line of best fit 	<ul style="list-style-type: none"> • Constructs and interprets scatter plots • Constructs and interprets two-way tables • Uses the equation of a linear model to solve problems 	<ul style="list-style-type: none"> • Interprets the slope and intercept of linear models • Analyzes scatter plots • Analyzes relative frequencies in two-way tables

Appendix B – Final Recommended Cut Scores on IRT Scale and Scaling Constants

Table B.1: Final Recommended Cut Scores on IRT Scale

Subject	Grade	Cut Score (IRT)			Scaling Constants	
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations	A	B
ELA	3	-1.58104	0.011395	1.603829	18.83909	499.78533
ELA	4	-1.56114	0.030745	1.622634	18.84554	499.42059
ELA	5	-1.65872	0.03758	1.733879	17.68556	499.33538
ELA	6	-1.59094	-0.01066	1.569615	18.98401	500.20242
ELA	7	-1.55993	0.010925	1.581776	19.09793	499.79136
ELA	8	-1.45633	0.051195	1.558718	19.90020	498.98121
Math	3	-1.37722	0.02747	1.432156	21.35708	499.41332
Math	4	-1.37876	0.054015	1.486789	20.93841	498.86901
Math	5	-1.55075	0.024933	1.600619	19.03932	499.52530
Math	6	-1.51808	-0.00828	1.501518	19.87021	500.16453
Math	7	-1.41406	0.031158	1.476376	20.75810	499.35323
Math	8	-1.49566	-0.00844	1.47879	20.17180	500.17015

Appendix C – Participant Meeting Materials

The materials developed for the grades 7 and 8 mathematics standard setting committee are provided as an example of the materials developed and provided to the participants. Since the materials provided to participants contained secure information, any place where secure information would be provided, that information would be removed. Additionally, the following materials will not be provided within the appendix:

- Test form – This was presented to participants through the online testing platform used during the spring 2017 administration, TestNav 8.
- Open-ended item rubrics – These documents presented the scoring rubrics and notes and student-produced response examples for each open-ended item presented to participants.
- Practice item judgment set – This was presented to participants through the online testing platform used during the spring 2017 administration, TestNav 8.

**MCAS Standard Setting Meeting
August 2017**



**Agenda
Grades 7 and 8 Mathematics**

Day 1

8:00 – 8:30 am *Breakfast*

8:30 – 9:45 am *General Session*

10:00 am – 4:00 pm *Breakout Session*

Introductions and Orientation

Overview of MCAS Math Assessments

Experience the Assessment - Grade 8 Math

Lunch (Table Leader Training)

Scoring the MCAS Math Assessment

Achievement Level Definitions (ALDs) – Grade 8 Math

Borderline ALD Development – Grade 8 Math

Day 2

8:00 – 8:30 am *Breakfast*

8:30 am – 4:00 pm *Breakout Session*

Borderline ALD Development (cont.) – Grade 8 Math

Standard Setting Training

Practice Item Judgment Activity and Discussion

Lunch

Round 1 Item Judgments and Feedback – Grade 8 Math

Round 2 Item Judgments – Grade 8 Math

Day 3

8:00 – 8:30 am *Breakfast*

8:30 – 8:45 am *General Session: Introduction to Impact Data*

8:45 am – 4:00 pm *Breakout Session*

Round 2 Item Judgment Feedback – Grade 8 Math

Round 3 Item Judgments – Grade 8 Math

Experience the Assessment – Grade 7 Math

Lunch

Round 3 Item Judgment Feedback – Grade 8 Math

Achievement Level Definitions – Grade 7 Math

Borderline ALD Development – Grade 7 Math

Day 4

8:00 – 8:30 am *Breakfast*

8:30 am – 4:00 pm *Breakout Session*

Round 1 Item Judgments and Feedback – Grade 7 Math

Round 2 Item Judgments – Grade 7 Math

Lunch

Round 2 Item Judgment Feedback – Grade 7 Math

Round 3 Item Judgments and Feedback – Grade 7 Math

Next Steps and Close-out

MCAS Non-disclosure Agreement



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NAME: _____

COMMITTEE (include subject & grade): _____

AFFILIATION: _____

SIGNATURE: _____ DATE: _____

Participant Information Survey

Participant Information Survey

Page 1

**Massachusetts Comprehensive Assessment System (MCAS)
Standard Setting Meeting
Grades 3-8 English Language Arts and Mathematics**

**Participant Information Survey
Mathematics - Grades 7 and 8**

Professional Experience

*
— What is your current position?

Teacher (K-12 Education)

Teacher (Higher Education)

Administrator (School)

Administrator (District)

Other Position:

*
— How many years of professional experience in education do you have?

None

1 to 5 years

6 to 10 years

11 to 15 years

16 to 20 years

More than 20 years

For which grades do you have experience teaching mathematics?

*
— Grade 7

Yes No

*
— Grade 8

Yes No

*
— Grades 9 or higher

Yes No

- *
– How many years of professional experience do you have teaching mathematics for grades 7 or 8?
- None
 - 1 to 5 years
 - 6 to 10 years
 - 11 to 15 years
 - 16 to 20 years
 - More than 20 years

- *
– For which of the following populations do you have educational experience with?
(Check all that apply.)
- Students receiving mainstream special education services
 - Students receiving self-contained special education services
 - Students who are English language learners
 - Students who are receiving general education instruction
 - Students who are receiving vocational technical instruction

- *
– What is the highest degree you have completed?
- High School Diploma
 - Associates degree (A.A., A.S.)
 - Bachelors degree (B.A., B.S.)
 - Masters degree (M.A., M.S.)
 - Doctoral degree (Ph.D., Ed.D.)

Page 2

Demographic Information

What is your gender?

- Male Female No answer

What is your ethnicity?

- Hispanic or Latino Not Hispanic or Latino No answer

What is your race?

- American Indian or Alaskan Native
 Asian
 Black or African American
 Native Hawaiian or Pacific Islander
 White
 No answer

- *
– Do you currently work in a school district?

- Yes
- No

Page 3

School District Information

*
— Which word best describes the size of the school district where you work?

- Small
- Medium
- Large

*
— Which word best describes the type of school district where you work?

- Rural
- Metropolitan/Urban
- Suburban

*
— Which word best describes the socioeconomic status of the school district where you work?

- Low
- Moderate
- High

Close this window

Experience the Test Response Record Form

**MCAS Standard Setting Meeting
August 2017**



**Experience the Test Response Form
Grade 8 Mathematics**

Sequence	Item ID	Item Type	Maximum Points	Response
1	MA297513	SR	1	
2	M21622	SR	1	
3	VH006577	SA	2	
4	MA303351	SA	1	
5	MA309742	CR	4	
6	VH000131	SR	1	
7	1568-M22482	SR	4	

Page 1 of 5

Item type: SR – Selected response, SA – Short answer, CR – Constructed response

Note: Only the first page of this document is presented as an example.

Test Form Answer Key

**MCAS Standard Setting Meeting
August 2017**



**Answer Key
Grade 8 Math**

Sequence	Item ID	Item Type	Reporting Category	Maximum Points	Answer Key	Notes
1	MA297513	SR	EE	1		
2	M21622	SR	SP	1		
3	VH008577	SA	G	2		
4	MA303351	SA	F	1		
5	MA309742	CR	EE	4		
6	VH000131	SR	NS	1		

Note: Only the first page of this document is presented as an example. The answer keys which were part of the original document were removed.

Item Comment Form

**MCAS Standard Setting Meeting
August 2017**



**Item Comment Form
Grade 8 Mathematics**

Name _____

Directions: If you have any comments or suggestions about specific items, please record them here.

Item ID	Comment

Item Judgment Round Record Form

**MCAS Standard Setting Meeting
August 2017**



**Judgment Round Record Sheet
Grade 8 Mathematics**

Sequence	Item ID	Reporting Category	Maximum Score	Judgment Round								
				1			2			3		
				PME	ME	EE	PME	ME	EE	PME	ME	EE
1	MA297513	EE	1									
2	M21622	SP	1									
3	VH006577	G	2									
4	MA303351	F	1									
5	MA309742	EE	4									
6	VH000131	NS	1									
7	1568-M22482	F	4									
8	MA252991	NS	1									
9	MA297528	EE	1									

Item Judgment Survey

Round 1 Item Judgment Survey - Grade 8 Mathematics

Page 1

**Massachusetts Comprehensive Assessment System (MCAS)
Standard Setting Meeting
Grades 3-8 English Language Arts and Mathematics**

**Round 1 Item Judgment Survey
Grade 8 Mathematics**

You are now ready to begin!

For each item in the grade 8 mathematics item set, do the following for each achievement level:

- Review the item in the online system.
- Review the information provided about the item in the item map and answer key. For open response items, review the information in the rubric and exemplars.
- Review the achievement level descriptors (ALDs) for the achievement level.
- Answer the following questions:

"How many points would a borderline student of the achievement level likely earn if he or she answered the question?"

- Record your response to the question for the achievement level for the specific item on the judgment record sheet and in the online survey.

Note: If the item is a "trait-scored" item, you will need to provide a judgment for each trait.

Continue reviewing the items until you have provided judgments for each achievement level for all of the items.

You will now start the Item Judgment Process for the grade 8 mathematics items.

Page 2

For each of the items, answer the following question:

"How many points would a borderline student at each performance level likely earn if they answered the question?"



Item: MA297513

Partially Meeting Expectations
Meeting Expectations
Exceeding Expectations

	0 Points	1 Point
☒	<input type="checkbox"/>	<input type="checkbox"/>
☑	<input type="checkbox"/>	<input type="checkbox"/>
☐	<input type="checkbox"/>	<input type="checkbox"/>

ALD Comment Form

**MCAS Standard Setting Meeting
August 2017**



**Achievement Level Descriptor (ALD) Comment Form
Grade 8 Mathematics**

Directions: If you have any comments or suggestions about the Achievement Level Descriptors, please record them here.

Performance Level	Comment
Exceeded Expectations	
Met Expectations	
Partially Met Expectations	

Process Evaluation #1

Process Evaluation Day 1

**Massachusetts Comprehensive Assessment System (MCAS)
Standard Setting Meeting
Grades 3-8 English Language Arts and Mathematics**

**Process Evaluation Survey #1
Mathematics - Grades 7 and 8**

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the achievement levels for the MCAS assessments. Your opinions provide an important part of our evaluation of this meeting.

*
— Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

	Not Successful	Partially Successful	Successful	Very Successful
Overview of the MCAS assessments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to the standard setting process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Experiencing the actual assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussion of the scoring of items on the assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussion of achievement level descriptors (ALDs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development and discussion of the borderline achievement level descriptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overview of the standard-setting procedure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Practice exercise for the standard-setting procedure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Judgment rounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Judgment round feedback - table-level statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Judgment round feedback - committee-level statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Judgment round feedback - panelist agreement data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Judgment round feedback - impact data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussions after each round	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*
— How useful do you feel the following activities or information were in assisting you to make your recommendations?

	Very Useful	Useful	Somewhat Useful	Not Useful
Achievement Level Descriptors (ALDs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Borderline achievement level descriptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Table-level statistics after Rounds 1 and 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Committee-level statistics after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Panelist agreement data provided after Round 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Panelist agreement data provided after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact data after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Discussion after each judgment round

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------

*
— How adequate were the following elements of the session?

- Training provided on the standard-setting process
- Amount of time spent training
- Total amount of time to create and discuss borderline achievement level descriptors
- Total amount of time to discuss the practice judgments
- Amount of time to make judgments
- Visual presentation of the feedback provided
- Number of judgment rounds

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*
— In applying the standard-setting method, you were asked to recommend cut scores (separating five proficiency levels) for student performance on MCAS assessments.

How confident do you feel that the Achievement Level Descriptors (ALDs) for grade 8 mathematics are reasonable for each student performance level?

- Partially Meeting Expectations
- Meeting Expectations
- Exceeding Expectations

	Not Confident	Somewhat Confident	Confident	Very Confident
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*
— How confident do you feel that the final cut score recommendations for grade 8 mathematics represent appropriate levels of student performance?

- Partially Meeting Expectations
- Meeting Expectations
- Exceeding Expectations

	Not Confident	Somewhat Confident	Confident	Very Confident
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Process Evaluation #2

Process Evaluation #2

**Massachusetts Comprehensive Assessment System (MCAS)
Standard Setting Meeting
Grades 3-8 English Language Arts and Mathematics**

**Process Evaluation Survey #2
Mathematics - Grades 7 and 8**

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the achievement levels for the MCAS assessments. Your opinions provide an important part of our evaluation of this meeting.

Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

- Experiencing the actual assessment
- Discussion of achievement level descriptors (ALDs)
- Development and discussion of the borderline achievement level descriptors
- Judgment rounds
- Judgment round feedback - table-level statistics
- Judgment round feedback - committee-level statistics
- Judgment round feedback - panelist agreement data
- Judgment round feedback - impact data
- Discussions after each round

	Not Successful	Partially Successful	Successful	Very Successful
<input type="radio"/> Experiencing the actual assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Discussion of achievement level descriptors (ALDs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Development and discussion of the borderline achievement level descriptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Judgment rounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Judgment round feedback - table-level statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Judgment round feedback - committee-level statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Judgment round feedback - panelist agreement data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Judgment round feedback - impact data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Discussions after each round	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How useful do you feel the following activities or information were in assisting you to make your recommendations?

- Achievement Level Descriptors (ALDs)
- Borderline achievement level descriptors
- Table-level statistics after Rounds 1 and 2
- Committee-level statistics after Round 2
- Panelist agreement data provided after Round 1
- Panelist agreement data provided after Round 2
- Impact data after Round 2
- Discussion after each judgment round

	Very Useful	Useful	Somewhat Useful	Not Useful
<input type="radio"/> Achievement Level Descriptors (ALDs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Borderline achievement level descriptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Table-level statistics after Rounds 1 and 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Committee-level statistics after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Panelist agreement data provided after Round 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Panelist agreement data provided after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Impact data after Round 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Discussion after each judgment round	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How adequate were the following elements of the session?

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Amount of time spent training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total amount of time to create and discuss borderline achievement level descriptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Amount of time to make judgments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visual presentation of the feedback provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of judgment rounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

— In applying the standard-setting method, you were asked to recommend cut scores (separating four proficiency levels) for student performance on MCAS assessments.

How confident do you feel that the Achievement Level Descriptors (ALDs) for grade 7 mathematics are reasonable for each student performance level?

	Not Confident	Somewhat Confident	Confident	Very Confident
Partially Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exceeding Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

— How confident do you feel that the final cut score recommendations for grade 7 mathematics represent appropriate levels of student performance?

	Not Confident	Somewhat Confident	Confident	Very Confident
Partially Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meeting Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exceeding Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Process Evaluation #3

Process Evaluation #3

**Massachusetts Comprehensive Assessment System (MCAS)
Standard Setting Meeting
Grades 3-8 English Language Arts and Mathematics**

**Process Evaluation Survey #3
Mathematics - Grades 7 and 8**

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the achievement levels for the MCAS assessments. Your opinions provide an important part of our evaluation of this meeting.

Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

- Meeting pre-work
- General session training
- Breakout sessions

	Not Successful	Partially Successful	Successful	Very Successful
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How adequate were the following elements of the session?

- Facilities used for the general session
- Facilities used for the breakout session
- Computers used during the meetings
- Moodle site for accessing materials and making judgments
- Materials provided in the binder
- Work space in table groups during meeting

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you have adequate opportunities during the session to:

- Express your opinions about student achievement levels
- Ask question about the cut scores and how they will be used
- Ask questions about the process of making cut score recommendations
- Interact with you fellow panelists

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you believe your opinions and judgments were treated with respect by:

	No	Sometimes	Yes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fellow panelists

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------

Facilitators

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------

Please use the space below to provide any additional comments you have regarding the standard setting process, facilitators, materials, etc.

 Paragraph	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
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Appendix D – Committee Participant Composition

Table D.1: Participant Position

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Teacher (K–12)	9	18	14	14	20	15
Teacher (Higher Ed.)	0	0	0	1	0	0
Administrator (School)	2	1	1	1	0	1
Administrator (District)	2	1	2	0	0	2
Other	5	0	6	4	3	1
Total	18	21*	23	20	23	19

* One participant in this group did not complete the participant information survey.

Table D.2: Years of Teaching Experience

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
1 to 5 years	1	3	1	3	2	3
6 to 10 years	1	7	4	3	3	4
11 to 15 years	3	6	6	5	9	3
16 to 20 years	3	4	5	4	6	7
More than 20 years	10	3	7	5	3	2

Table D.3: Teaching Experience

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Lower Grade	15	11	20	17	14	16
Upper Grade	17	15	18	17	16	16
Beyond Grade Band	10	12	14	13	13	5

Note: Lower grade – participant has experience teaching students in the lower grade of the grade band (ex. Grade 3, 5, or 7). Upper grade – participant has experience teaching students in the upper grade of the grade band (ex. 4, 6, or 8). Beyond grade band – participant has experience teaching student in a grade greater than the upper grade in the grade band.

Table D.4: Years of Teaching Experience Subject Within Grade Band

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
None	0	2	2	0	2	1
1 to 5 years	3	6	6	5	4	5
6 to 10 years	4	5	7	1	10	5
11 to 15 years	4	3	2	3	6	5
16 to 20 years	2	3	4	1	1	3
More than 20 years	5	1	2	10	2	1

Table D.5: Experience Teaching Student Populations

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Mainstream special education	17	20	23	17	20	19
Self-contained special education	7	9	7	10	8	2
English language learners (ELL)	16	18	20	16	20	16
General education	18	20	23	20	22	19
Vocational technical education	1	2	2	0	2	2

Table D.6: Highest Education Degree

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Bachelor’s degree	1	1	2	2	3	1
Master’s degree	17	19	19	17	20	17
Doctorate degree	0	0	2	1	0	1

Table D.7: Demographic: Gender

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Female	15	19	15	17	20	16
Male	3	1	6	3	2	3
No response	0	0	2	0	1	0

Table D.8: Demographic: Race

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Hispanic or Latino	1	0	2	0	0	0
Not Hispanic or Latino	16	17	19	14	19	17
No response	1	3	2	6	4	2

Table D.9: Demographic: Ethnicity

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Asian	0	0	1	0	1	0
Black or African American	0	1	0	1	0	0
Native Hawaiian or Pacific Islander	0	0	1	0	0	0
White	18	16	18	18	19	18
No response	0	3	3	1	3	1

Table D.10: Currently Work in a School District

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Yes	18	20	23	19	22	19
No	0	0	0	1	1	0

Table D.11: Size of School District

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Small	3	7	9	6	3	5
Medium	8	8	11	10	13	10
Large	7	5	3	3	6	4
No response	0	0	0	1	1	0

Table D.12: Type of School District

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Rural	1	1	1	2	2	3
Metropolitan/Urban	8	5	6	7	7	7
Suburban	9	14	16	10	13	9
No response	0	0	0	1	1	0

Table D.13: Socioeconomic Status of School District

	ELA			Mathematics		
	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8	Grades 3 & 4	Grades 5 & 6	Grades 7 & 8
Low	8	6	7	10	11	6
Medium	8	10	10	6	7	10
High	2	4	6	3	4	3
No response	0	0	0	1	1	0

Appendix E – Standard Setting Meeting Agenda

Facilitator Agenda Grades 3 and 4 ELA

Day 1

8:00 – 8:30 am	<i>Breakfast</i>	
	<i>General Session</i>	
8:30 – 9:00 am	Welcome and MCAS Overview	DESE
9:00 – 9:45 am	Standing Setting Overview	Moyer
	<i>Breakout Session</i>	
10:00 – 10:45 am	Introductions and Orientation	Slides 1-11 (Process)
10:45 – 11:00 am	Overview of MCAS ELA Assessments	Slides 12-15 (Content) Slide 16 (Process)
11:00 – 12:00 pm	Experience the Assessment (Grade 4 ELA)	Slides 17-21 (Process)
12:00 – 1:00 pm	<i>Lunch</i>	Slide 22
12:30 – 1:00 pm	<i>Table Leader Training</i>	
1:00 – 1:30 pm	Scoring the MCAS Assessment	Slides 23-28 (Content) Slide 29 (Process)
1:30 – 2:00 pm	Item Difficulty Comparison	Slides 30-33 (Process)
2:00 – 2:45 pm	Achievement Level Descriptors (ALDs) (Grade 4 ELA)	Slides 34-38 (Process)
2:45 – 3:00 pm	<i>Break</i>	Slide 39
3:00 – 3:30 pm	Borderline ALD Training	Slides 40-44 (Process)
3:30 – 4:00 pm	Borderline ALD Development (Grade 4 ELA) <i>Step 1 (Borderline) – 30 min</i>	Slides 45-50 (Process)

Day 2

8:00 – 8:30 am	<i>Breakfast</i>	
	<i>Breakout Session</i>	
8:30 – 10:00 am	Borderline ALD (Grade 4 ELA) <i>Step 2 (Tables) – 45 min</i> <i>Whole group discussion – 45 min</i>	Slides 1-6 (Process)
10:00 – 10:30 am	Standard Setting Training	Slides 7-20 (Process)
10:30 – 10:45 am	<i>Break</i>	Slide 21
10:45 – 11:15 am	Practice Judgment Activity	Slides 22-26 (Process)
11:15 – 11:45 am	Practice Judgment Discussion	Slides 27-32 (Process)
11:45 – 12:30 pm	<i>Lunch</i>	Slide 33
12:30 – 1:45 pm	Round 1 Judgments (Grade 4 ELA) <i>Item judgment instructions and readiness</i> <i>Round 1 judgments</i>	Slides 34-39 (Process)
1:45 – 2:15 pm	<i>Break</i>	Slide 40
2:15 – 3:15 pm	Round 1 Judgment Feedback (Grade 4 ELA) <i>Table-level discussion (45 minutes)</i> <i>Participant agreement data (15 minutes)</i>	Slides 41-53 (Process)
3:15 – 4:00 pm	Round 2 Judgments (Grade 4 ELA) <i>Judgment instructions and readiness</i> <i>Round 2 item judgments</i>	Slides 54- 60 (Process)

Day 3

8:00 – 8:30 am	<i>Breakfast</i>	
	<i>General Session</i>	
8:30 – 8:45 am	Introduction to Impact	Moyer
	<i>Breakout Session</i>	
8:45 – 10:15 am	Round 2 Judgment Feedback (Grade 4 ELA) <i>Table-level discussion (30 minutes)</i> <i>Participant agreement data (15 minutes)</i> <i>Impact data (15 minutes)</i> <i>Whole-group discussions (30 minutes)</i>	Slides 1-16 (Process)
10:15 – 10:30 am	<i>Break</i>	Slide 17
10:30 – 11:15 am	Round 3 Judgments (Grade 4 ELA) <i>Judgment instructions and readiness</i> <i>Round 3 item judgments</i>	Slides 18-23 (Process)
11:15 – 12:00 pm	Experience the Assessment (Grade 3 ELA) <i>Experience Activity (45 min)</i>	Slide 24-28 (Process)
12:00 – 12:45 pm	<i>Lunch</i>	Slide 29
12:45 – 1:00 pm	Experience the Assessment (Grade 3 ELA)	Slide 30 (Process)
1:00 – 1:30 pm	Round 3 Judgment Feedback (Grade 4 ELA) <i>Group cut score recommendations and impact (10 minutes)</i> <i>Whole group discussion (20 minutes)</i>	Slides 31-37 (Process)
1:30 – 2:00 pm	Achievement Level Descriptors (Grade 3 ELA)	Slides 38-41 (Process)
2:00 – 2:15 pm	<i>Break</i>	Slide 42
2:15 – 4:00 pm	Borderline ALD Development (Grade 3 ELA) <i>Borderline discussion (15 minutes)</i> <i>Table group discussion (45 minutes)</i> <i>Whole group discussion (45 minutes)</i>	Slides 43-53 (Process)

Day 4

8:00 – 8:30 am	<i>Breakfast</i>	
	<i>Breakout Session</i>	
8:30 – 9:00 am	Round 1 Judgments (Grade 3 ELA) <i>Judgment instructions and readiness</i> <i>Round 1 item judgments</i>	Slides 1–7 (Process)
9:00 – 9:30 am	<i>Break</i>	Slide 8
9:30 – 10:30 am	Round 1 Judgment Feedback (Grade 3 ELA) <i>Table-level discussion (45 minutes)</i> <i>Participant agreement data (15 minutes)</i>	Slides 9–21 (Process)
10:30 – 11:30 am	Round 2 Judgments (Grade 3 ELA) <i>Judgment instructions and readiness</i> <i>Round 1 item judgments</i>	Slides 22–27 (Process)
11:30 – 12:15 pm	<i>Lunch</i>	Slide 31
12:00 – 12:15 am	<i>Table Leader Impact Review</i>	
12:15 – 1:45 pm	Round 2 Judgment Feedback (Grade 3 ELA) <i>Table discussion (30 minutes)</i> <i>Participant agreement data (15 minutes)</i> <i>Impact data (15 minutes)</i> <i>Whole-group discussions (30 minutes)</i>	Slide 32–43 (Process)
1:45 – 2:30 pm	Round 3 Judgments (Grade 3 ELA) <i>Judgment instructions and readiness</i> <i>Round 3 item judgments</i>	Slides 44–49 (Process)
2:30 – 3:00 pm	<i>Break</i>	Slide 50
3:00 – 3:30 pm	Round 3 Judgment Feedback (Grade 3 ELA) <i>Group cut score recommendations and impact (10 minutes)</i> <i>Whole group discussion (20 minutes)</i>	Slide 51–57 (Process)
3:30 - 4:00 pm	Next Steps and Close Out	Slide 58–61 (Process)

Day 5

8:00 – 8:30 am	<i>Breakfast</i>
	<i>Vertical Articulation</i>
8:30 – 8:45 am	Introduction and Purpose
8:45 – 9:30 am	Cross-grade ALD review
9:30 – 10:15 am	Cross-grade impact data review
10:15 – 10:45 am	Recommend changes to Round 3 recommendations
10:45 – 11:00 am	<i>Break</i>
11:00 – 11:30 am	Linear smoothing discussion and recommendation
11:30 – 12:00 pm	Next steps and close out

Appendix F – Examples of Feedback Data

Feedback data was provided to participants after each judgment round. The following are examples of feedback data provided to participants.

Individual Item—Level Judgments

This provided the participant with the actual item-level judgments that were recorded in Moodle for the participant. This was provided so that the participant could check that the system recorded the judgments correctly.

MATH Grade 03 - Individual Score Points - Round 1

Table=1 Name=

UIN	PME	ME	EE
MA283002	1	1	1
M03387P	0	0	1
MA306301	1	1	1
MA203641	0	1	1
M00003	0	1	1
MA306310	0	1	1

Individual Test—Level Recommendation

This provided the participant with the recommendations for test-level cut scores based on their item judgments for the Partially Meeting Expectations, Meeting Expectations, and Exceeding Expectations achievement levels.

MATH Grade 03 - Individual Score Points - Round 1

Table=1 Name=

PME Raw Score	ME Raw Score	EE Raw Score
14	33	46

Table-level Test—Level Recommendations

This provided the participant with the aggregate test-level recommendation, based on the individual participants at the table, including the number of participants, the mean recommendation, the median recommendation, the minimum and maximum recommendation, and the first and third quartiles for each achievement level.

MATH Grade 03 Round 1 Summary Statistics - Table 1

	N	Mean	Median	Min	Max	Q1	Q3
PME Raw Score	5	13.60	13	11.00	18.00	12.00	14.00
ME Raw Score	5	33.60	32	30.00	41.00	32.00	33.00
EE Raw Score	5	46.00	46	44.00	48.00	46.00	46.00

Overall Test—Level Recommendations

This provided the participant with the aggregate test-level recommendation, based on the individual participants in the committee, including the number of participants, the mean recommendation, the median recommendation, the minimum and maximum recommendation, and the first and third quartiles for each achievement level.

MATH Grade 03 Round 1 Summary Statistics - Overall

	N	Mean	Median	Min	Max	Q1	Q3
PME Raw Score	20	14.40	14	7.00	23.00	12.00	17.50
ME Raw Score	20	31.95	33	24.00	41.00	30.50	33.50
EE Raw Score	20	44.20	44	39.00	48.00	42.50	46.00

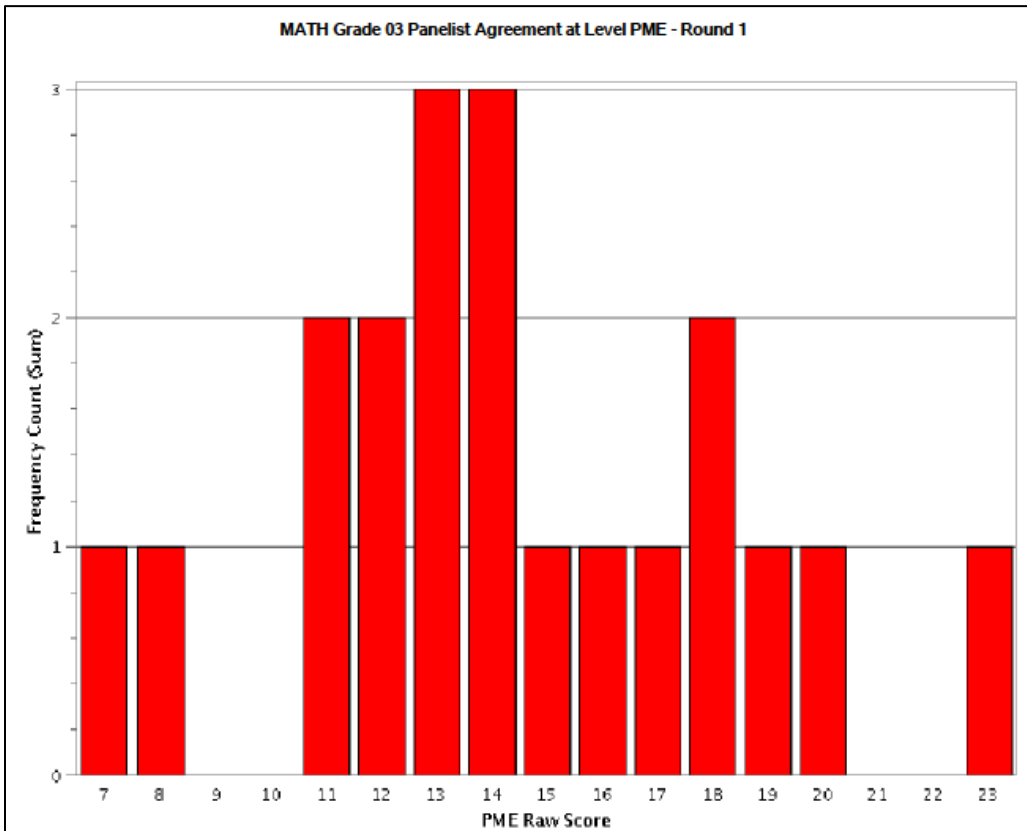
Item-level Judgment Agreement

This provided the participants with item-level judgment distributions for the committee for each item. Additionally, for each achievement level, the items with the greatest level of judgment disagreement were identified.

UIN	Max Points	0	1	2	3
VH083831	3	45%	50%	5%	0%
MA306360	2	50%	50%	0%	0%
M00038	1	45%	55%	0%	0%
M01874	1	60%	40%	0%	0%
VH093469	1	60%	40%	0%	0%

Test-level Participant Recommendation Agreement

This feedback was presented to participants by the facilitator. It presented bar graphs displaying the distribution of participant recommendations for the cut score, by raw score, for each achievement level: Partially Meeting Expectation, Meeting Expectations, and Exceeding Expectations. Graphs displaying consecutive achievement levels (Partially Meeting Expectations and Meeting Expectations) on the scale graph were also presented.



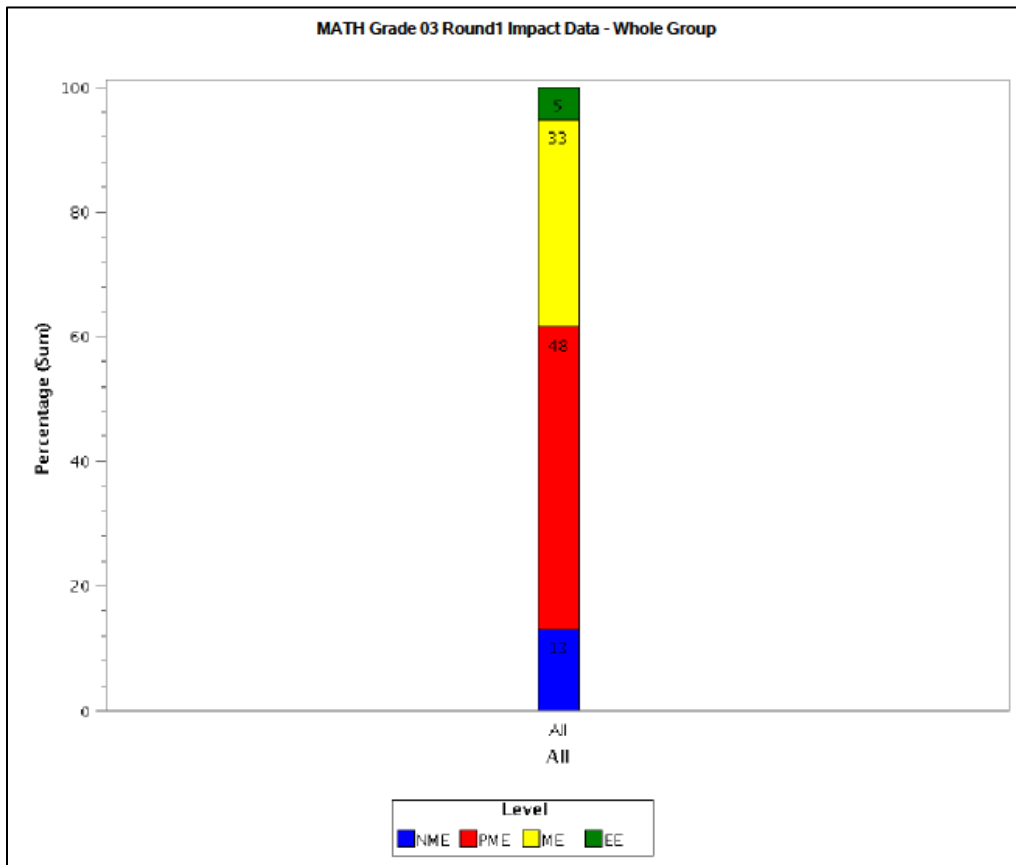
Item Score Mean and Score Distribution

This provided, for each item, the mean score and the distribution of scores received by students during the Spring 2017 administration. The results presented were based on the sample of data used to create the impact data.

Item Score Mean and Distribution										
Grade 3 Mathematics										
Sequence	Item	Item Type	Reporting Category	Maximum Points	Score Mean	Score Distribution				
						0 pts	1 pt	2 pts	3 pts	4 pts
1	MA283002	SR	MD	1	0.891	10.9%	89.1%			
2	M03387P	SR	F	1	0.455	54.5%	45.5%			
3	MA306301	SR	G	1	0.481	51.9%	48.1%			
4	MA203641	SA	MD	1	0.836	16.4%	83.6%			
5	M00003	SR	OA	1	0.806	19.4%	80.6%			
6	MA306310	SR	G	1	0.509	49.1%	50.9%			
7	MA306335	CR	BT	2	0.760	37.1%	49.8%	13.1%		

Impact Data

This provided the percentage of student expected to be classified into each achievement level, Not Meeting Expectations, Partially Meeting Expectations, Meeting Expectations, and Exceeding Expectations, based on the committee test-level cut score recommendations for that round. These results were based on the sample of student data from the Spring 2017 administration.



Appendix G – Committee Recommended Cut Scores by Round

Table G.1: ELA Grade 3

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	42	15	14	11	11	12
Meeting Expectations		29	28	24	24	24
Exceeding Expectations		36	35	35	34	33

Table G.2: ELA Grade 4

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	42	9	13	13	13	15
Meeting Expectations		28	30	28	28	29
Exceeding Expectations		40	39	38	38	37

Table G.3: ELA Grade 5

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	46	14	13	12	14	16
Meeting Expectations		28	28	28	30	31
Exceeding Expectations		39	39	40	40	41

Table G.4: ELA Grade 6

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	49	14	13	11	11	12
Meeting Expectations		30	29	28	28	28
Exceeding Expectations		43	42	40	40	41

Table G.5: ELA Grade 7

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	49	15	14	14	14	15
Meeting Expectations		30	30	30	30	31
Exceeding Expectations		43	43	43	42	43

Table G.6: ELA Grade 8

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	49	16	17	16	16	17
Meeting Expectations		33	33	32	32	32
Exceeding Expectations		45	43	43	42	42

Table G.7: Mathematics Grade 3

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	48	14	12	12	12	13
Meeting Expectations		33	29	29	29	29
Exceeding Expectations		44	43	43	43	43

Table G.8: Mathematics Grade 4

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	54	16	15	14	14	16
Meeting Expectations		37	34	33	33	33
Exceeding Expectations		50	49	49	48	49

Table G.9: Mathematics Grade 5

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	54	13	9	11	12	14
Meeting Expectations		29	28	31	31	31
Exceeding Expectations		48	47	48	48	48

Table G.10: Mathematics Grade 6

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	54	9	9	8	8	10
Meeting Expectations		30	28	28	28	27
Exceeding Expectations		46	45	44	45	47

Table G.11: Mathematics Grade 7

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	54	9	8	9	8	10
Meeting Expectations		31	30	31	25	25
Exceeding Expectations		47	45	44	43	44

Table G.12: Mathematics Grade 8

Achievement Level	Maximum Score	Rounds			Vertical Articulation	Final
		1	2	3		
Partially Meeting Expectations	54	10	9	11	11	9
Meeting Expectations		32	30	31	31	30
Exceeding Expectations		46	46	45	46	47

Appendix H – Recommended Cut Score Summary Statistics

ELA Grade 3

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	14.83	27.94	36.06
	Minimum	10	20	31
	Q1	14	26	34
	Median	15	29	36
	Q3	16	30	38
	Maximum	18	34	41
2	Mean	13.50	26.89	35.83
	Minimum	11	21	32
	Q1	12	26	35
	Median	14	28	35
	Q3	15	29	37
	Maximum	16	31	41
3	Mean	11.11	23.06	34.22
	Minimum	8	17	29
	Q1	9	21	33
	Median	11	24	35
	Q3	13	25	36
	Maximum	15	29	38

ELA Grade 4

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	9.44	27.78	39.11
	Minimum	4	25	33
	Q1	8	25	38
	Median	9	28	40
	Q3	10	29	41
	Maximum	16	34	42
2	Mean	12.83	28.22	38.00
	Minimum	7	17	32
	Q1	11	28	37
	Median	13	30	39
	Q3	15	30	39
	Maximum	18	33	41
3	Mean	13.78	27.39	37.28
	Minimum	11	19	31
	Q1	12	26	35
	Median	13	28	38
	Q3	15	29	39
	Maximum	18	32	41

ELA Grade 5

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	13.18	27.86	39.73
	Minimum	7	21	34
	Q1	11	27	38
	Median	14	28	39
	Q3	14	30	42
	Maximum	20	32	44
2	Mean	13.23	28.45	39.27
	Minimum	9	22	37
	Q1	11	27	38
	Median	13	28	39
	Q3	14	30	40
	Maximum	20	36	44
3	Mean	12.32	28.41	39.14
	Minimum	9	24	37
	Q1	11	27	38
	Median	12	28	40
	Q3	14	31	40
	Maximum	15	34	41

ELA Grade 6

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	14	30	42.57
	Minimum	9	22	35
	Q1	11	28	41
	Median	14	30	43
	Q3	16	33	44
	Maximum	20	35	48
2	Mean	12.81	28.57	41.71
	Minimum	7	23	37
	Q1	11	26	40
	Median	13	29	42
	Q3	14	31	44
	Maximum	18	34	47
3	Mean	11.90	27.81	40.71
	Minimum	9	20	35
	Q1	10	25	39
	Median	11	28	40
	Q3	14	30	42
	Maximum	18	34	46

ELA Grade 7

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	15.38	29.81	42.00
	Minimum	10	24	35
	Q1	12	27	40
	Median	15	30	43
	Q3	17	32	45
	Maximum	25	44	46
2	Mean	13.91	29.86	42.09
	Minimum	11	23	38
	Q1	12	29	39
	Median	14	30	43
	Q3	15	32	44
	Maximum	18	36	45
3	Mean	14.41	30.18	42.91
	Minimum	11	27	40
	Q1	13	29	42
	Median	14	30	43
	Q3	15	32	44
	Maximum	19	34	45

ELA Grade 8

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	16.74	32.87	44.17
	Minimum	7	28	37
	Q1	15	30	43
	Median	16	33	45
	Q3	19	35	46
	Maximum	24	39	48
2	Mean	16.35	31.83	43.09
	Minimum	10	21	38
	Q1	15	30	41
	Median	17	33	43
	Q3	18	34	45
	Maximum	21	38	47
3	Mean	16.22	31.91	42.91
	Minimum	10	27	38
	Q1	14	30	41
	Median	16	32	43
	Q3	18	34	45
	Maximum	22	38	47

Mathematics Grade 3

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	14.40	31.95	44.20
	Minimum	7	24	39
	Q1	12	30.5	42.5
	Median	14	33	44
	Q3	17.5	33.5	46
	Maximum	23	41	48
2	Mean	11.25	28.35	42.85
	Minimum	6	23	41
	Q1	9	24.5	42.0
	Median	12	29	43
	Q3	14	31.5	44
	Maximum	16	34	44
3	Mean	11.95	29.05	42.80
	Minimum	9	23	41
	Q1	11	26.5	42
	Median	12	29	43
	Q3	13	31.5	43.5
	Maximum	16	33	45

Mathematics Grade 4

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	15.25	38.70	50.05
	Minimum	6	34	45
	Q1	13	36	49
	Median	16	37	50
	Q3	17.5	41.5	51
	Maximum	22	50	54
2	Mean	15.05	33.80	49.05
	Minimum	10	25	48
	Q1	11	31.5	48
	Median	15	34	49
	Q3	18	36	50
	Maximum	24	41	51
3	Mean	15.80	32.45	49.10
	Minimum	10	26	47
	Q1	13	30	48.5
	Median	14	33	49
	Q3	19	35	49
	Maximum	25	41	51

Mathematics Grade 5

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	11.78	29.48	46.39
	Minimum	5	16	37
	Q1	9	26	45
	Median	13	29	48
	Q3	15	34	49
	Maximum	16	37	52
2	Mean	9.48	28.57	47.65
	Minimum	4	23	43
	Q1	8	26	46
	Median	9	28	47
	Q3	12	30	50
	Maximum	16	35	51
3	Mean	11.17	29.87	47.39
	Minimum	7	23	41
	Q1	10	28	46
	Median	11	31	48
	Q3	13	32	49
	Maximum	16	33	51

Mathematics Grade 6

Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	9.65	29.87	45.26
	Minimum	3	16	36
	Q1	7	26	43
	Median	9	30	46
	Q3	12	33	48
	Maximum	17	39	53
2	Mean	10	29.96	44.43
	Minimum	5	23	33
	Q1	8	25	41
	Median	9	28	45
	Q3	13	34	47
	Maximum	17	40	52
3	Mean	8.22	26.91	43.87
	Minimum	2	18	38
	Q1	8	23	42
	Median	8	28	44
	Q3	9	29	46
	Maximum	12	36	48

Mathematics Grade 7

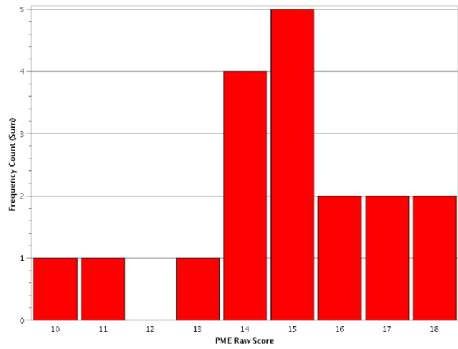
Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	9.06	30.22	46.00
	Minimum	4	25	42
	Q1	7	29	44
	Median	9	31	47
	Q3	11	32	48
	Maximum	14	34	51
2	Mean	8.06	29.67	44.17
	Minimum	6	25	41
	Q1	7	28	43
	Median	8	30	45
	Q3	9	31	45
	Maximum	11	33	47
3	Mean	9.72	30.39	44.44
	Minimum	6	25	43
	Q1	8	30	43
	Median	9	31	44
	Q3	11	32	46
	Maximum	16	34	47

Mathematics Grade 8

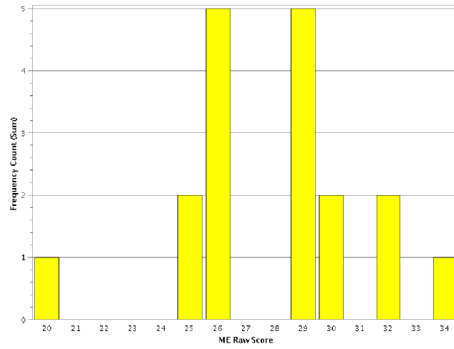
Round	Statistic	Achievement Level		
		Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
1	Mean	11.21	31.89	46.26
	Minimum	5	26	41
	Q1	8	30	44
	Median	10	32	46
	Q3	14	36	49
	Maximum	19	39	51
2	Mean	9.16	30.16	45.05
	Minimum	5	24	41
	Q1	8	29	43
	Median	9	30	46
	Q3	10	32	47
	Maximum	12	33	49
3	Mean	10.89	30.74	45.16
	Minimum	8	27	41
	Q1	8	30	44
	Median	11	31	45
	Q3	12	32	47
	Maximum	17	35	49

Appendix I – Test-Level Participant Judgment Agreement

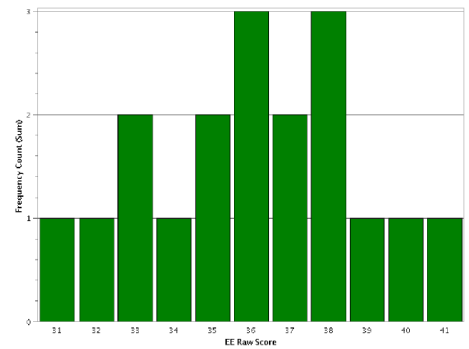
ELA Grade 3
 Round 1:



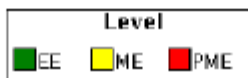
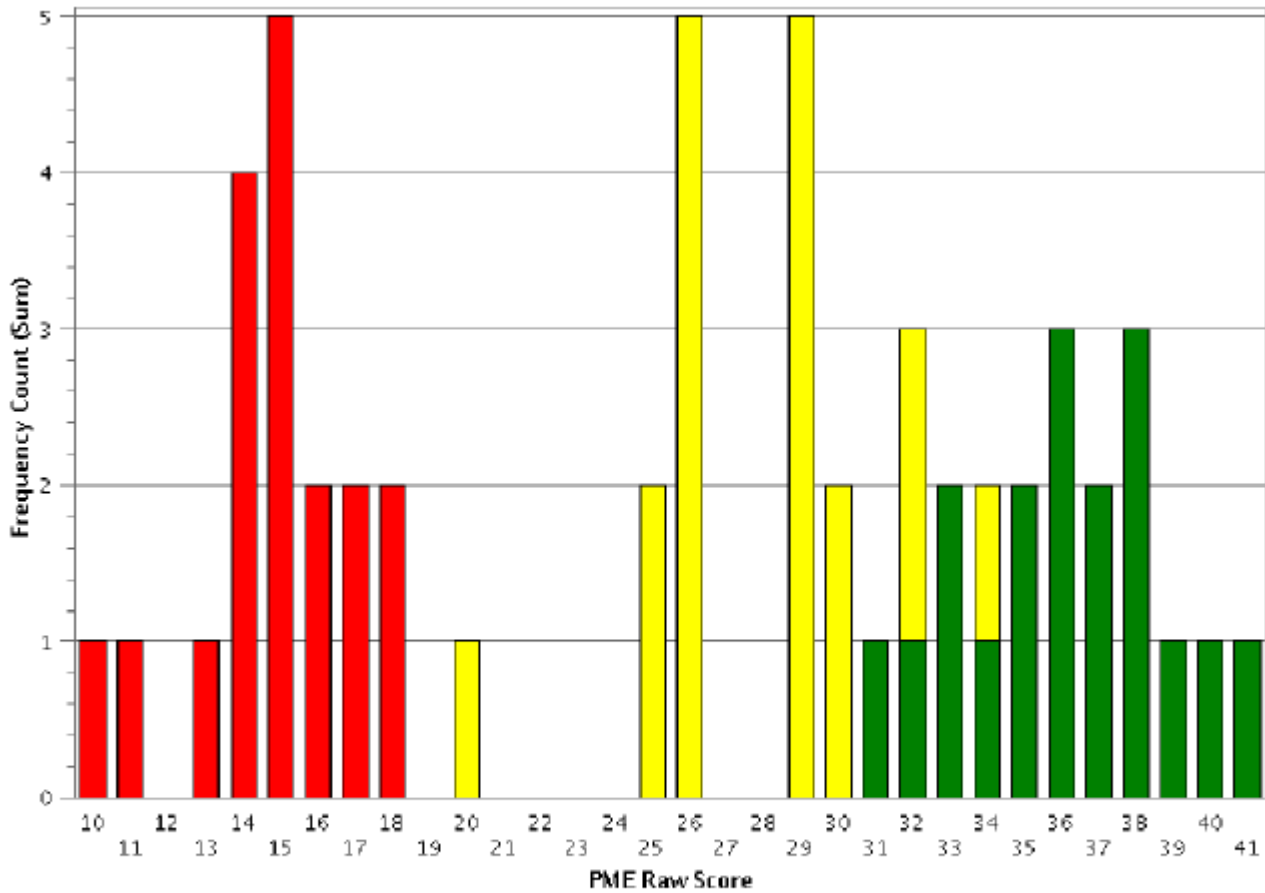
Partially Meeting Expectations



Meeting Expectations

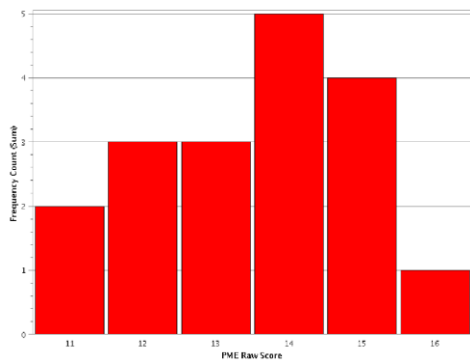


Exceeding Expectations

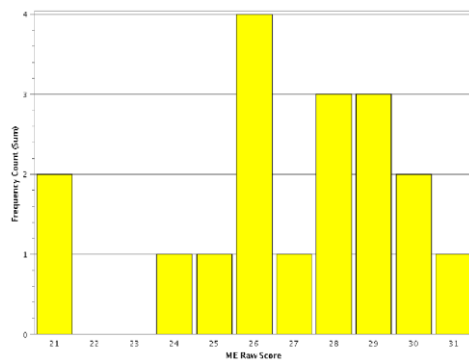


All Three Achievement Levels Concurrently

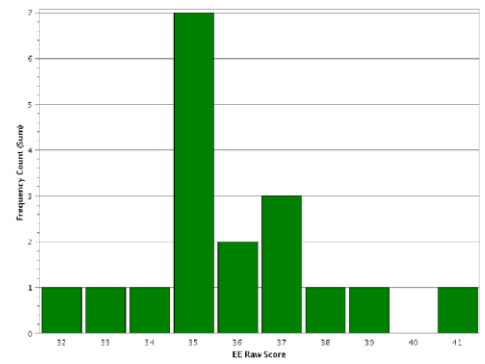
Round 2:



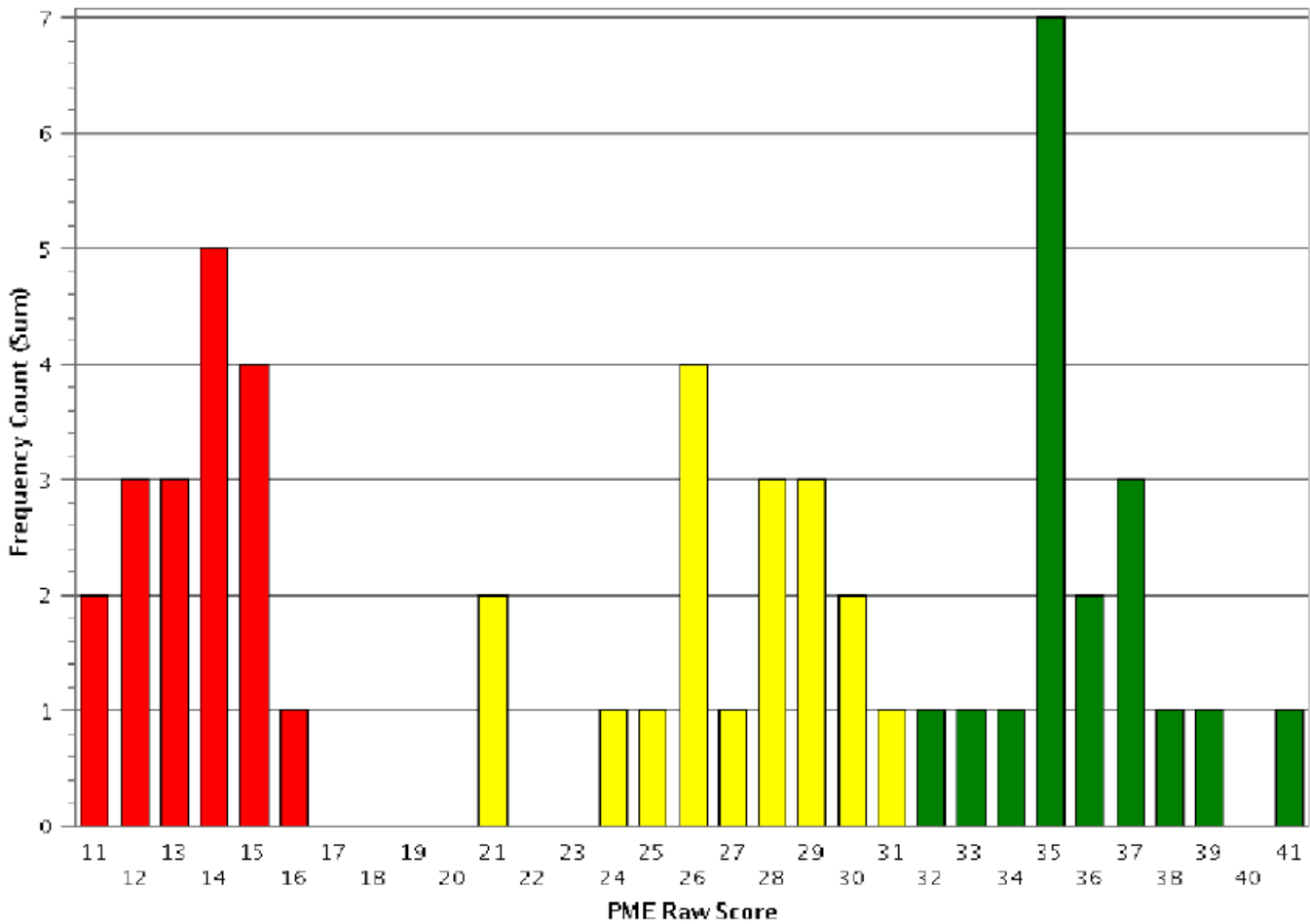
Partially Meeting Expectations



Meeting Expectations

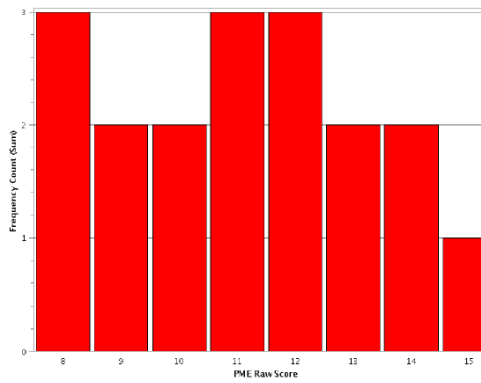


Exceeding Expectations

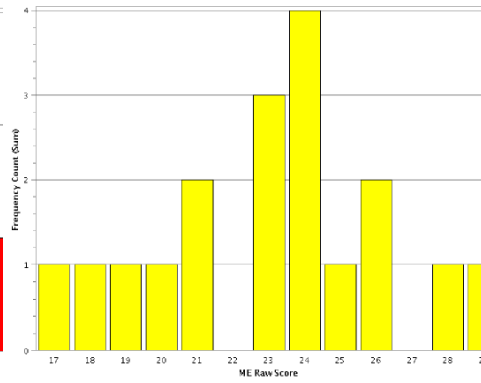


All Three Achievement Levels Concurrently

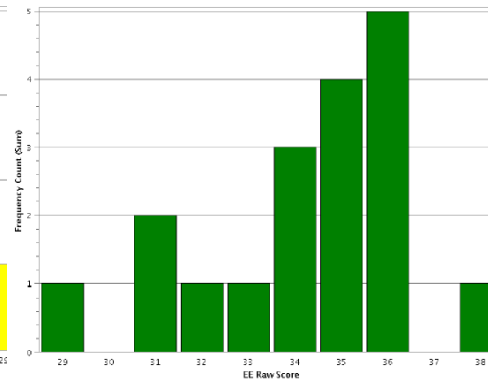
Round 3:



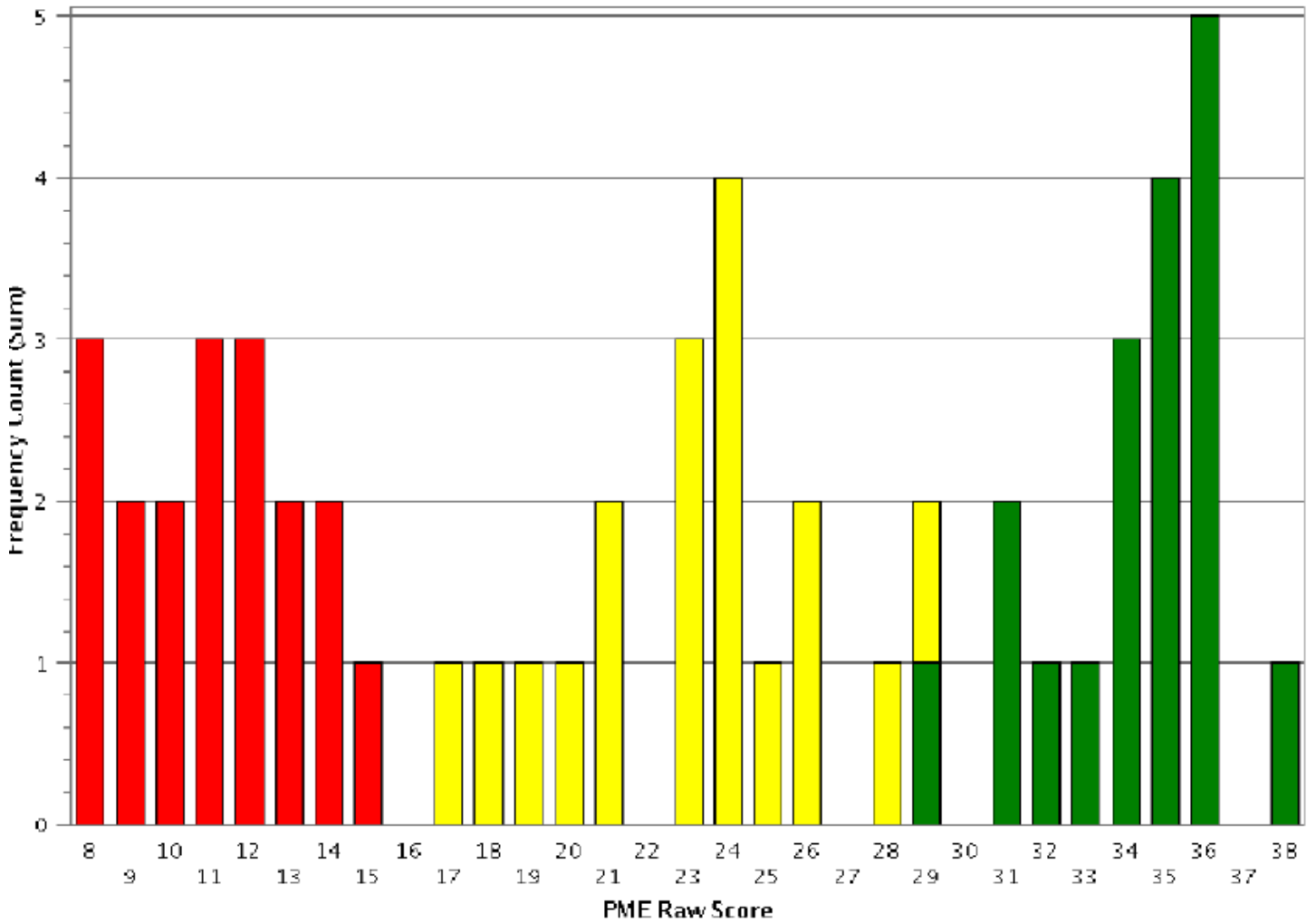
Partially Meeting Expectations



Meeting Expectations



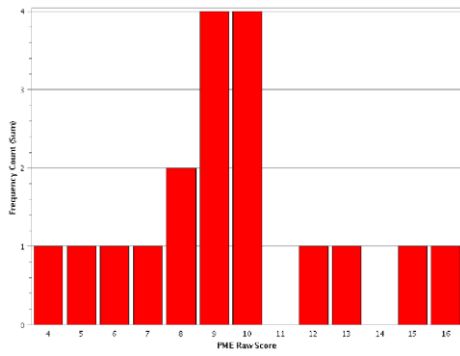
Exceeding Expectations



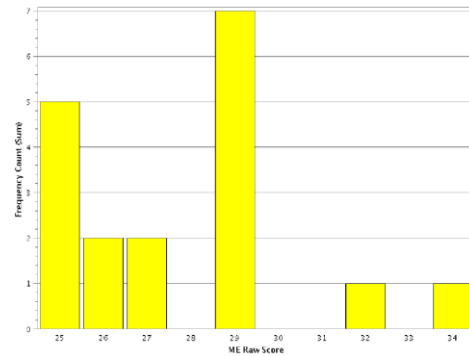
All Three Achievement Levels Concurrently

ELA Grade 4

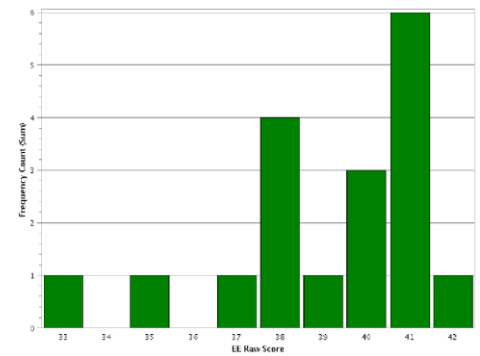
Round 1:



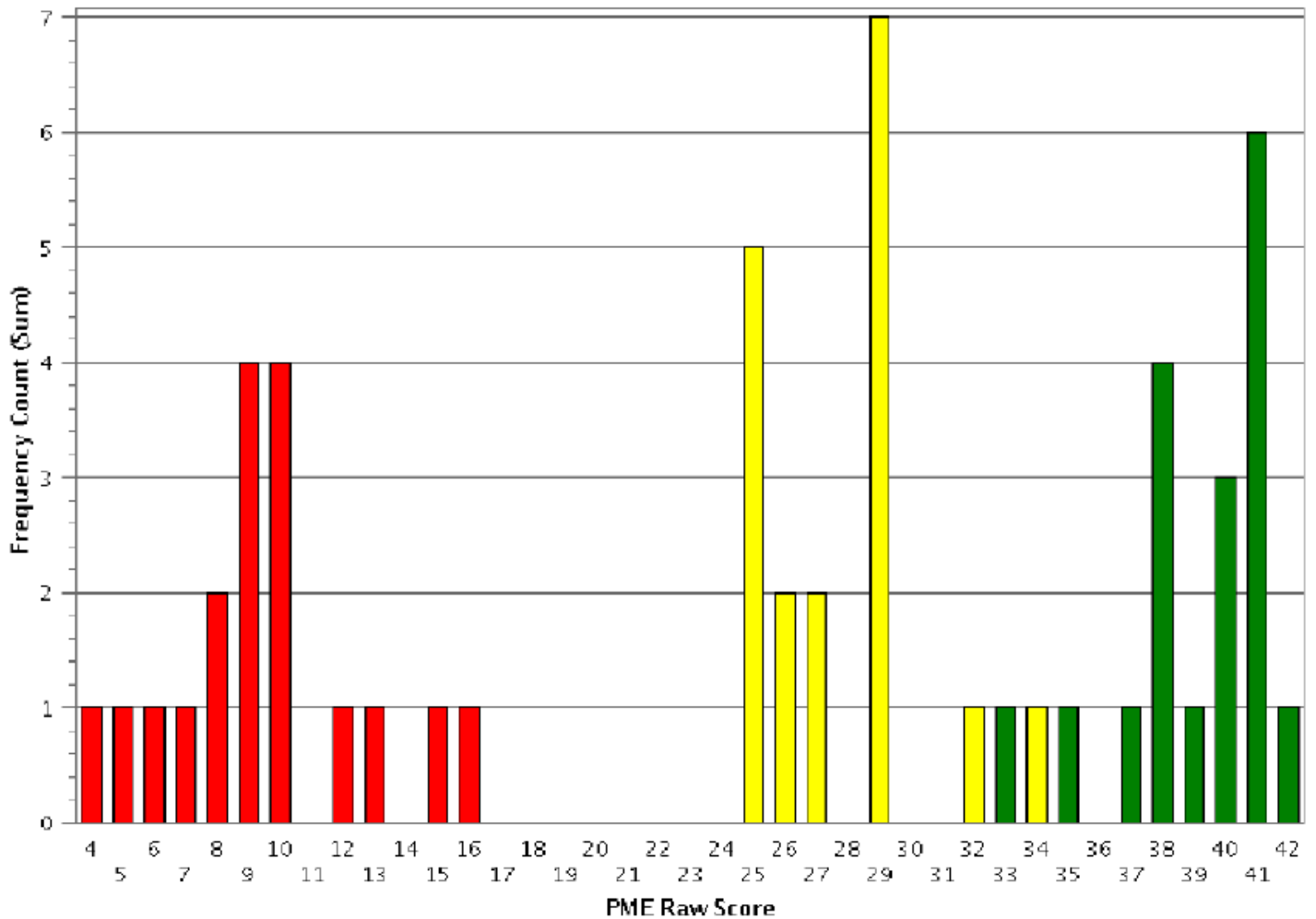
Partially Meeting Expectations



Meeting Expectations

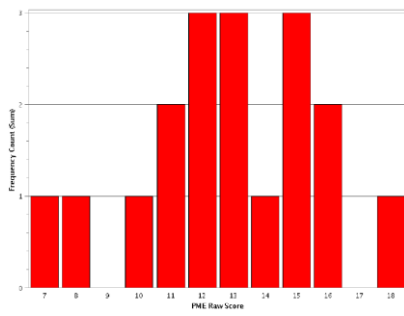


Exceeding Expectations

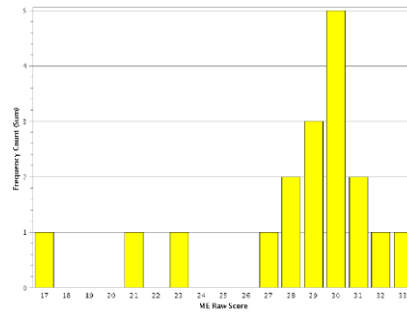


All Three Achievement Levels Concurrently

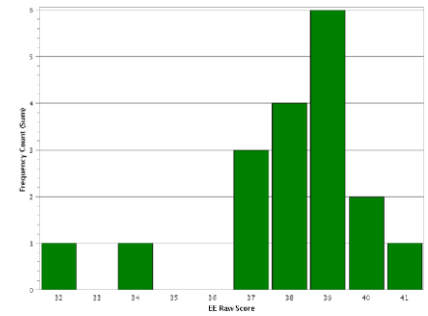
Round 2:



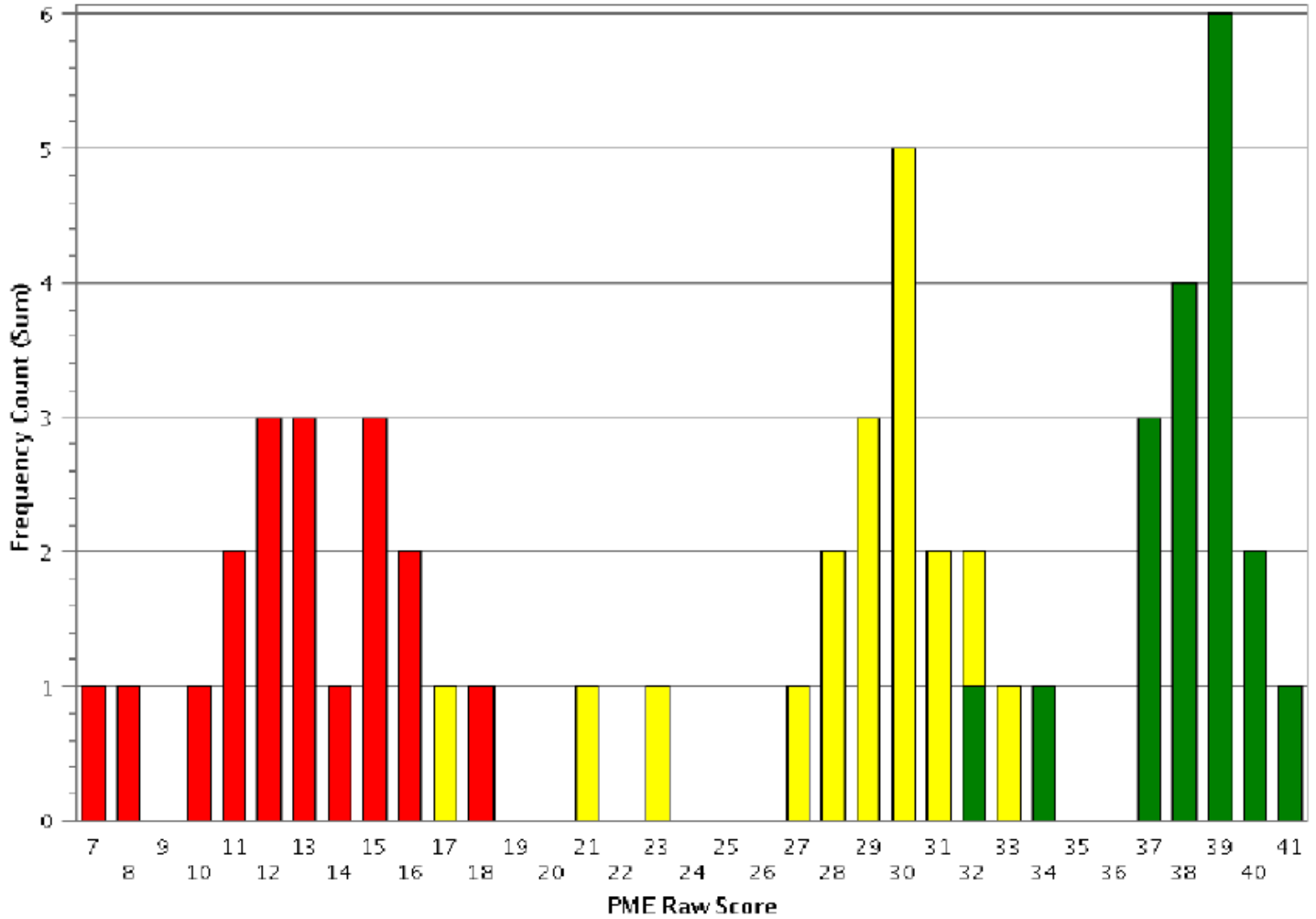
Partially Meeting Expectations



Meeting Expectations

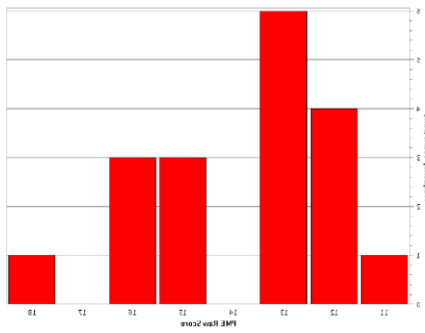


Exceeding Expectations

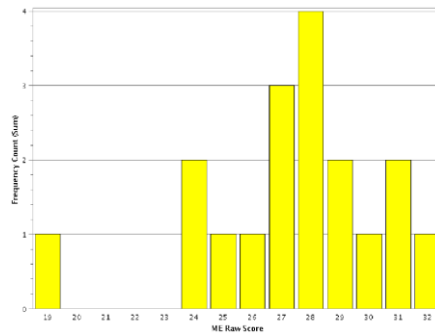


All Three Achievement Levels Concurrently

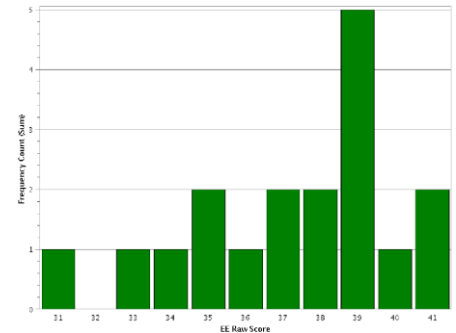
Round 3:



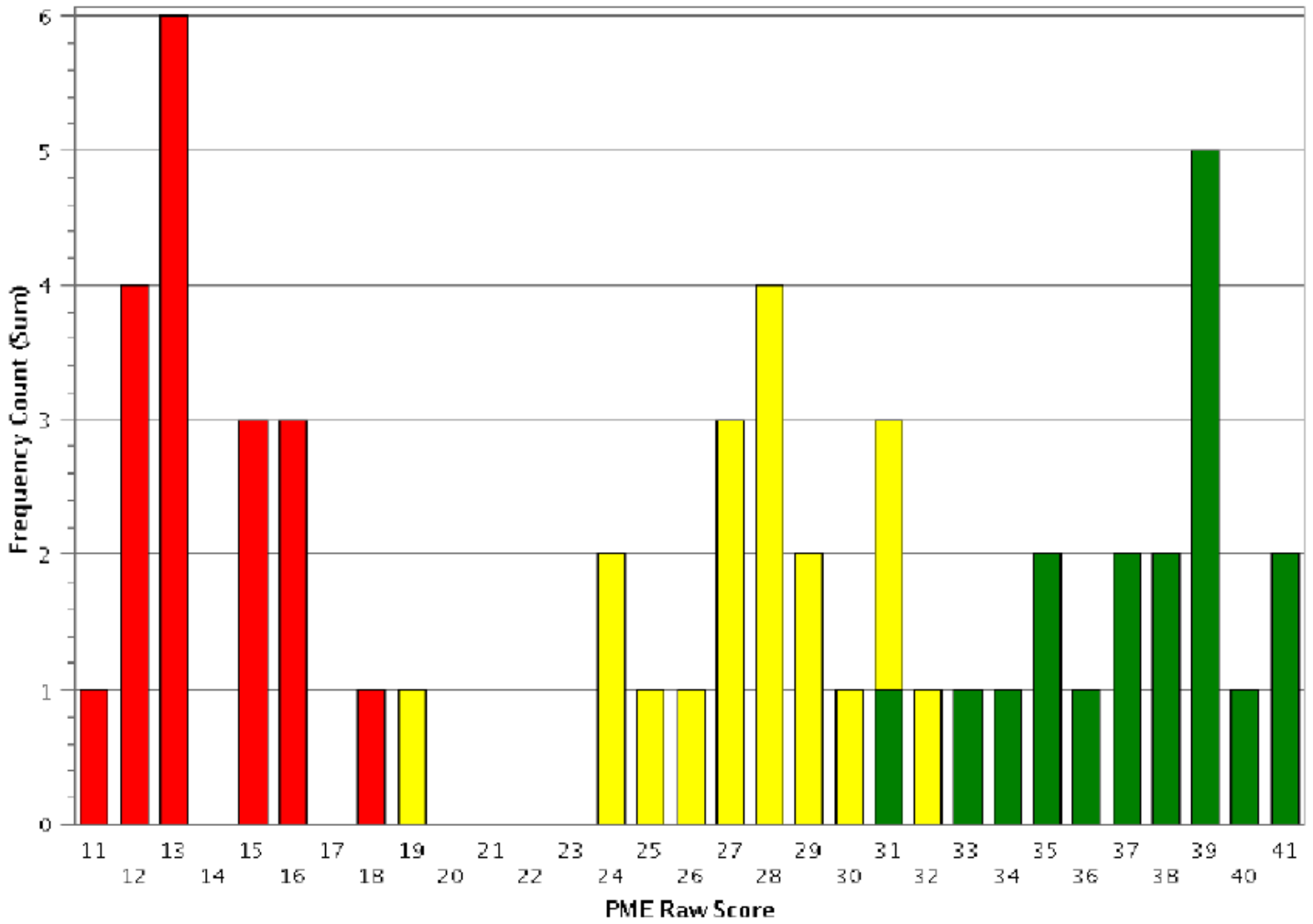
Partially Meeting Expectations



Meeting Expectations



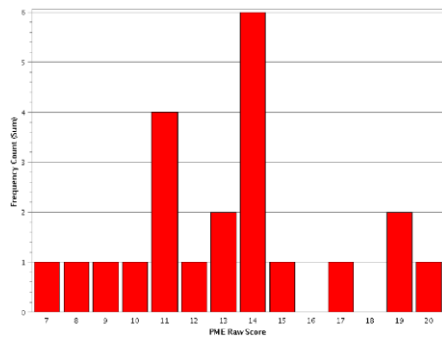
Exceeding Expectations



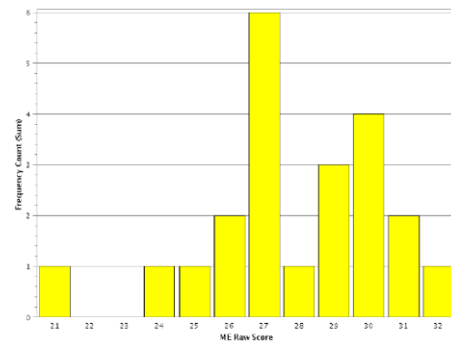
All Three Achievement Levels Concurrently

ELA Grade 5

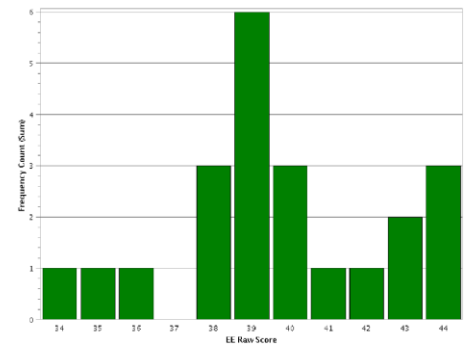
Round 1:



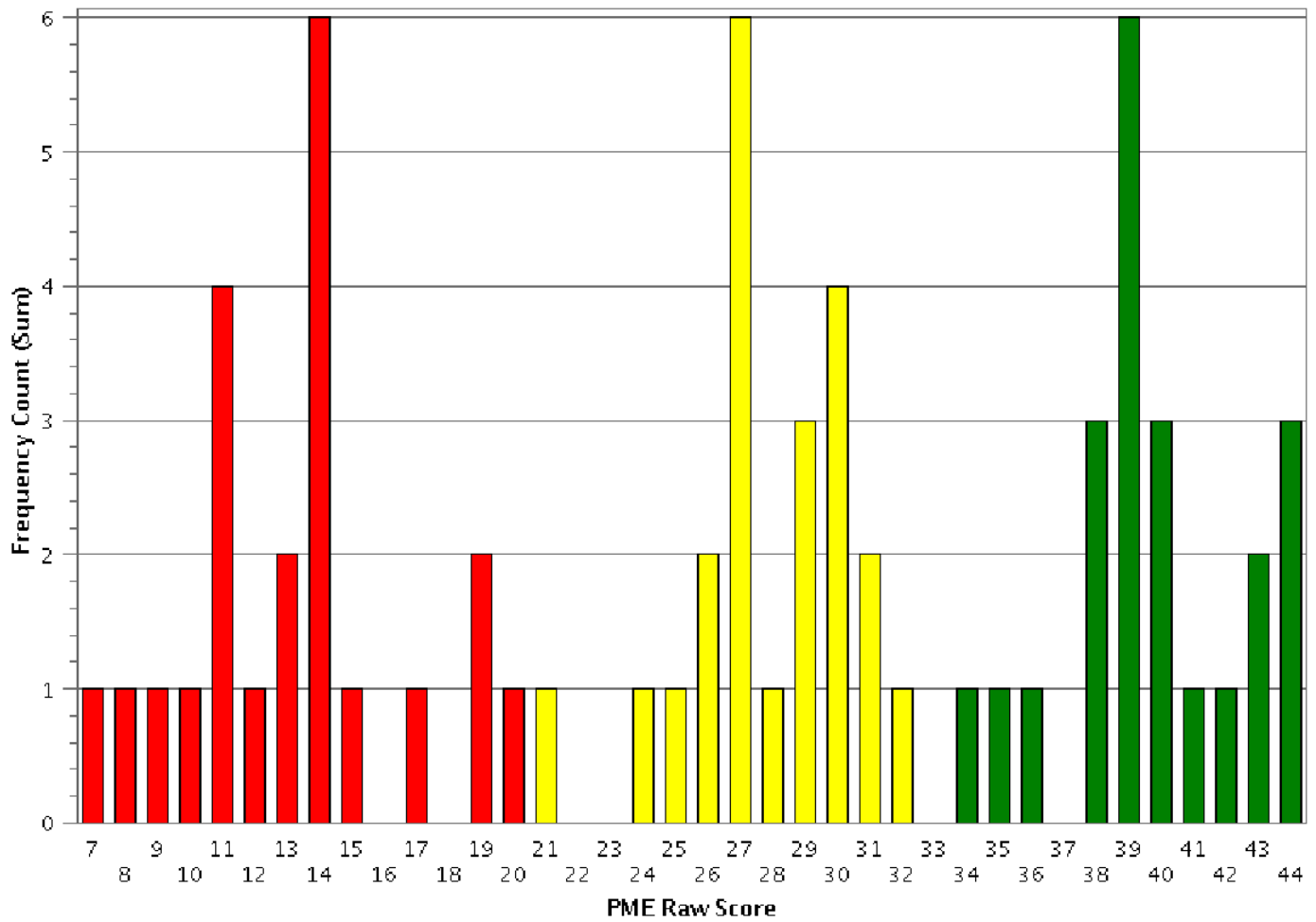
Partially Meeting Expectations



Meeting Expectations

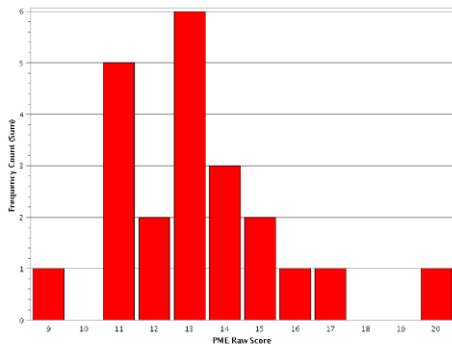


Exceeding Expectations

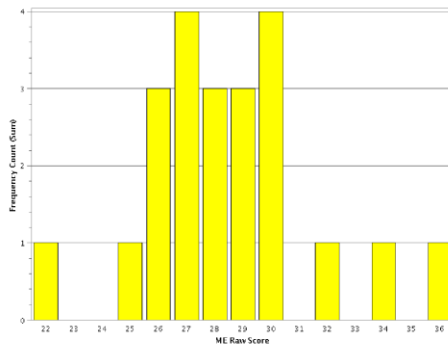


All Three Achievement Levels Concurrently

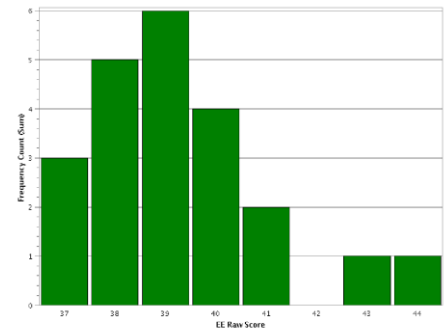
Round 2:



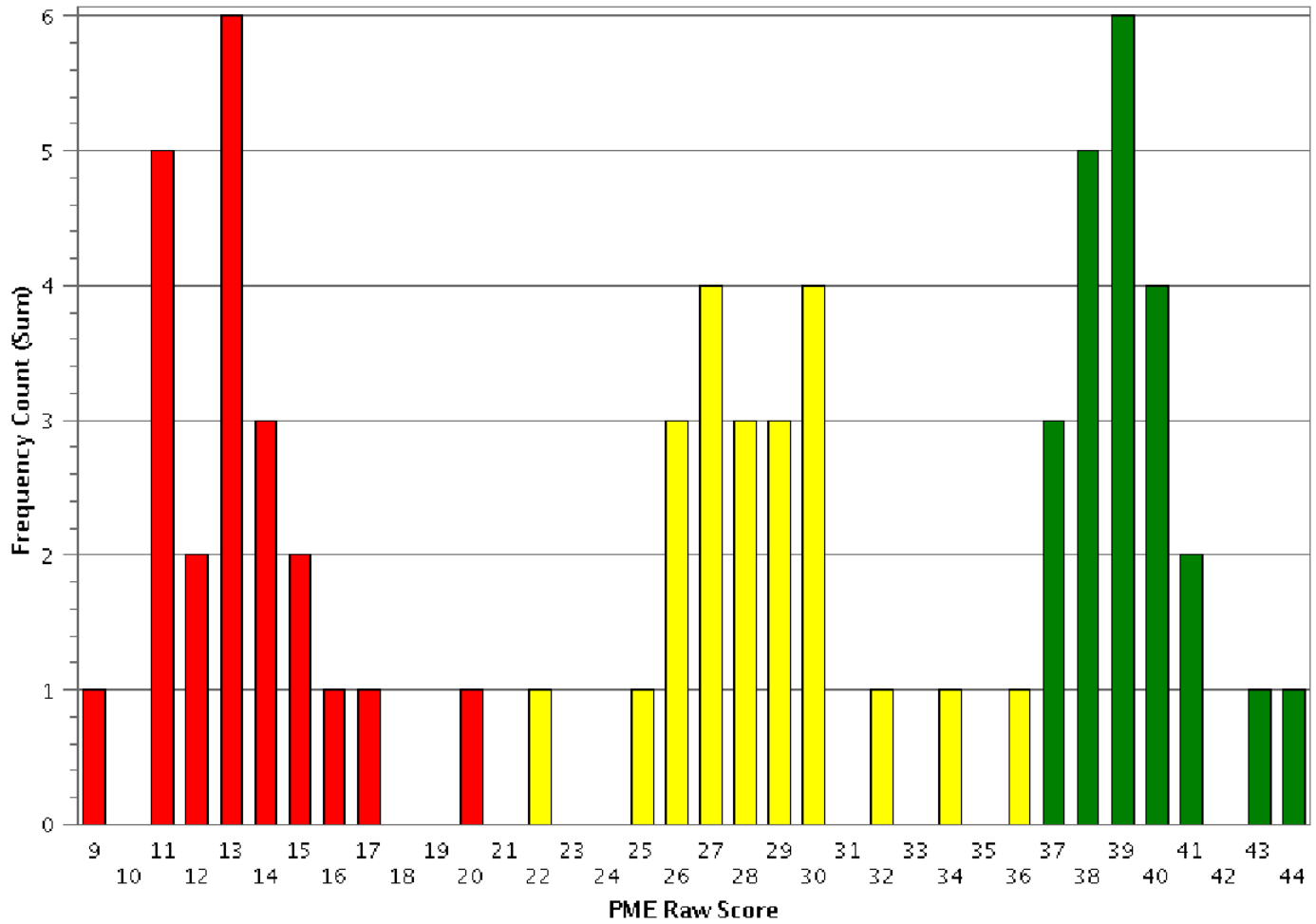
Partially Meeting Expectations



Meeting Expectations

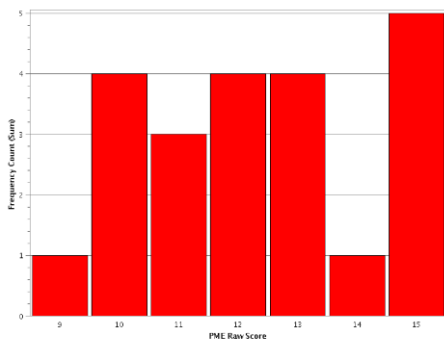


Exceeding Expectations

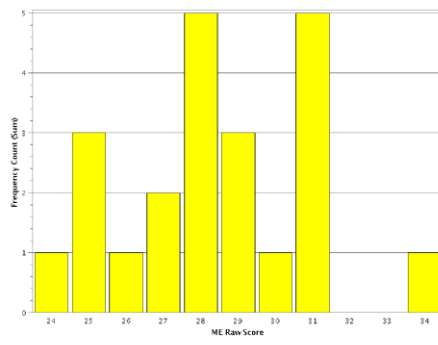


All Three Achievement Levels Concurrently

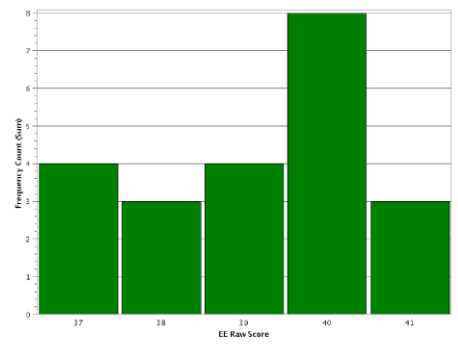
Round 3:



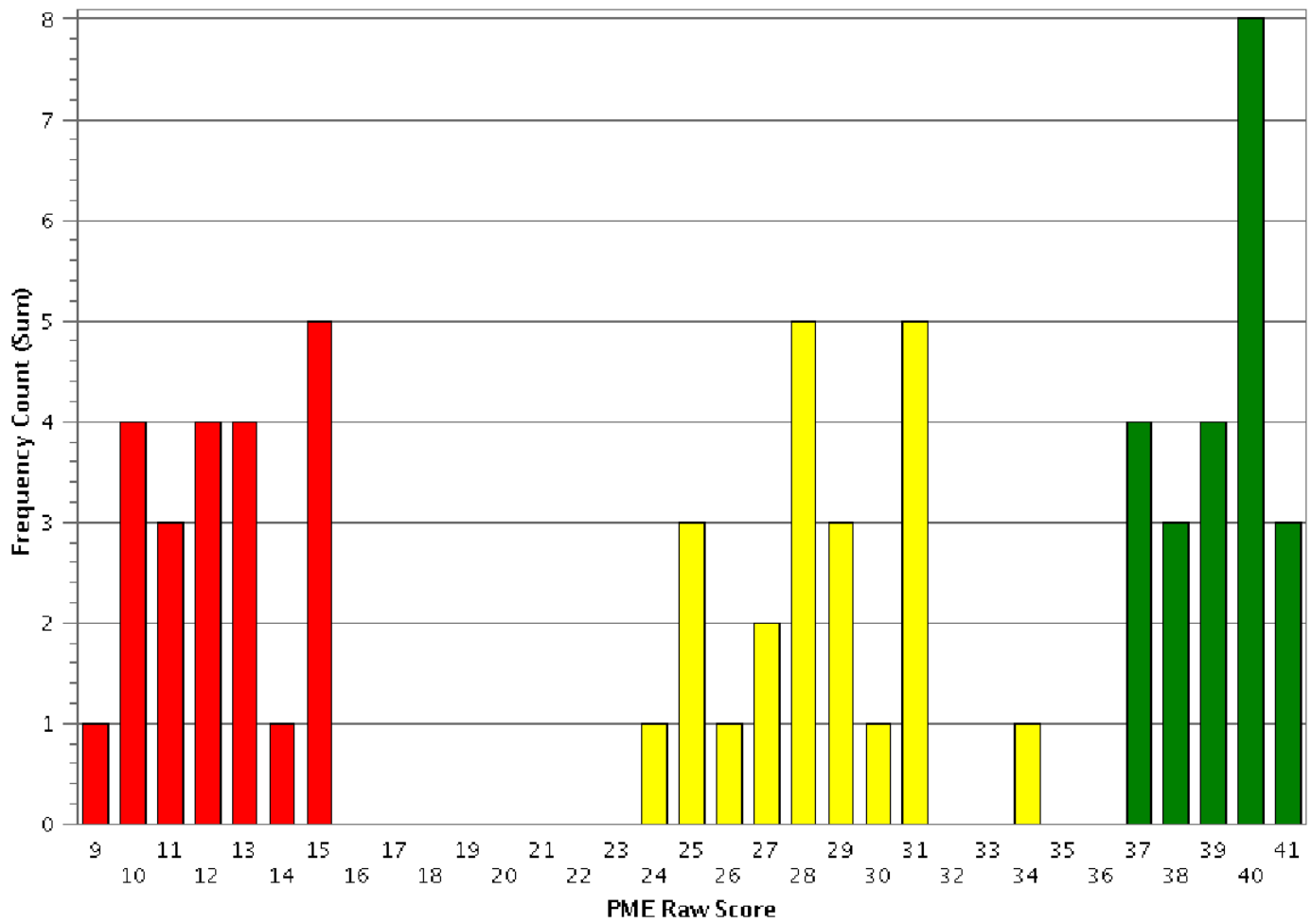
Partially Meeting Expectations



Meeting Expectations



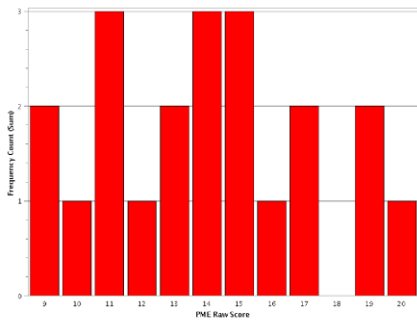
Exceeding Expectations



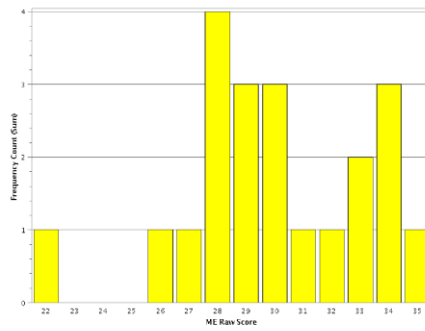
All Three Achievement Levels Concurrently

ELA Grade 6

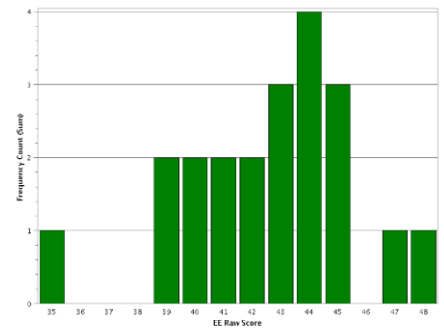
Round 1:



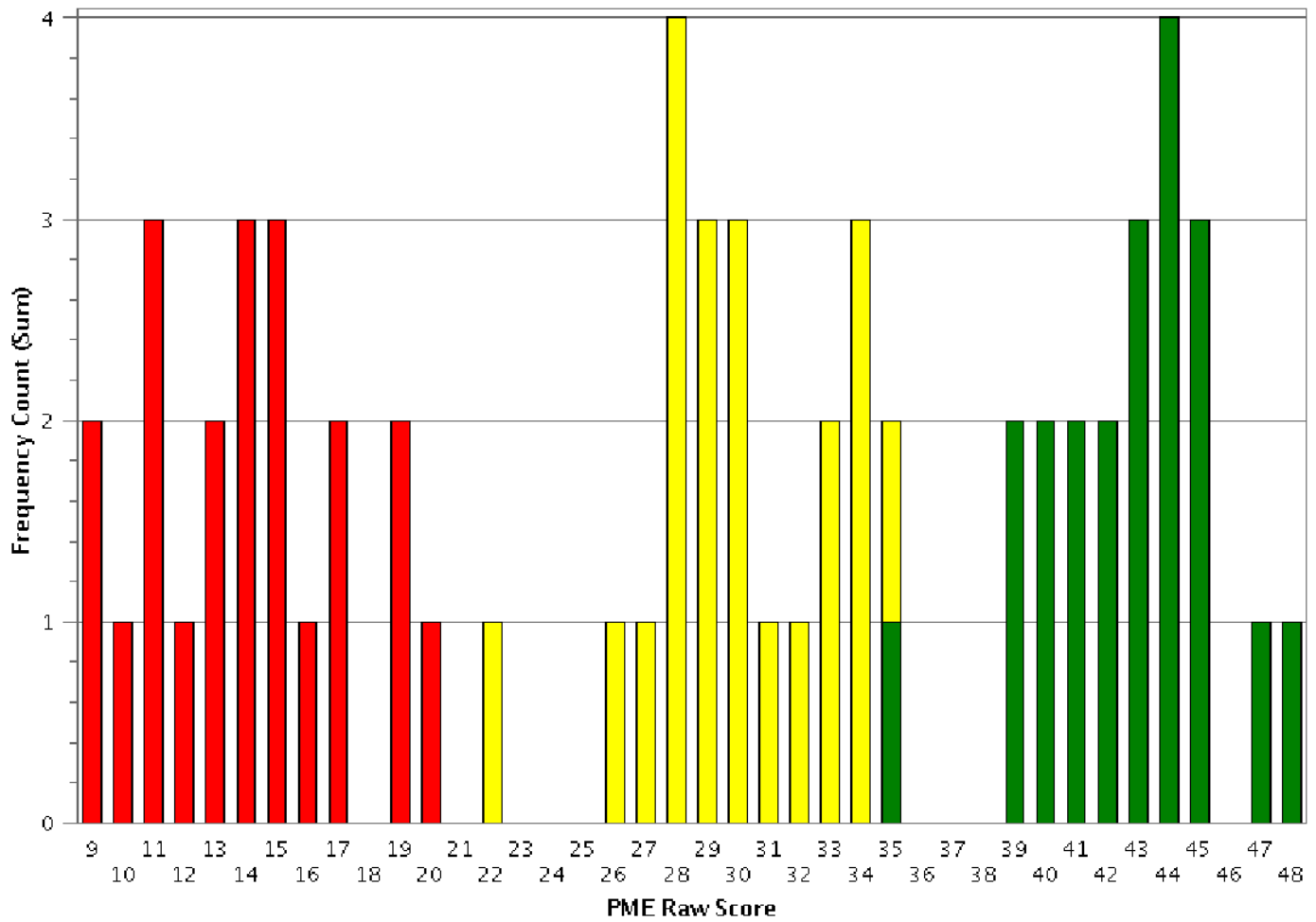
Partially Meeting Expectations



Meeting Expectations

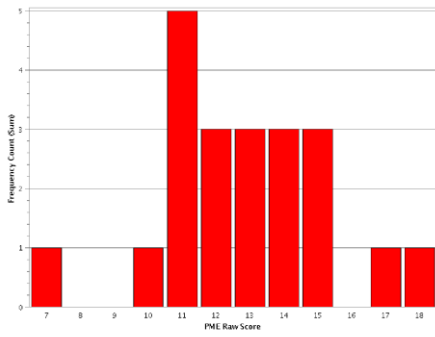


Exceeding Expectations

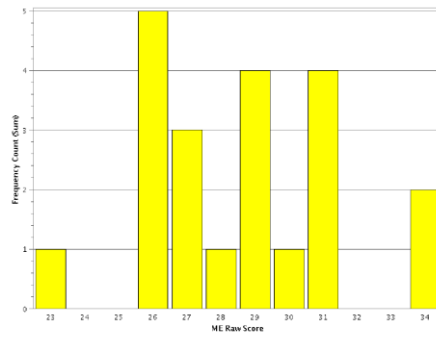


All Three Achievement Levels Concurrently

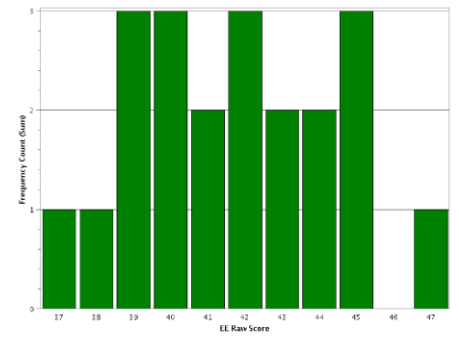
Round 2:



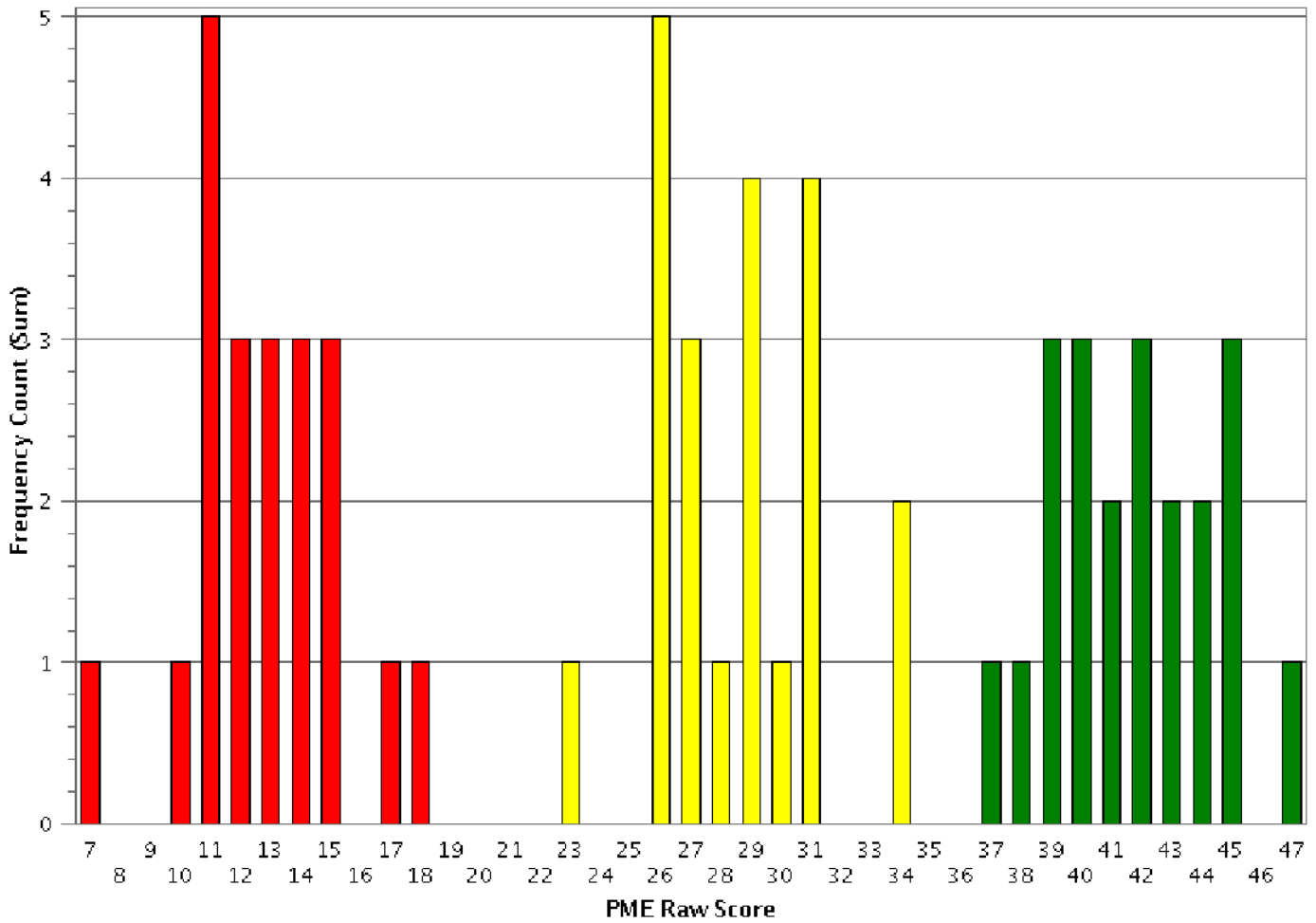
Partially Meeting Expectations



Meeting Expectations

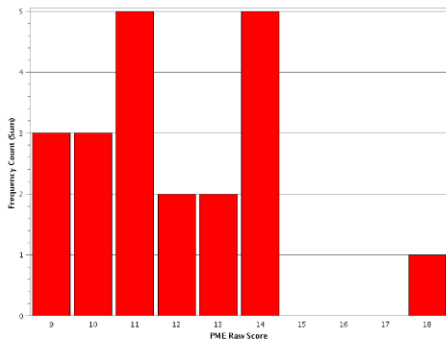


Exceeding Expectations

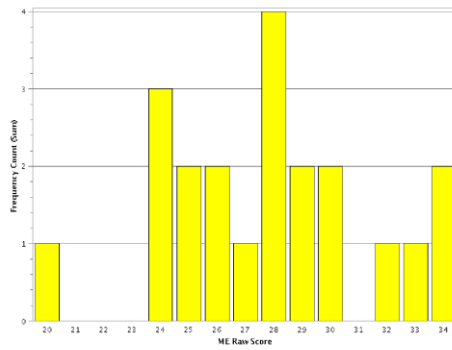


All Three Achievement Levels Concurrently

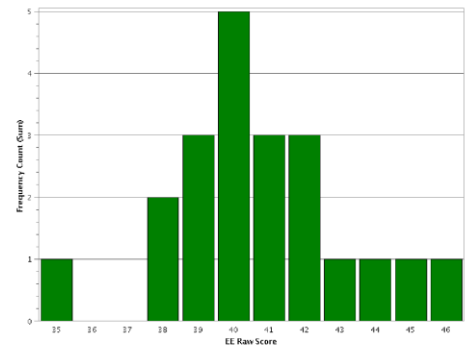
Round 3:



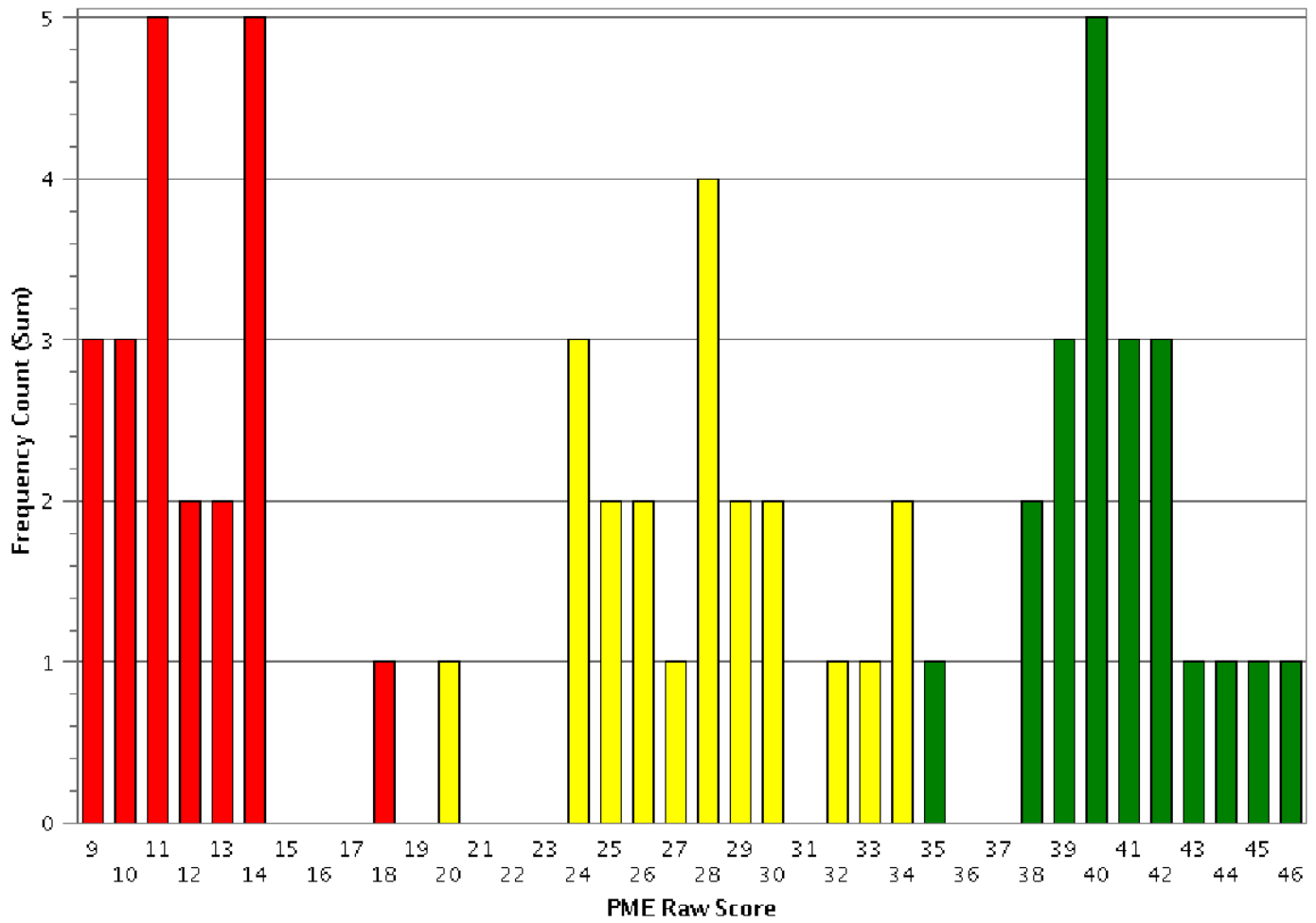
Partially Meeting Expectations



Meeting Expectations



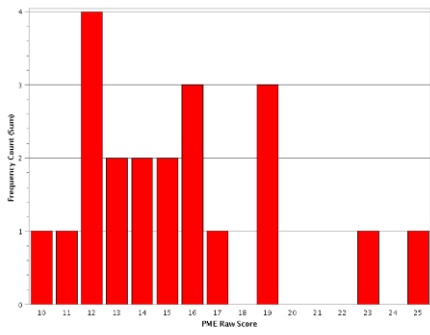
Exceeding Expectations



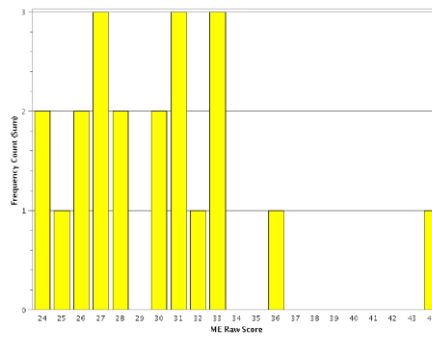
All Three Achievement Levels Concurrently

ELA Grade 7

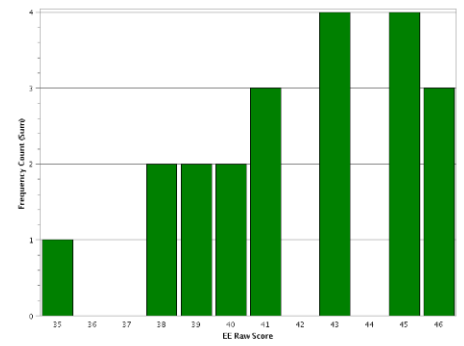
Round 1:



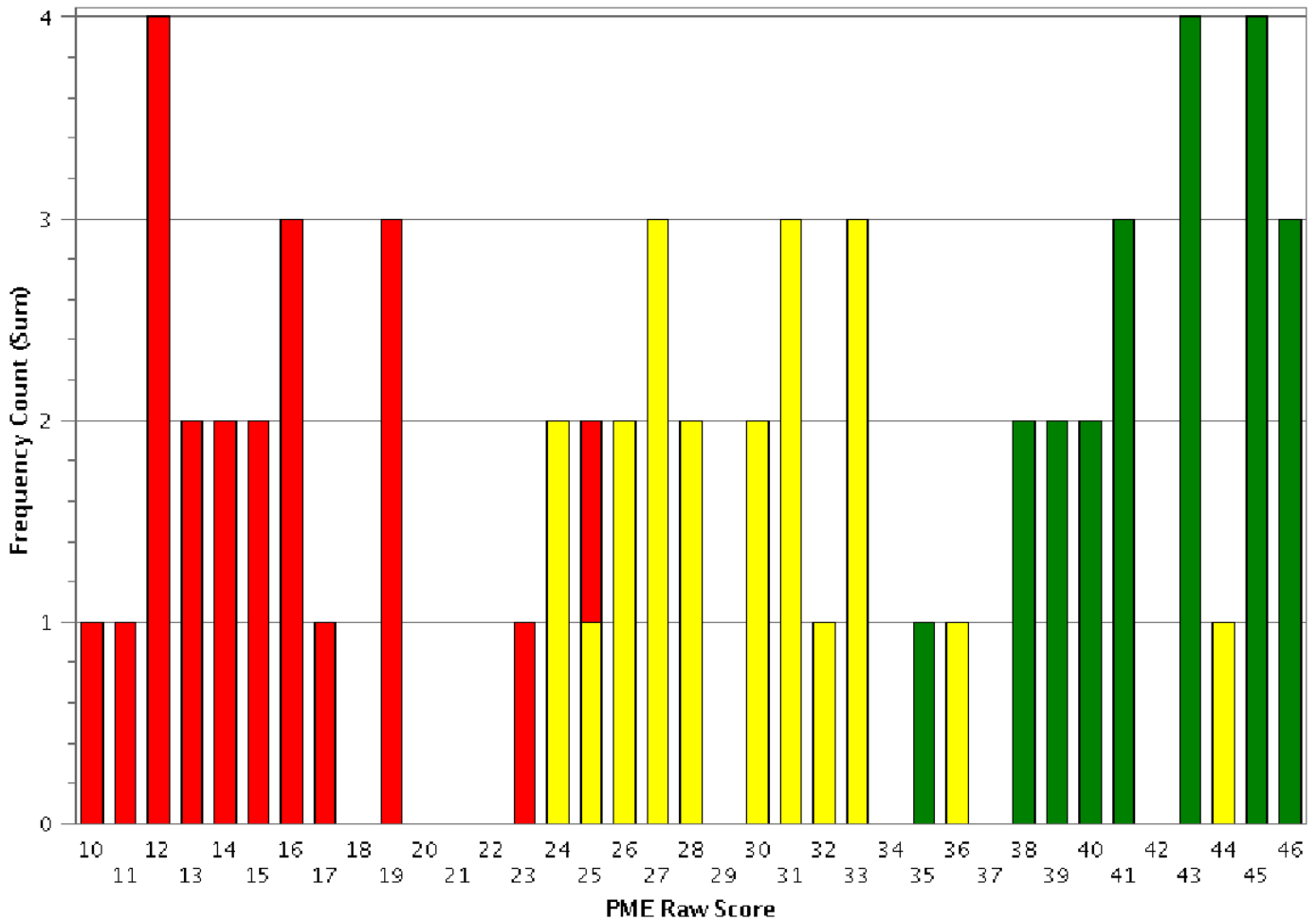
Partially Meeting Expectations



Meeting Expectations

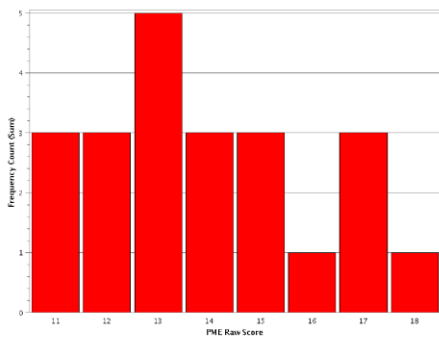


Exceeding Expectations

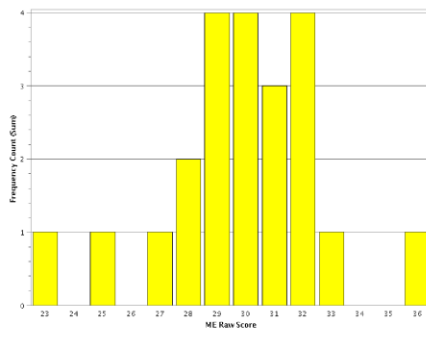


All Three Achievement Levels Concurrently

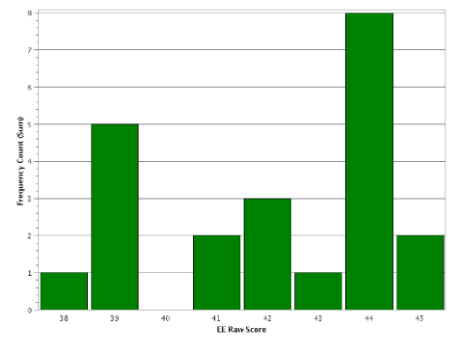
Round 2:



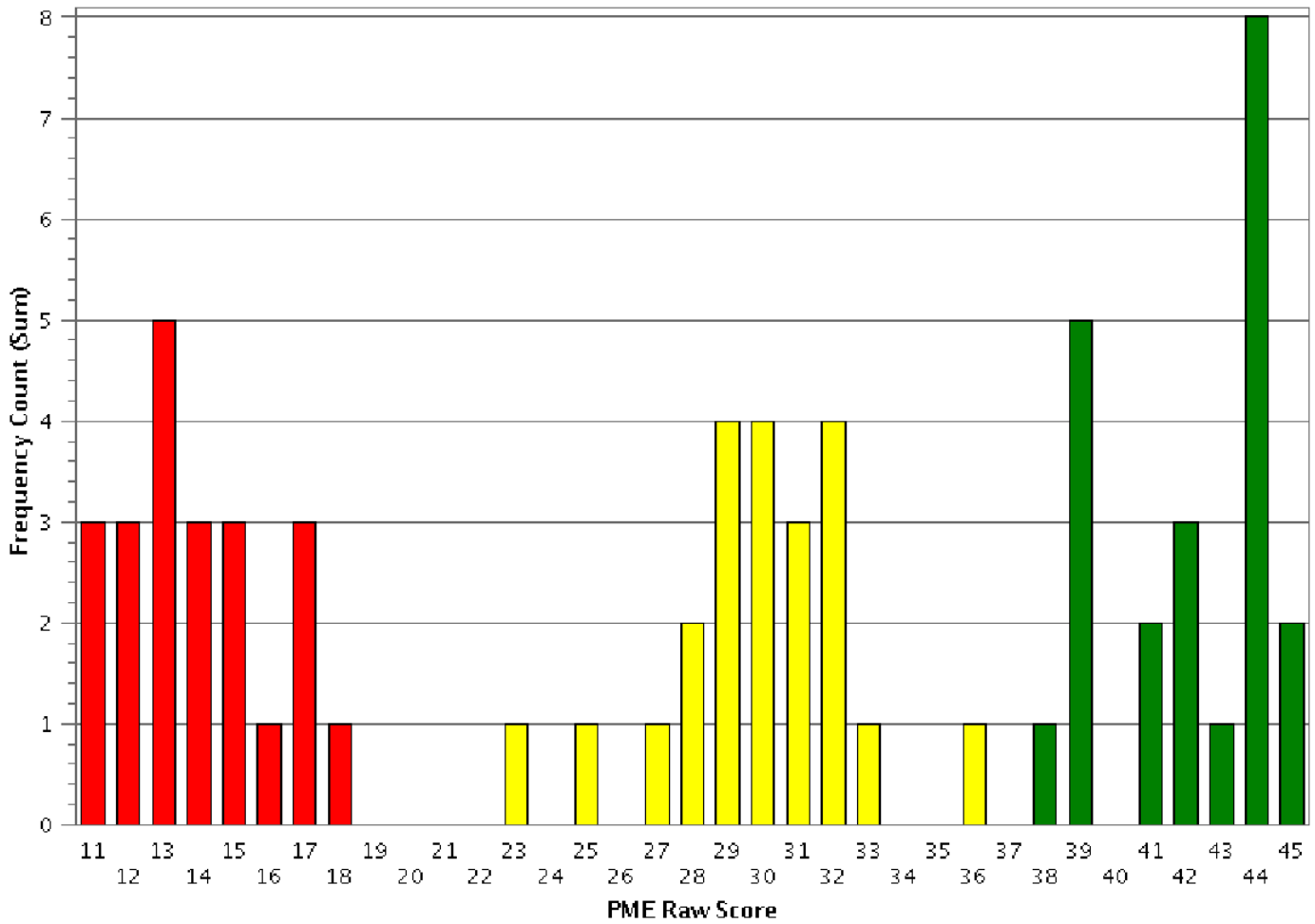
Partially Meeting Expectations



Meeting Expectations

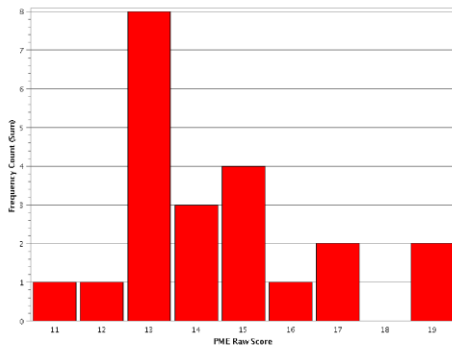


Exceeding Expectations

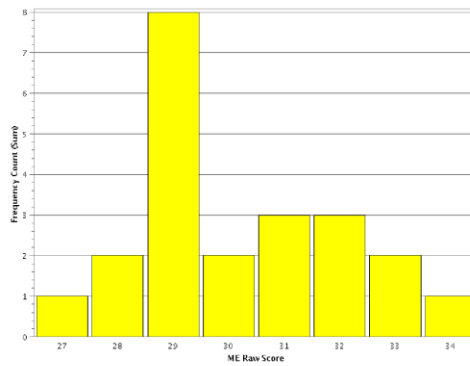


All Three Achievement Levels Concurrently

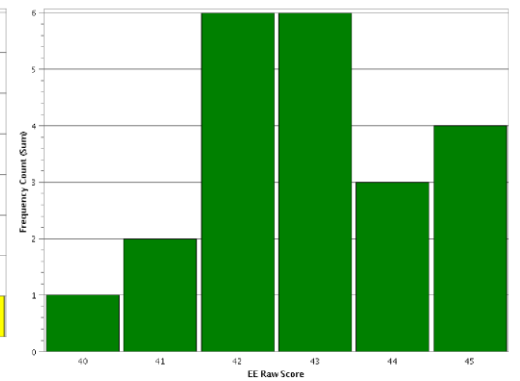
Round 3:



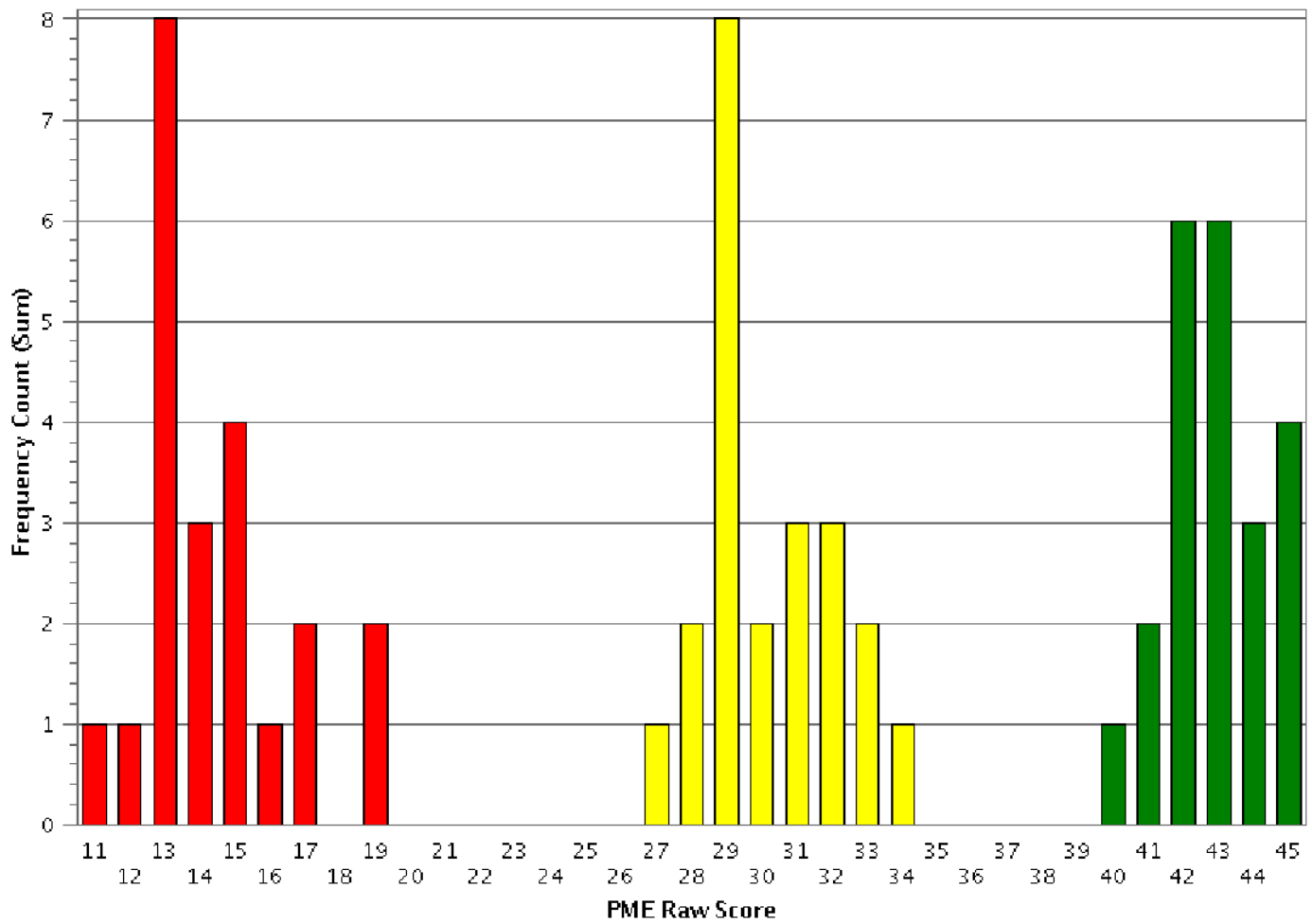
Partially Meeting Expectations



Meeting Expectations



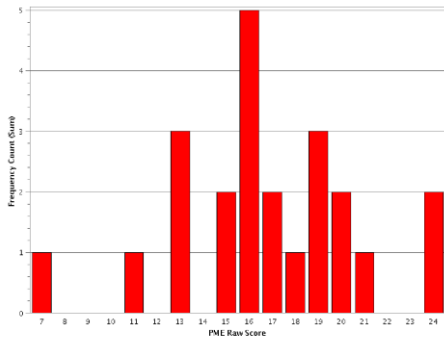
Exceeding Expectations



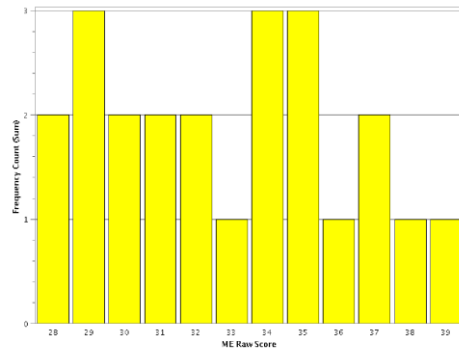
All Three Achievement Levels Concurrently

ELA Grade 8

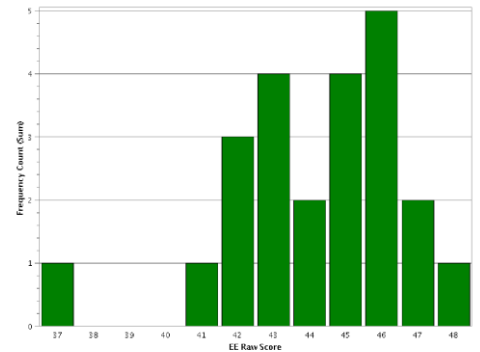
Round 1:



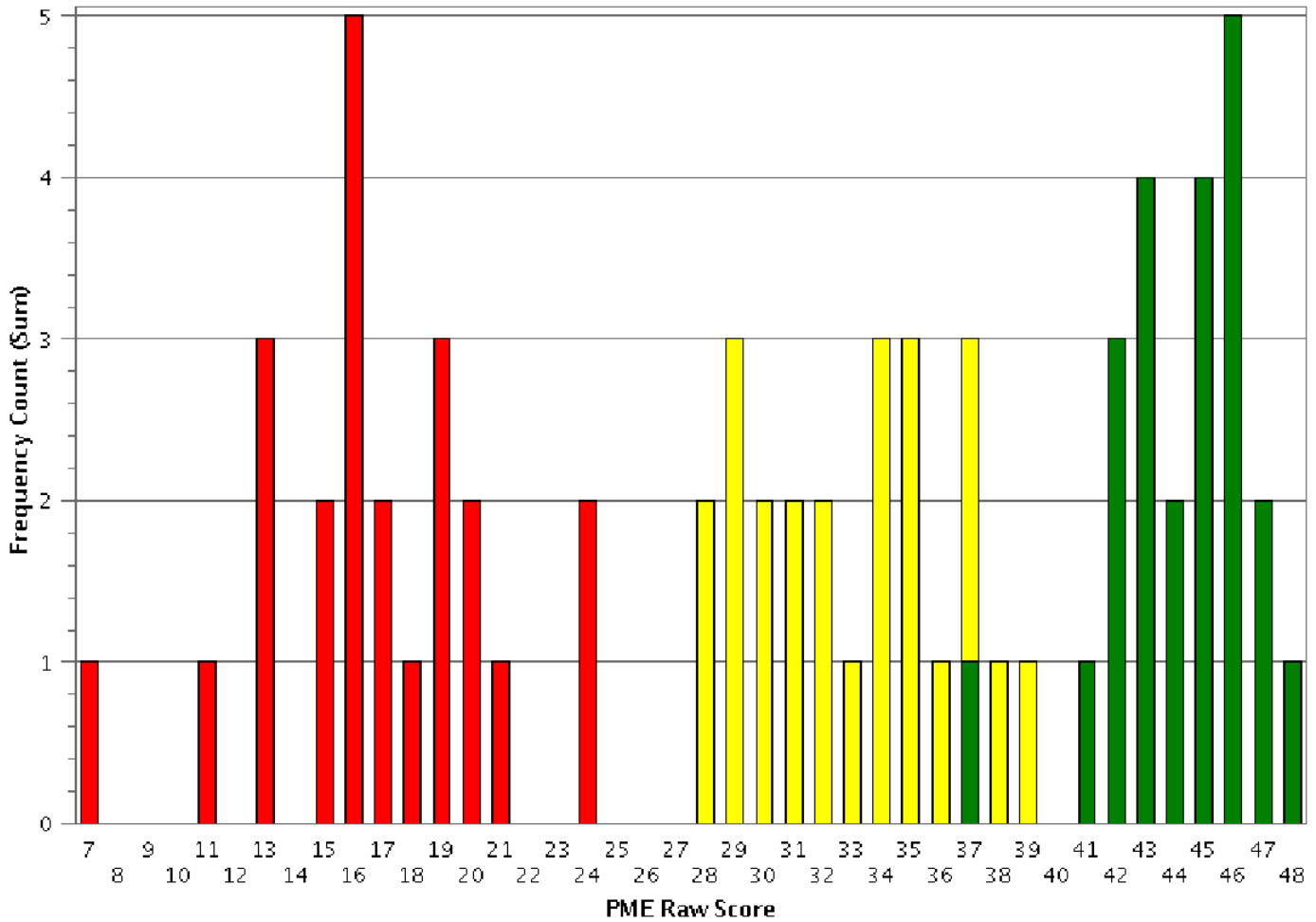
Partially Meeting Expectations



Meeting Expectations

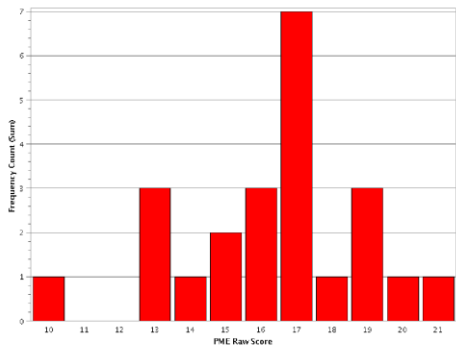


Exceeding Expectations

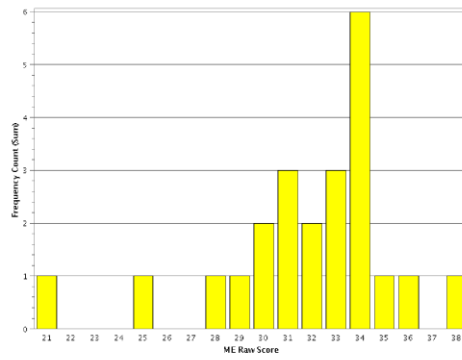


All Three Achievement Levels Concurrently

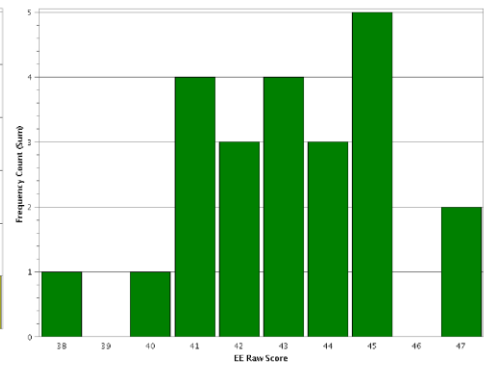
Round 2:



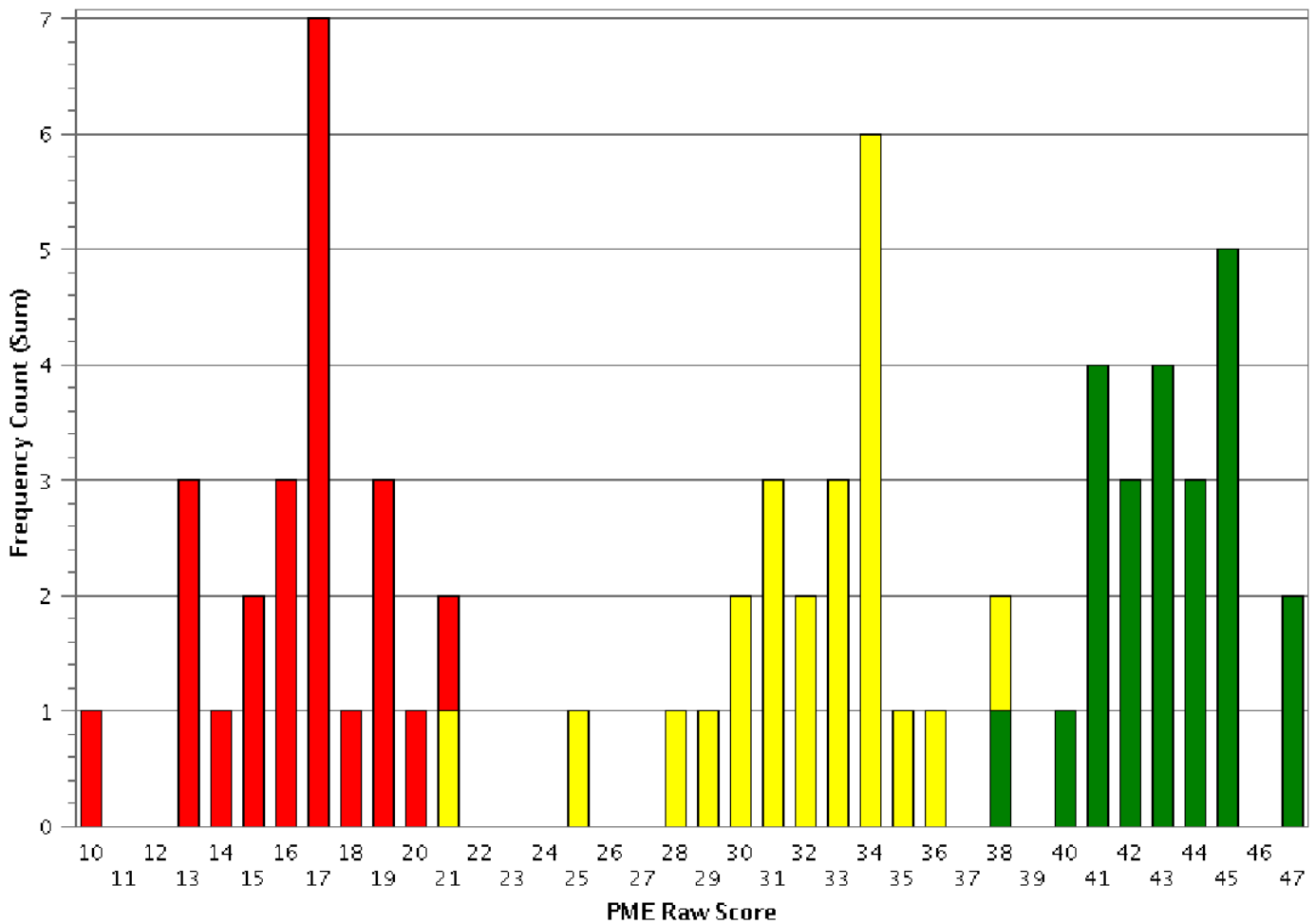
Partially Meeting Expectations



Meeting Expectations

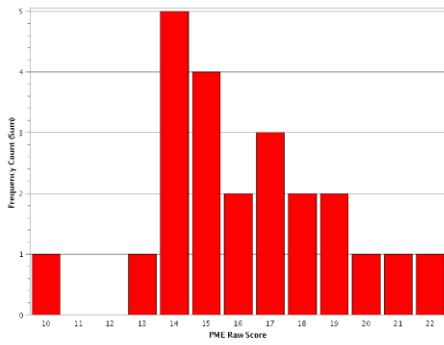


Exceeding Expectations

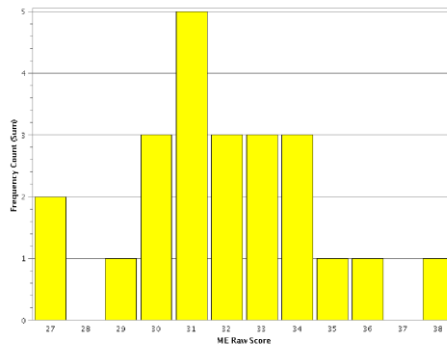


All Three Achievement Levels Concurrently

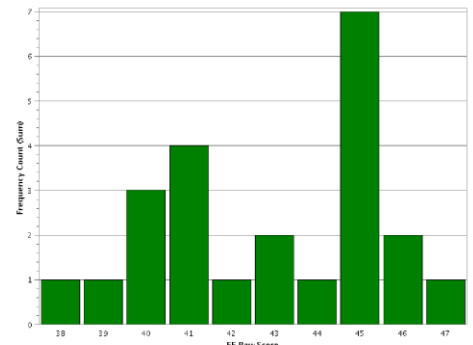
Round 3:



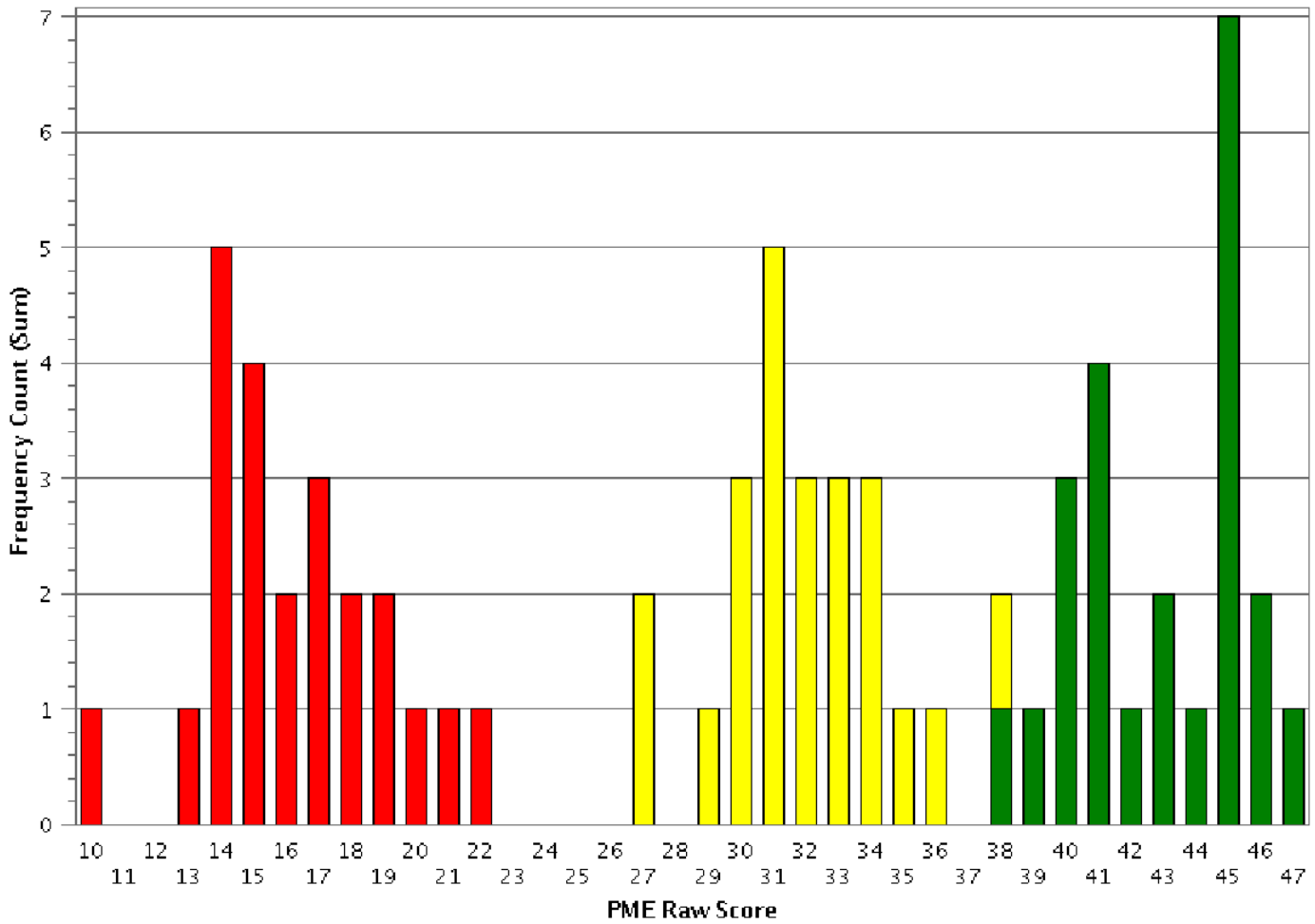
Partially Meeting Expectations



Meeting Expectations



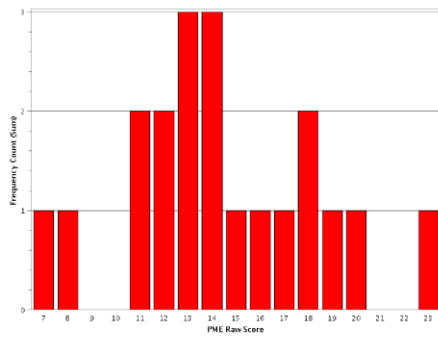
Exceeding Expectations



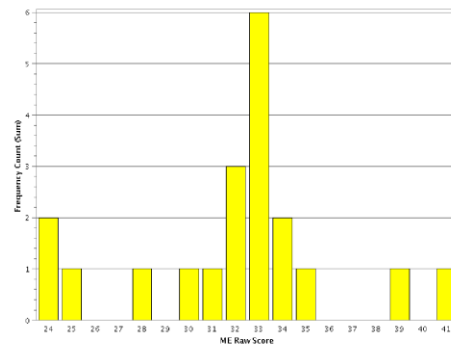
All Three Achievement Levels Concurrently

Mathematics Grade 3

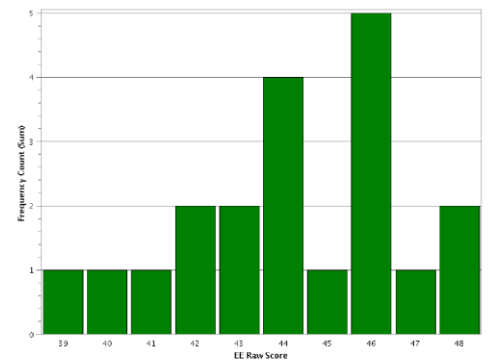
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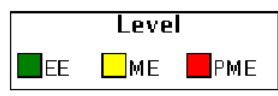
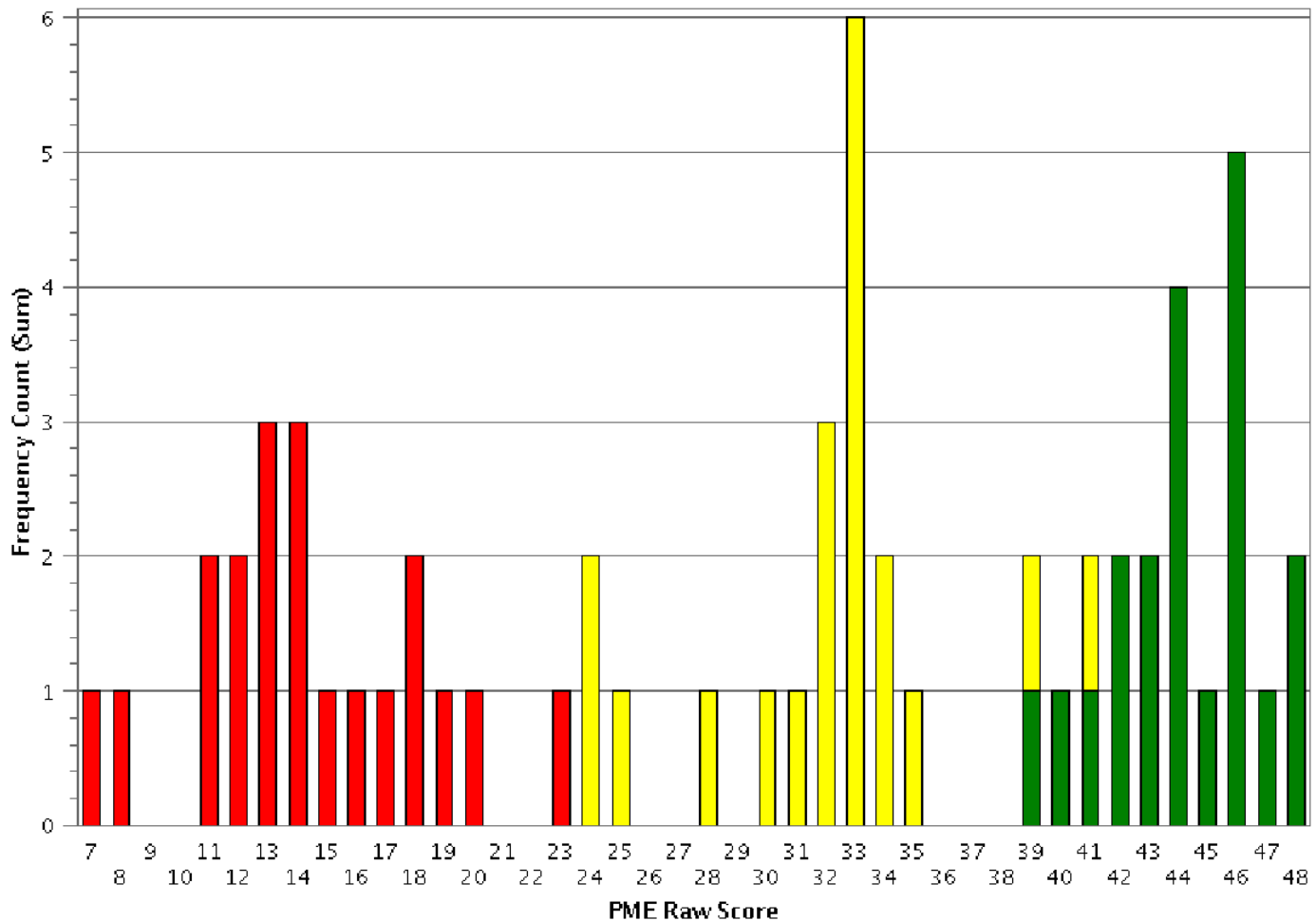
Partially Meeting Expectations



Meeting Expectations

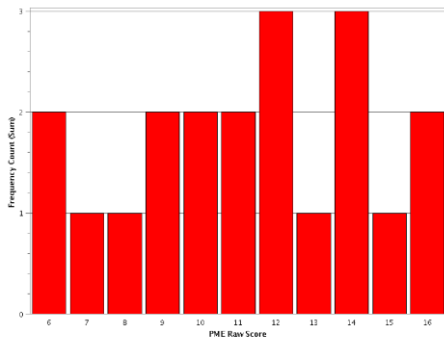


Exceeding Expectations

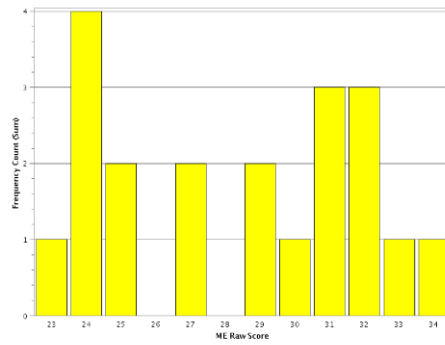


All Three Achievement Levels Concurrently

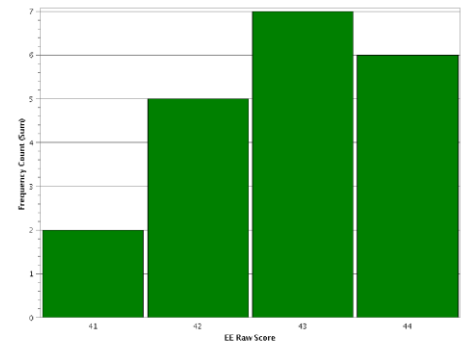
Round 2:



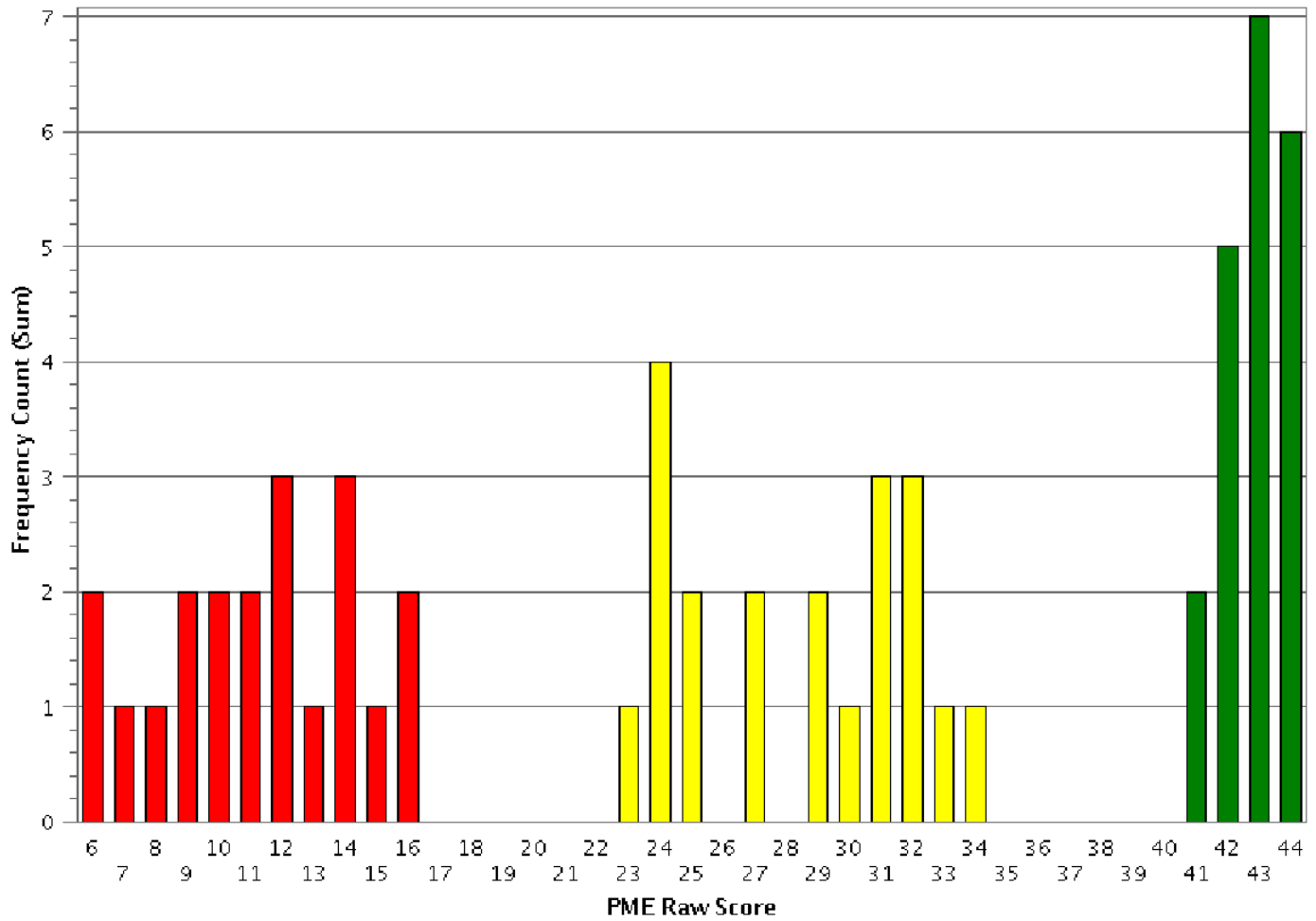
Partially Meeting Expectations



Meeting Expectations

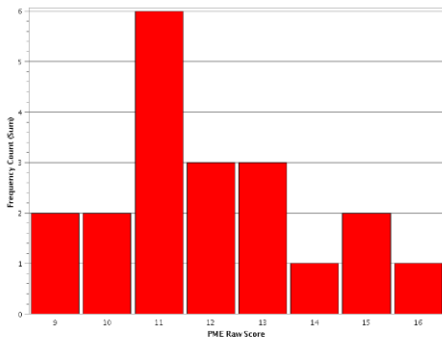


Exceeding Expectations

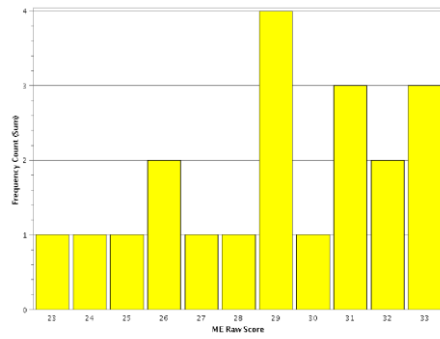


All Three Achievement Levels Concurrently

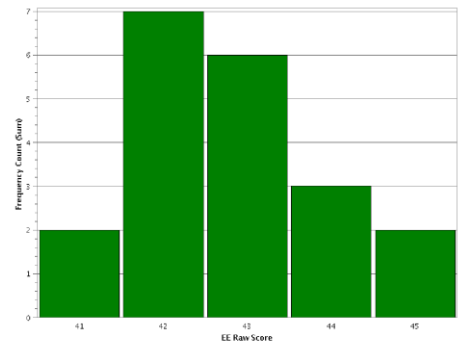
Round 3:



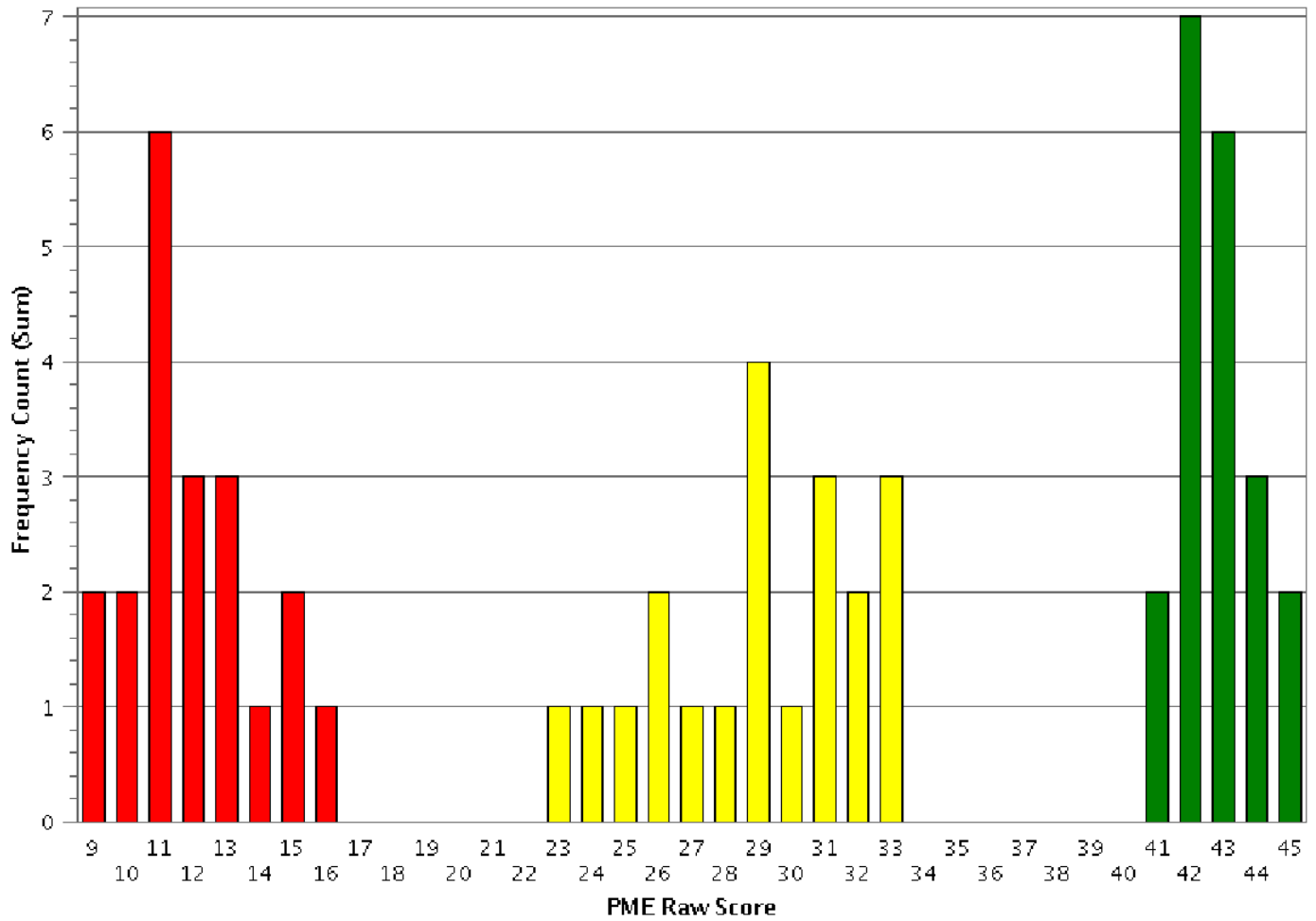
Partially Meeting Expectations



Meeting Expectations



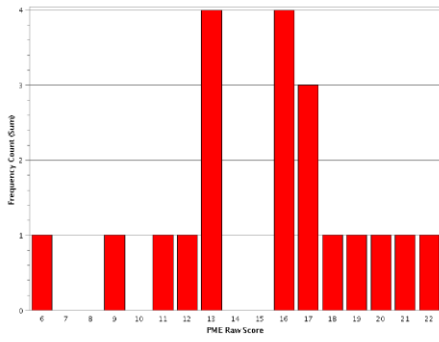
Exceeding Expectations



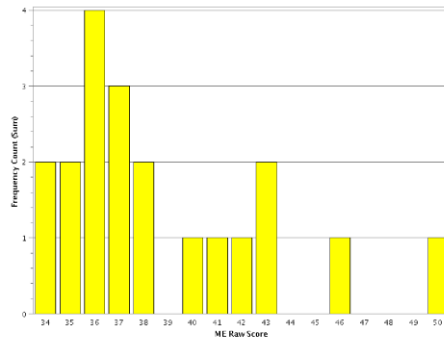
All Three Achievement Levels Concurrently

Mathematics Grade 4

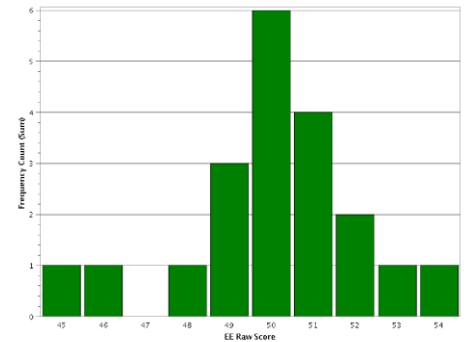
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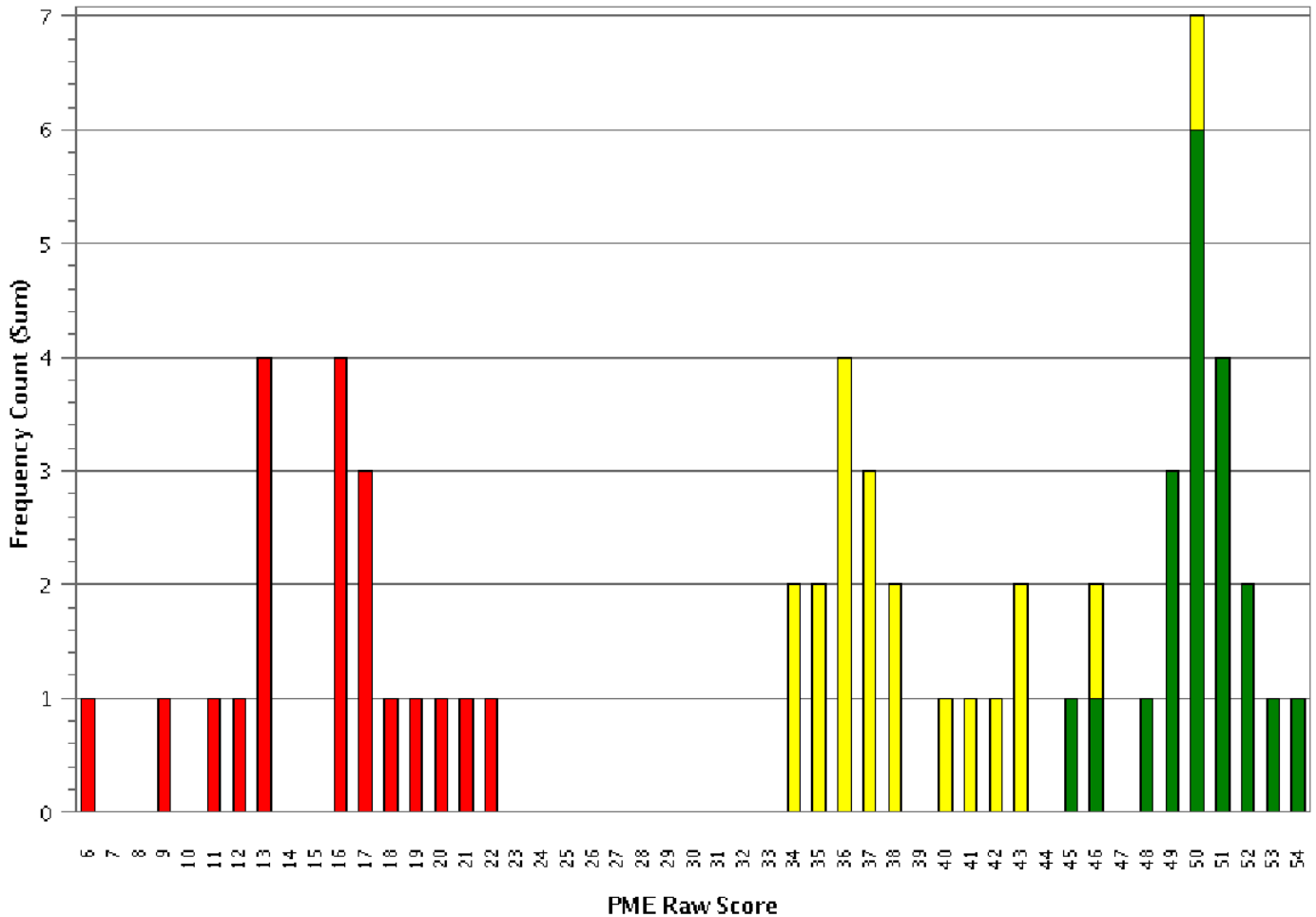
Partially Meeting Expectations



Meeting Expectations

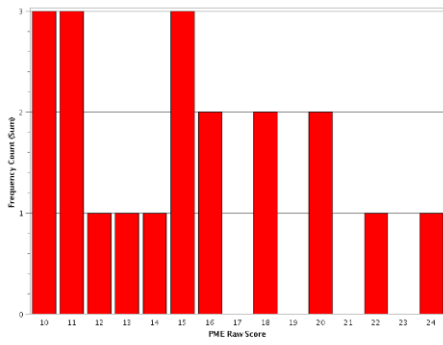


Exceeding Expectations

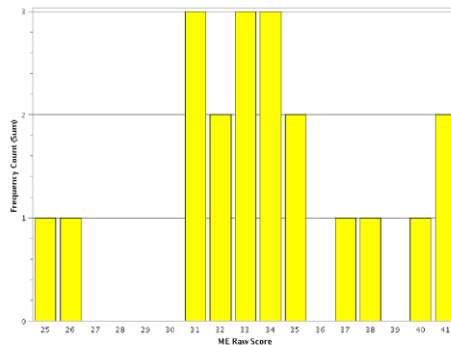


All Three Achievement Levels Concurrently

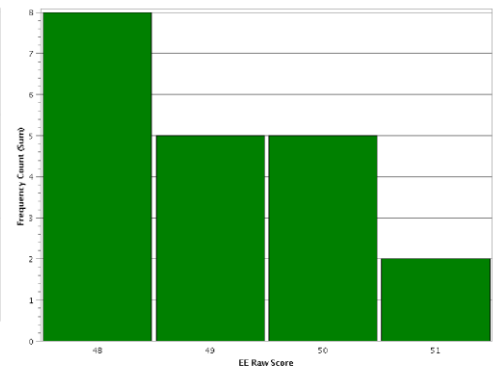
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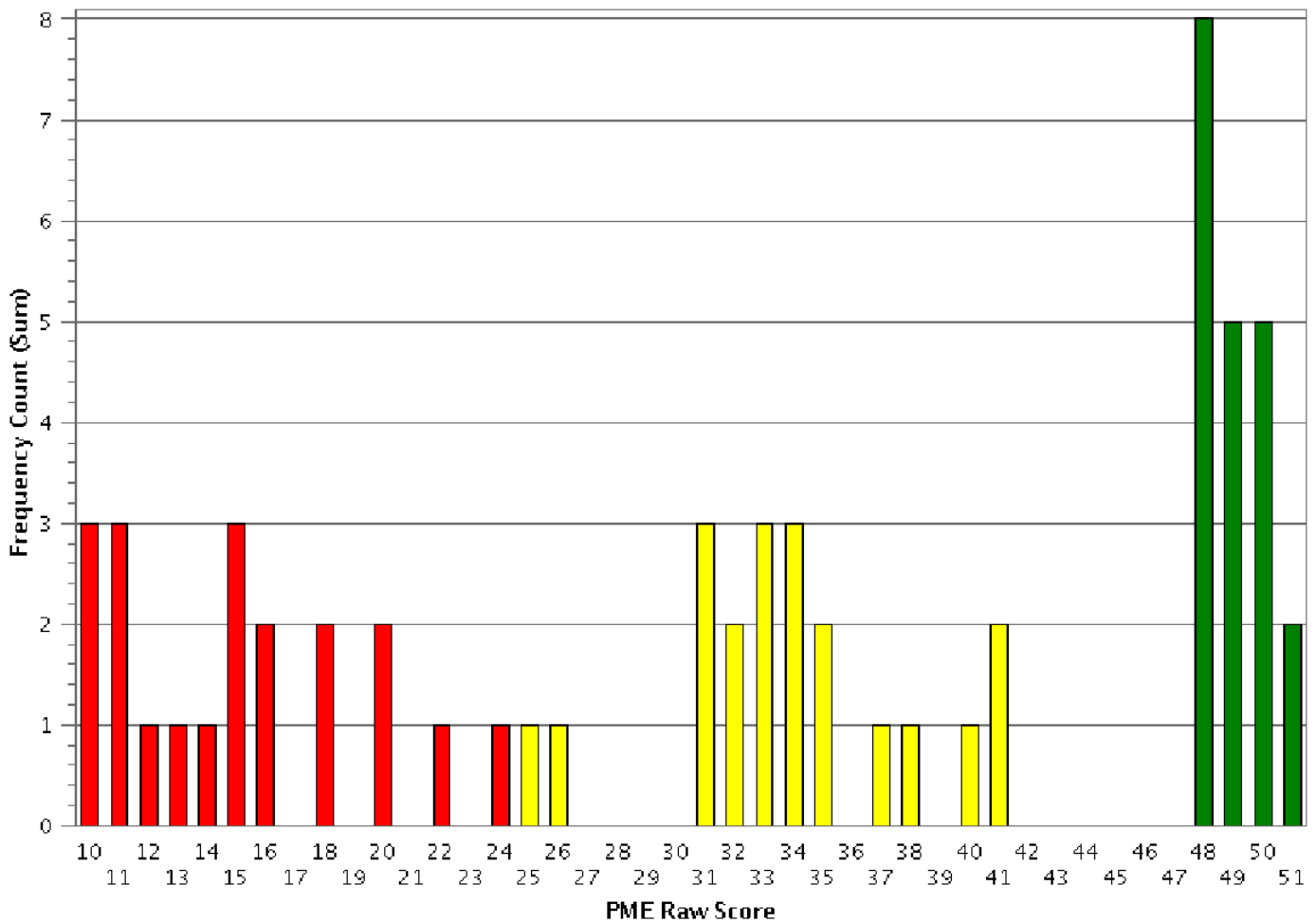
Partially Meeting Expectations



Meeting Expectations

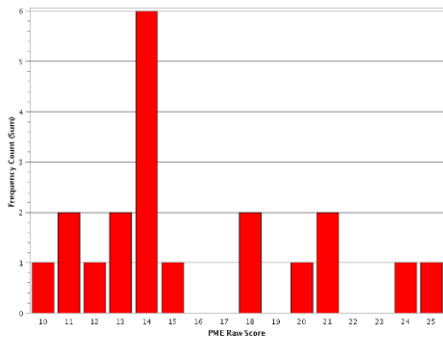


Exceeding Expectations

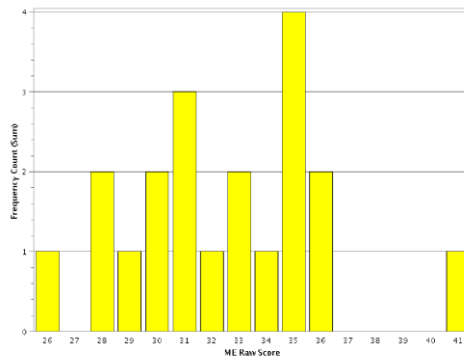


All Three Achievement Levels Concurrently

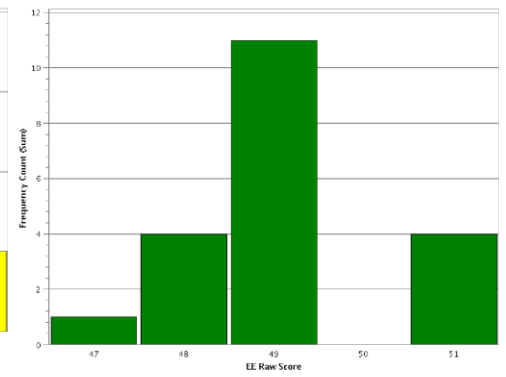
Round 3:



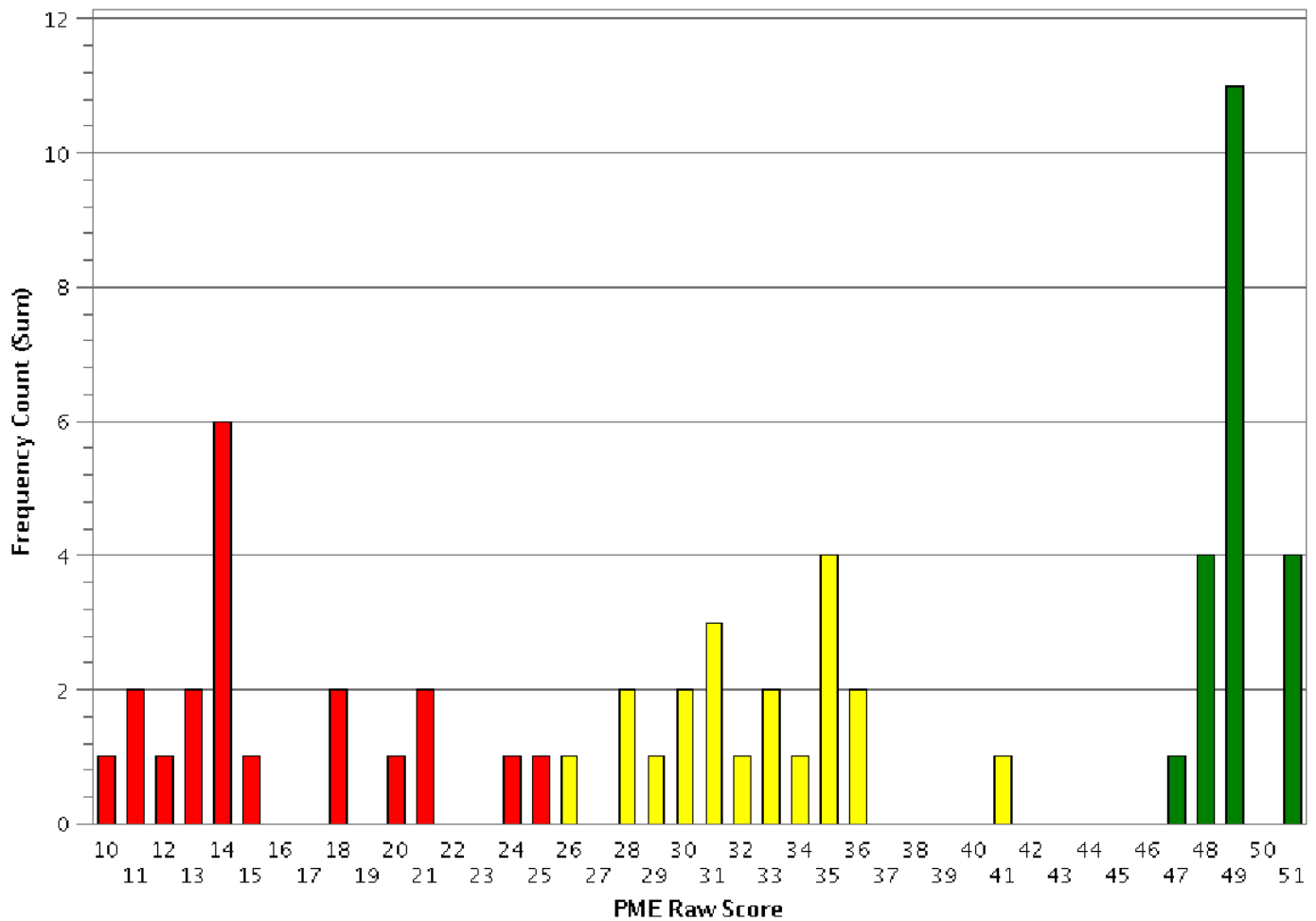
Partially Meeting Expectations



Meeting Expectations



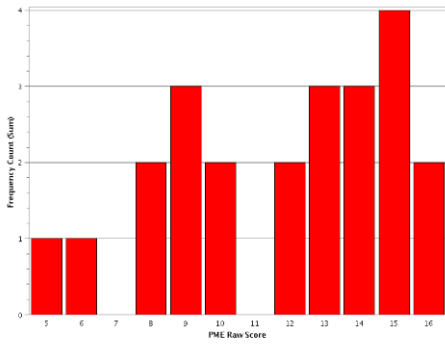
Exceeding Expectations



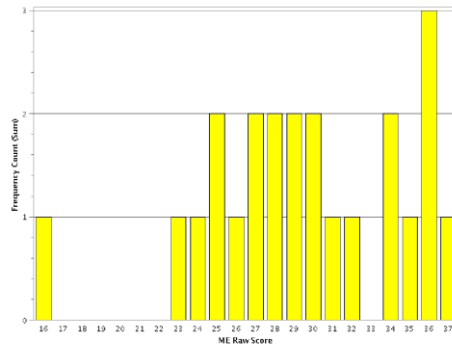
All Three Achievement Levels Concurrently

Mathematics Grade 5

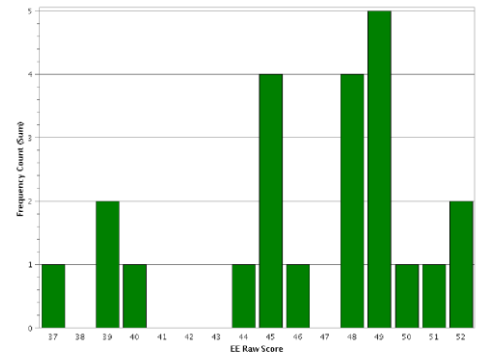
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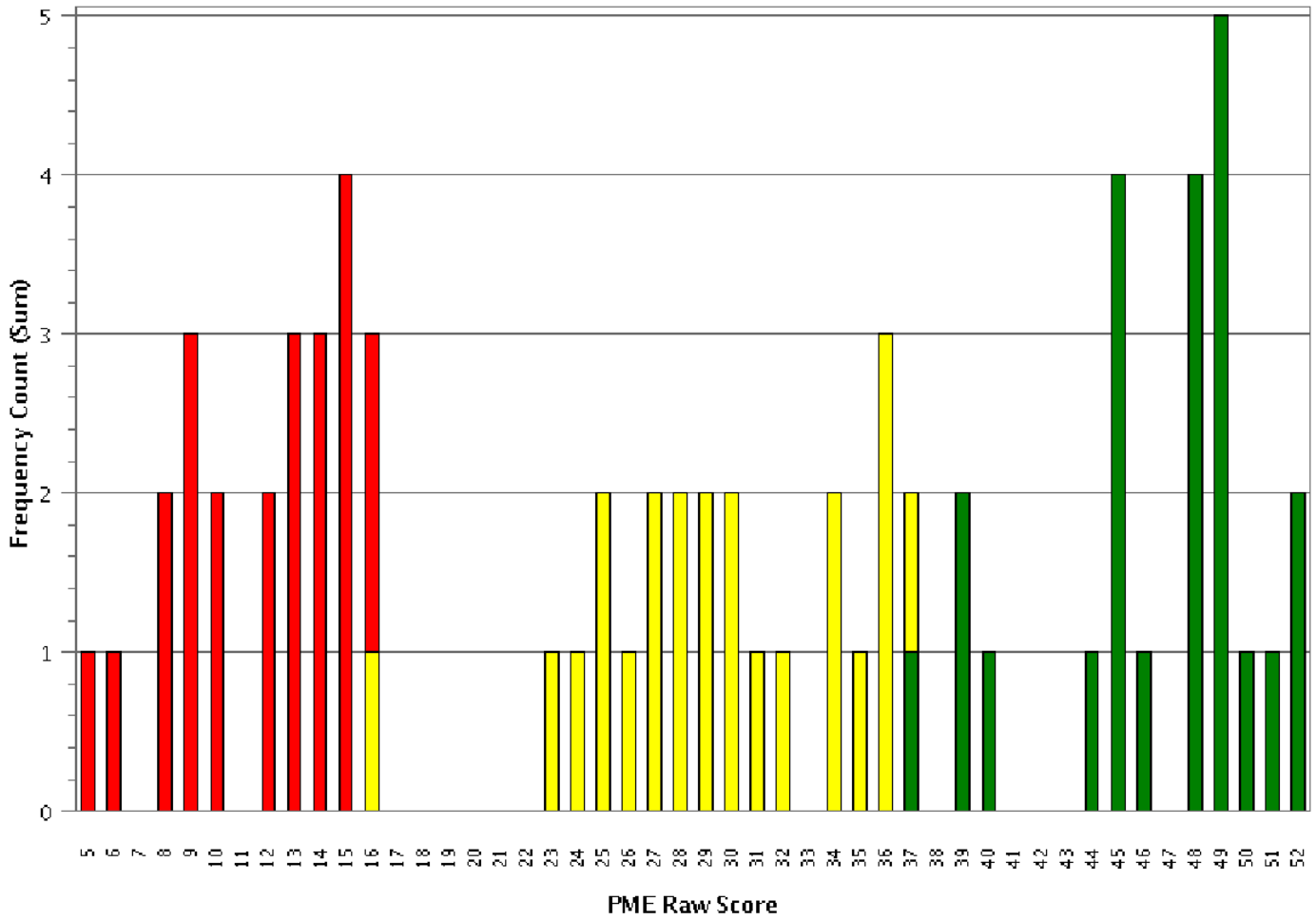
Partially Meeting Expectations



Meeting Expectations

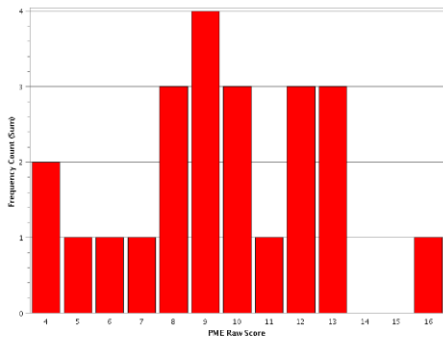


Exceeding Expectations

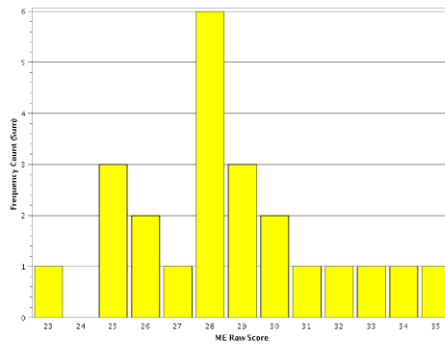


All Three Achievement Levels Concurrently

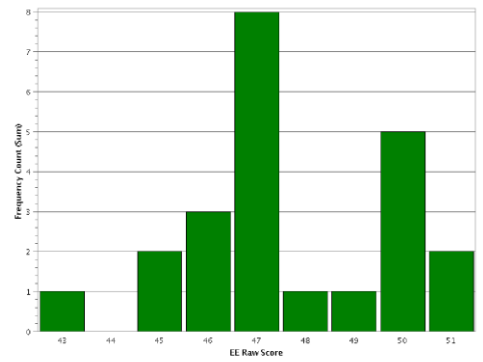
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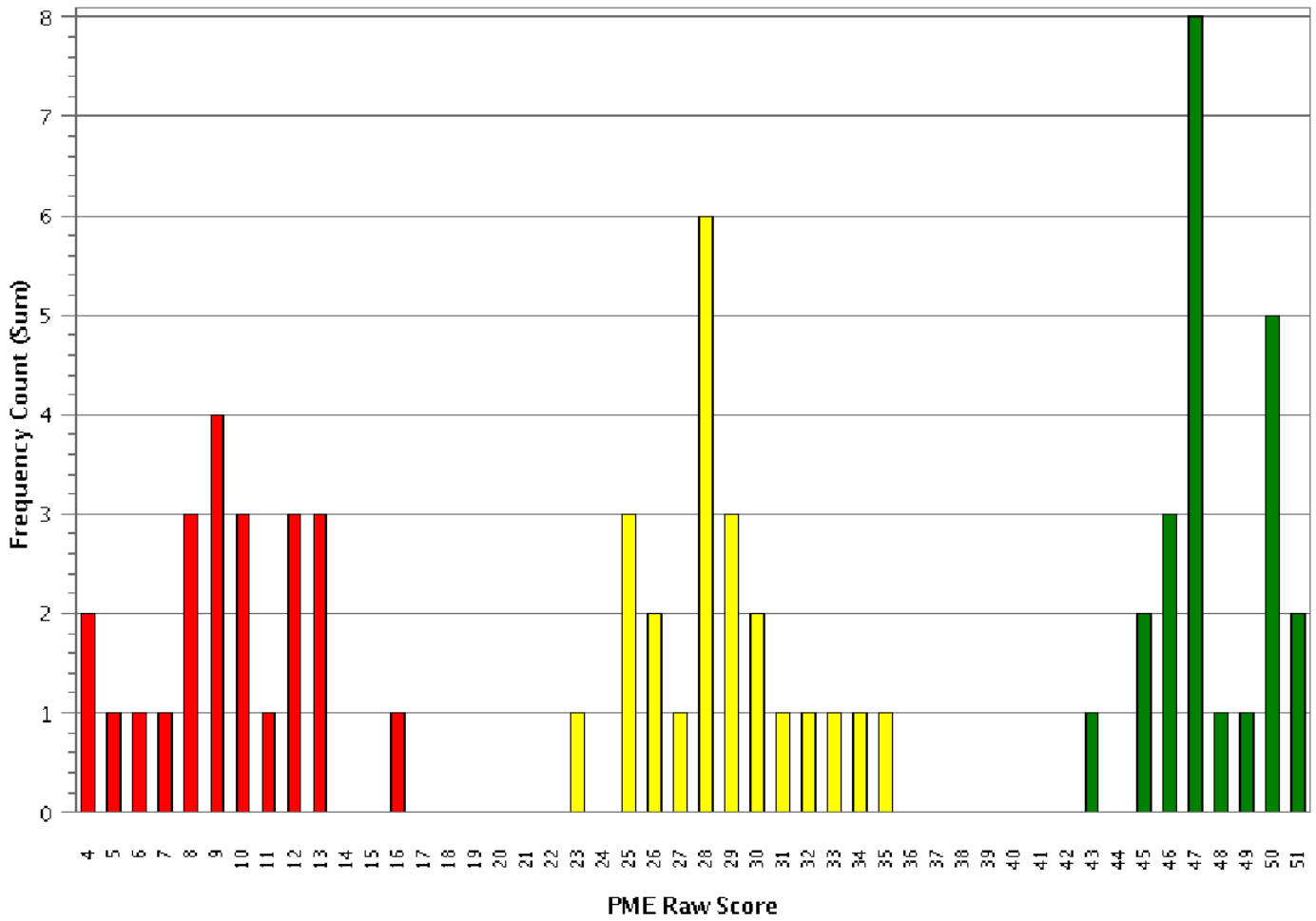
Partially Meeting Expectations



Meeting Expectations

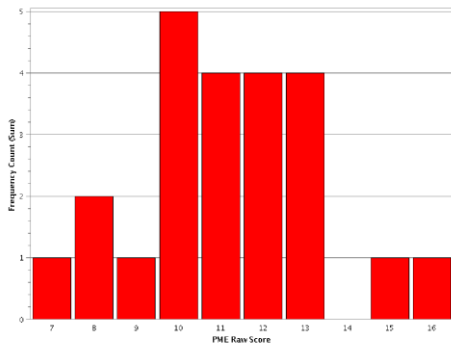


Exceeding Expectations

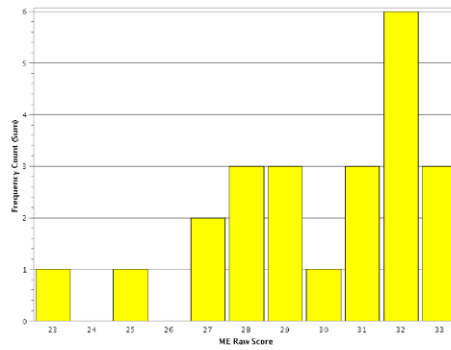


All Three Achievement Levels Concurrently

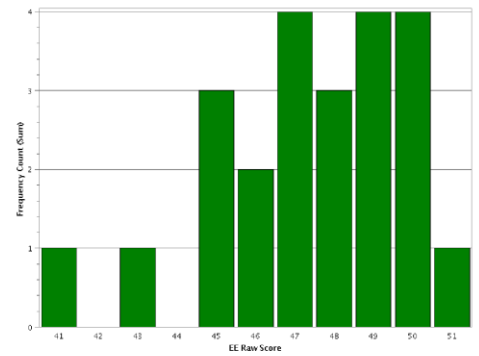
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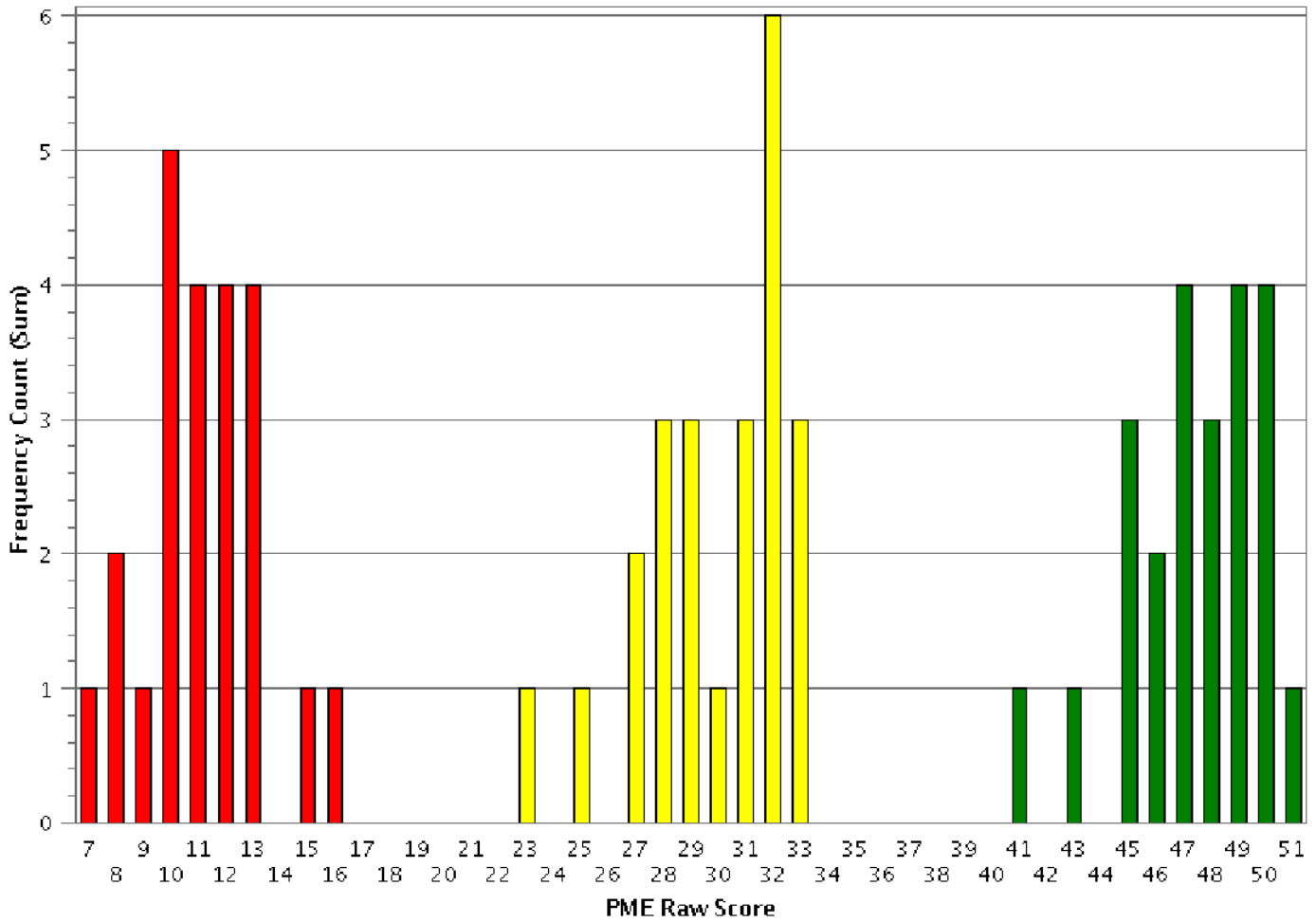
Partially Meeting Expectations



Meeting Expectations



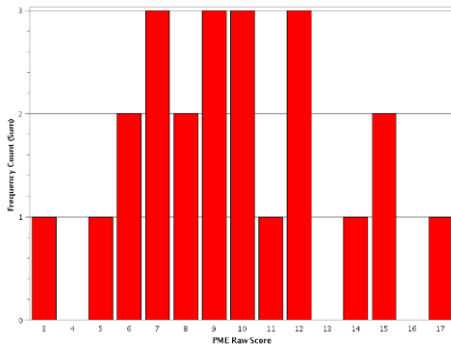
Exceeding Expectations



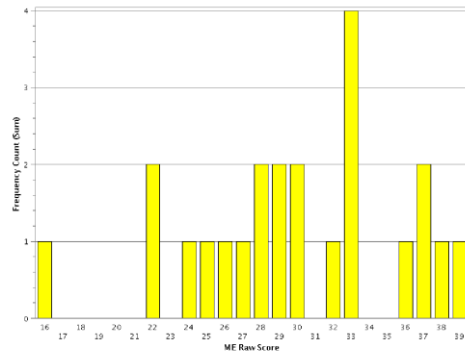
All Three Achievement Levels Concurrently

Mathematics Grade 6

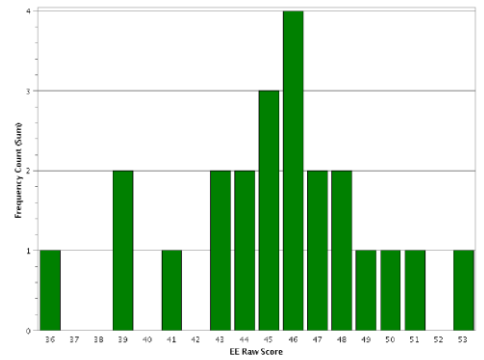
Round 1:



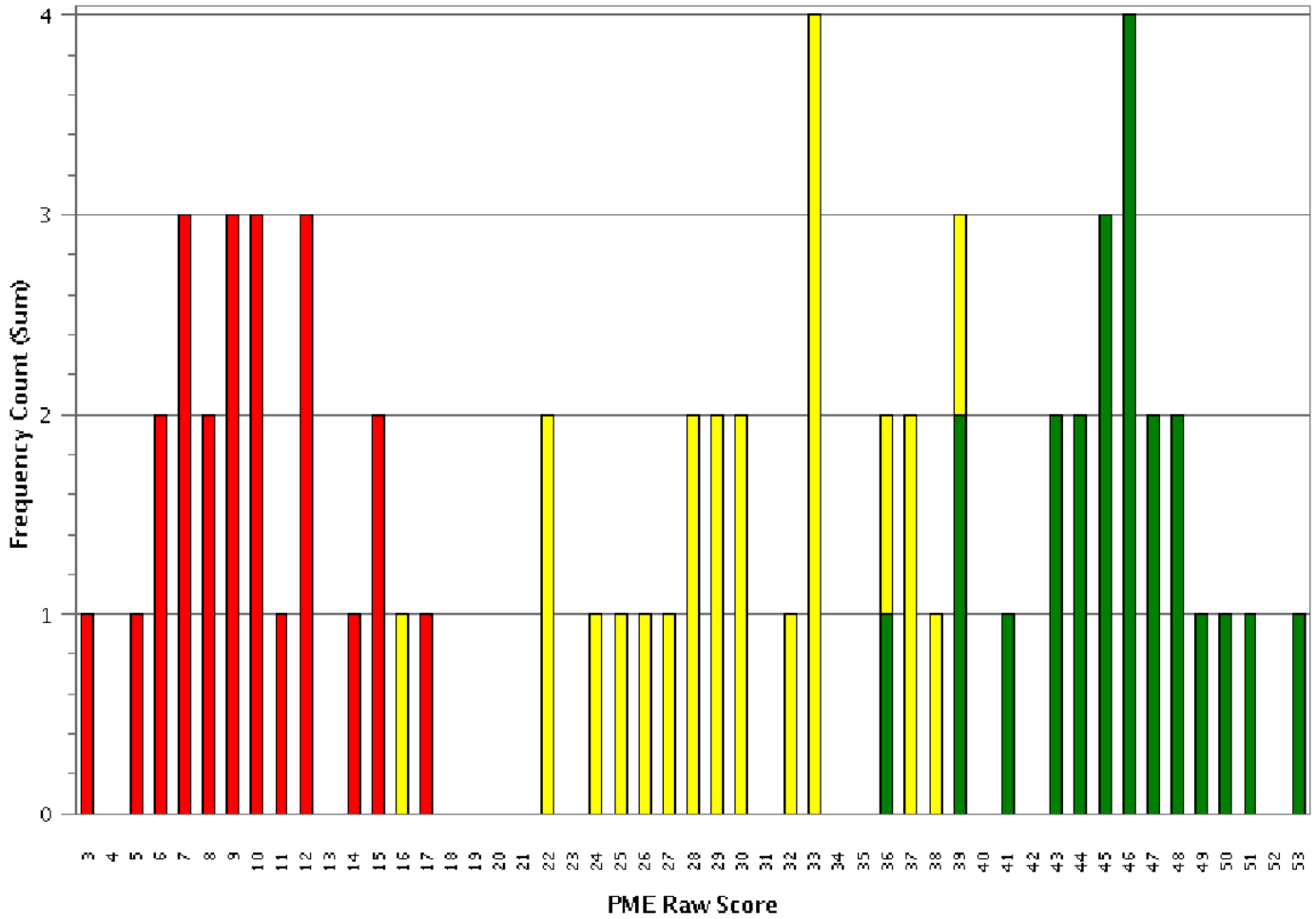
Partially Meeting Expectations



Meeting Expectations

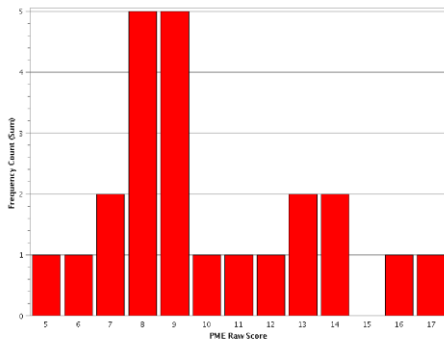


Exceeding Expectations

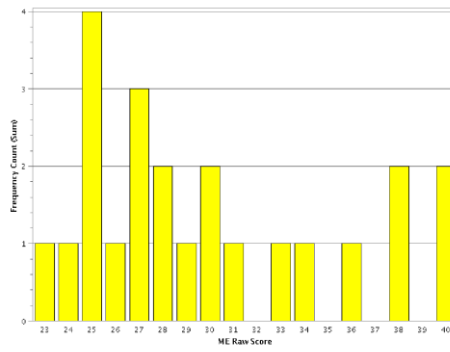


All Three Achievement Levels Concurrently

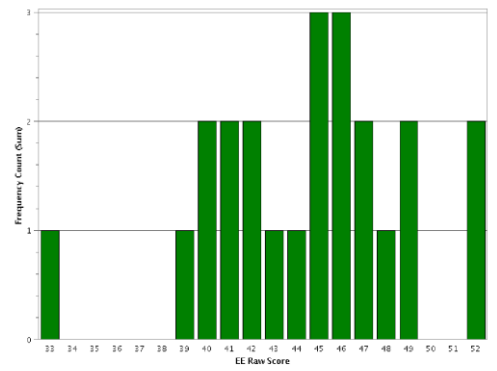
Round 2:



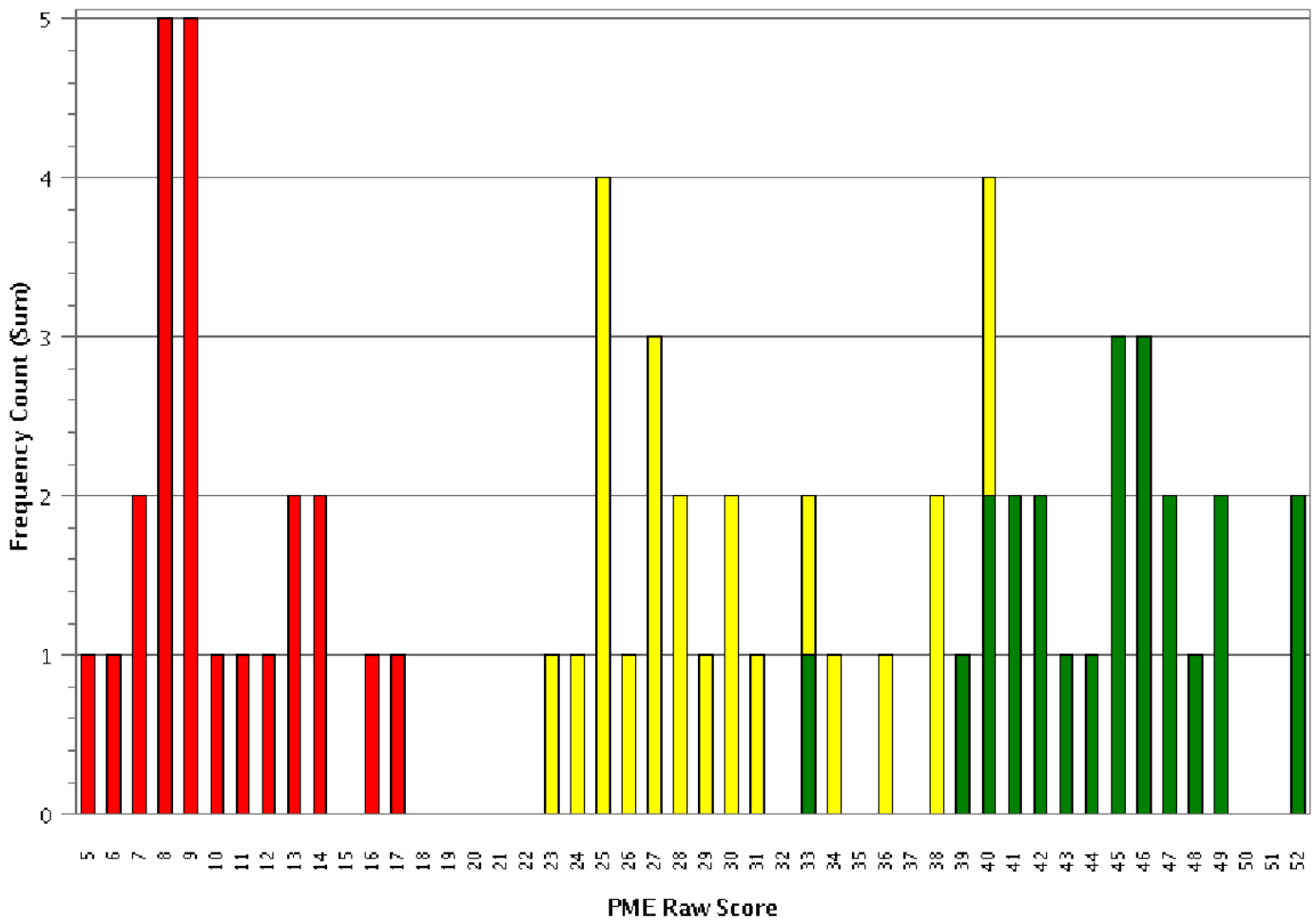
Partially Meeting Expectations



Meeting Expectations

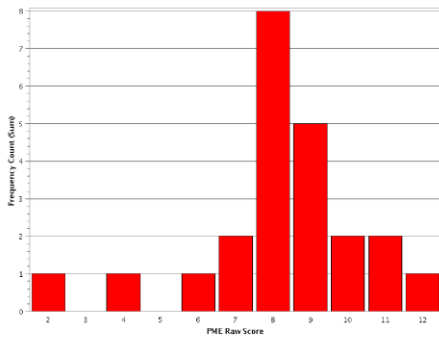


Exceeding Expectations

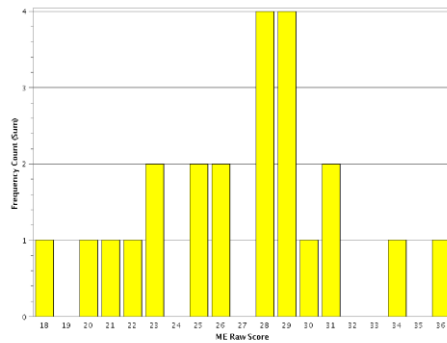


All Three Achievement Levels Concurrently

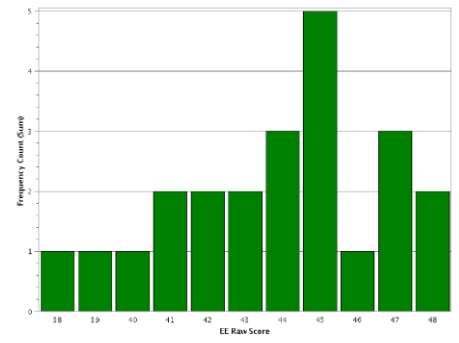
Round 3:



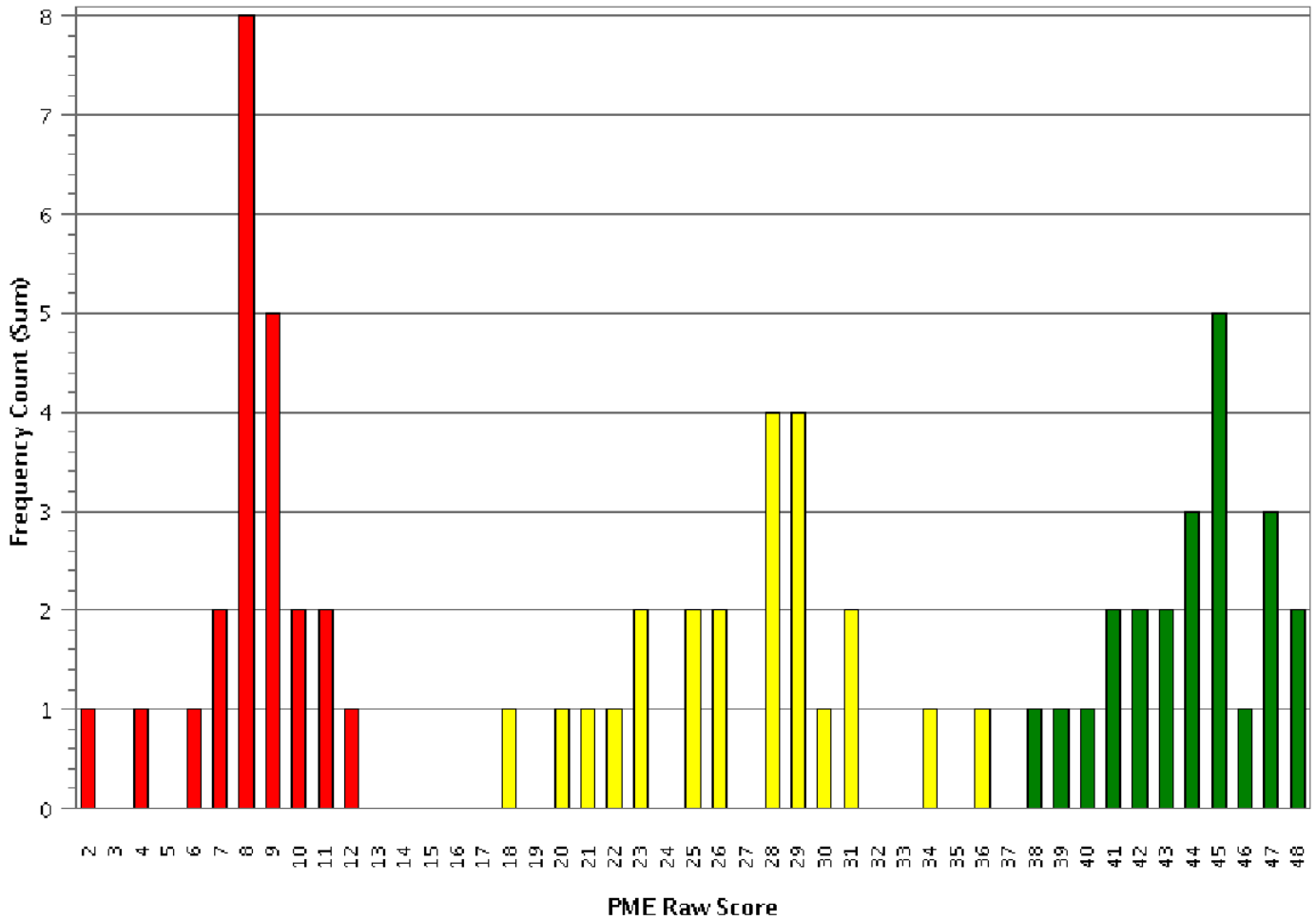
Partially Meeting Expectations



Meeting Expectations



Exceeding Expectations

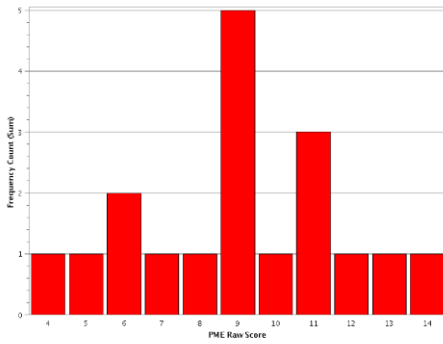


All Three Achievement Levels Concurrently

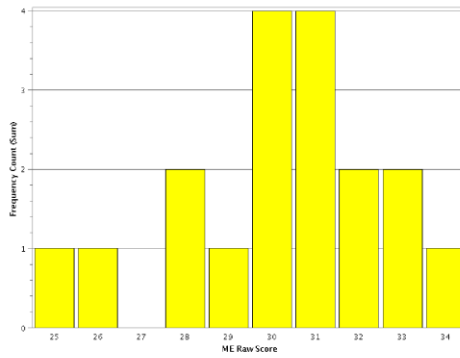


Mathematics Grade 7

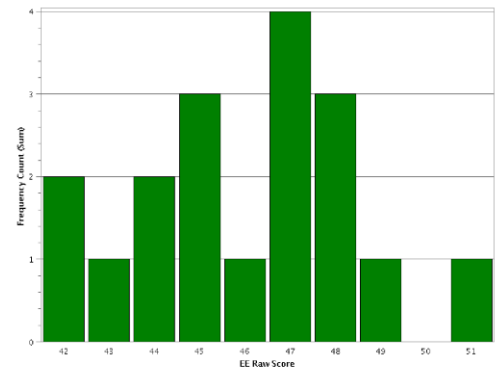
Round 1:



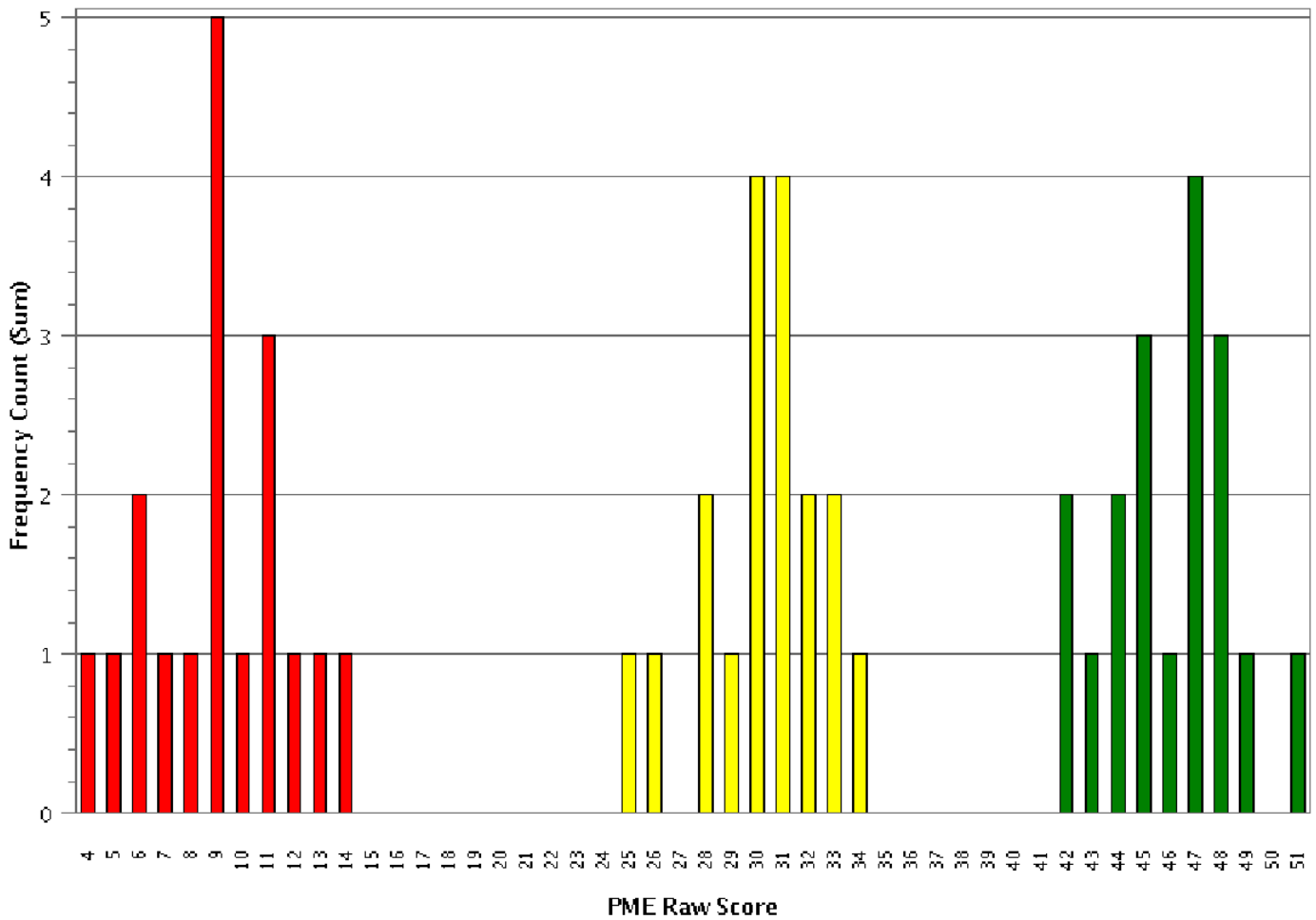
Partially Meeting Expectations



Meeting Expectations

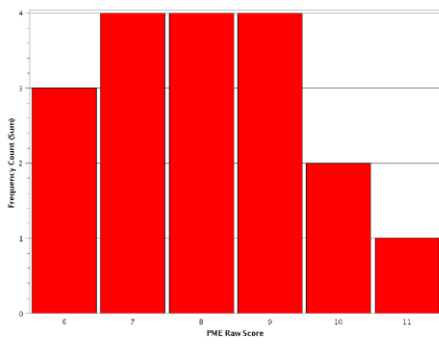


Exceeding Expectations

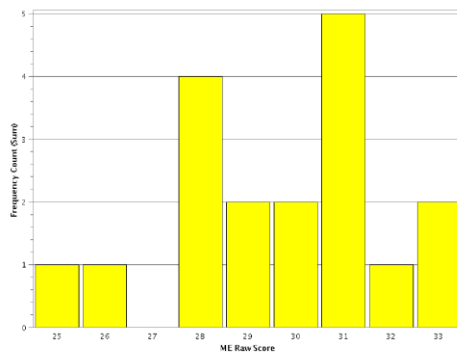


All Three Achievement Levels Concurrently

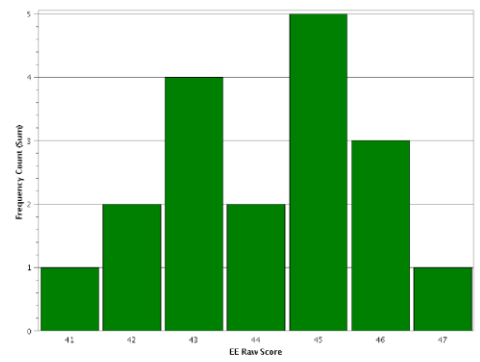
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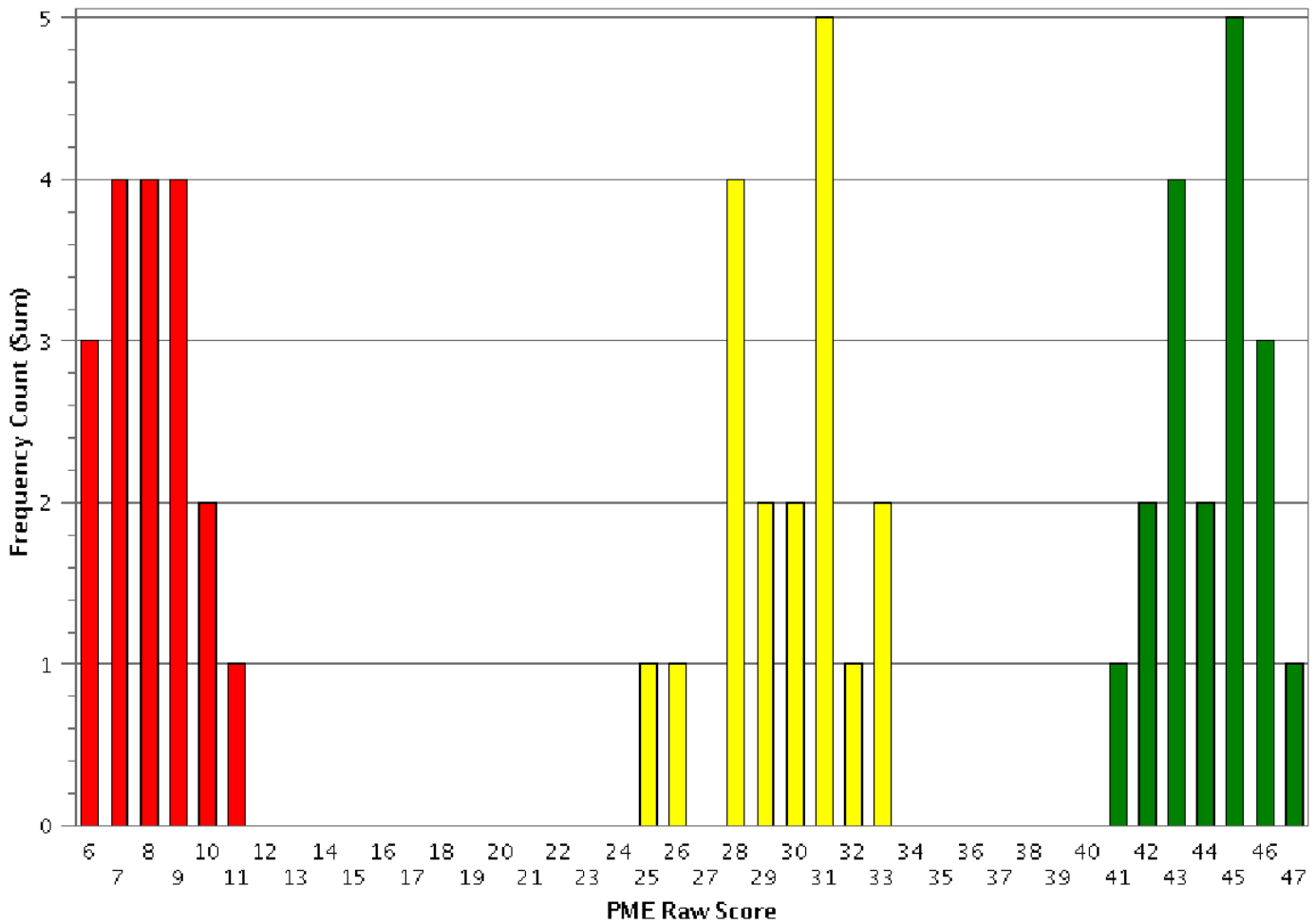
Partially Meeting Expectations



Meeting Expectations

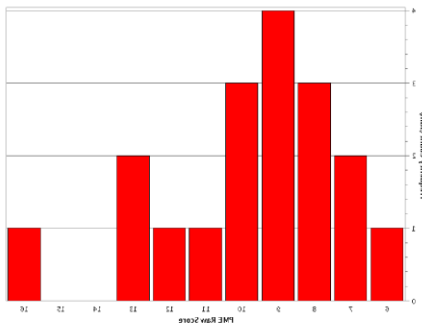


Exceeding Expectations

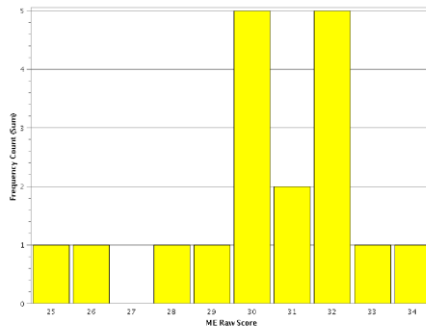


All Three Achievement Levels Concurrently

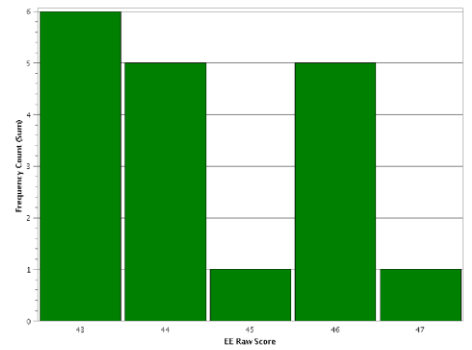
Round 3:



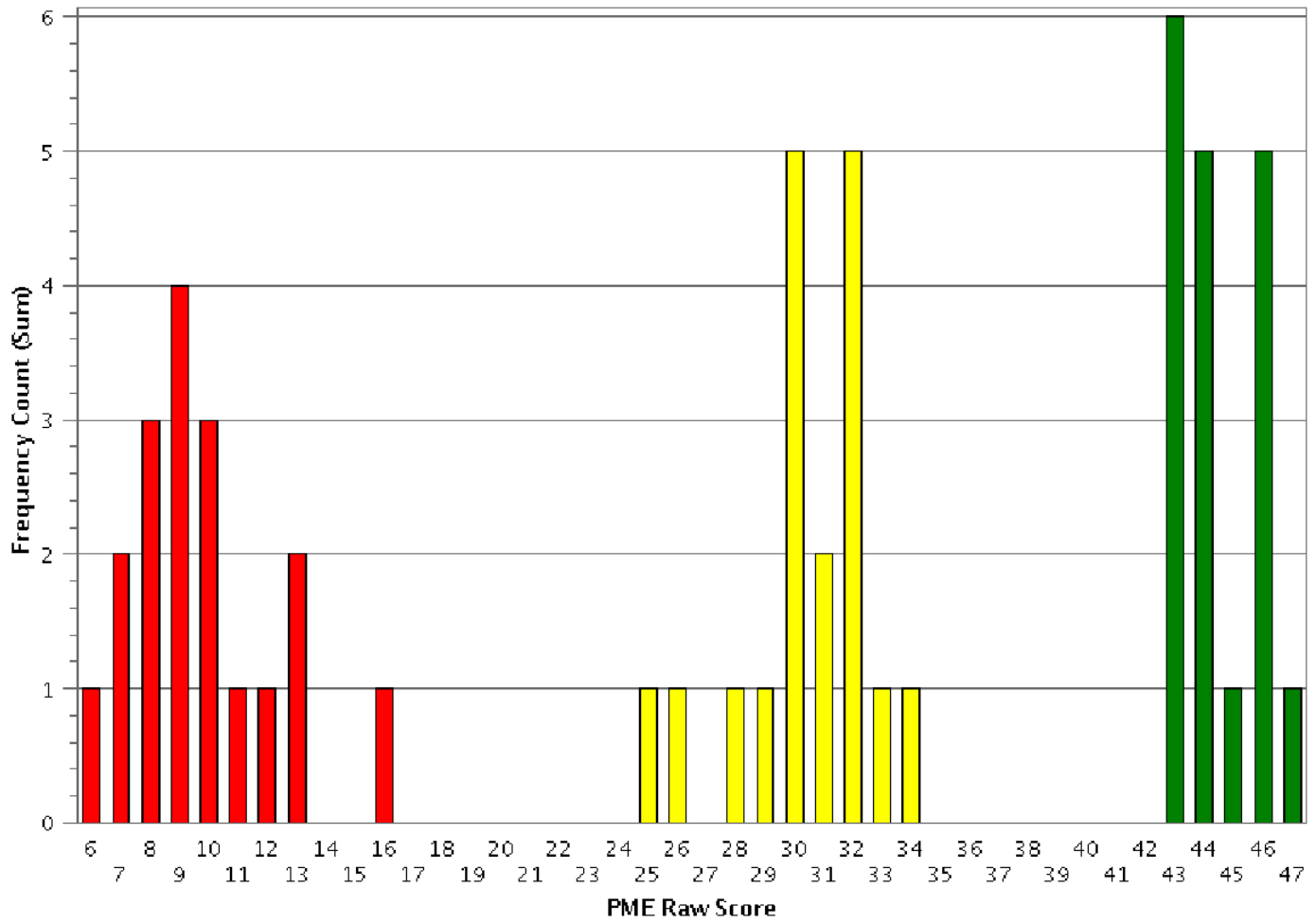
Partially Meeting Expectations



Meeting Expectations



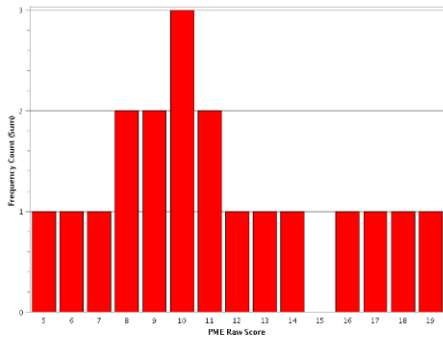
Exceeding Expectations



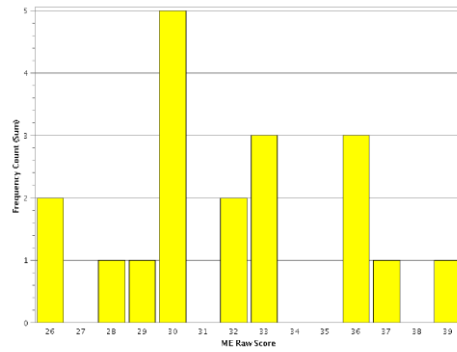
All Three Achievement Levels Concurrently

Mathematics Grade 8

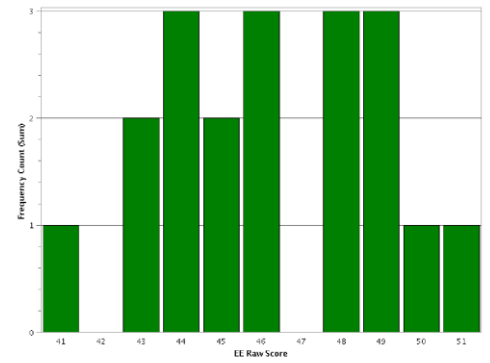
Round 1:



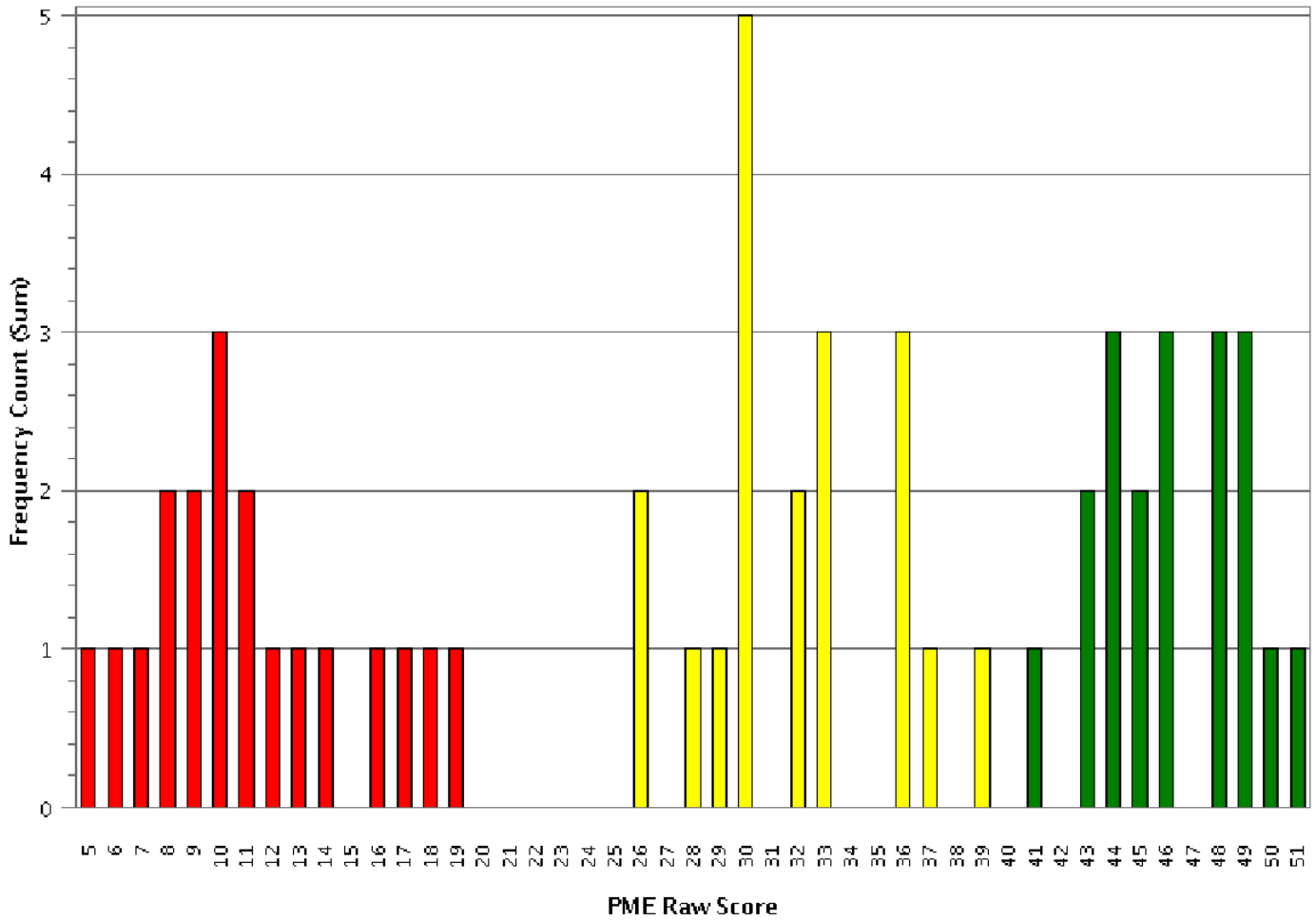
Partially Meeting Expectations



Meeting Expectations

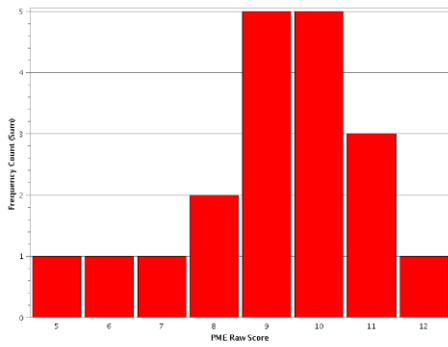


Exceeding Expectations

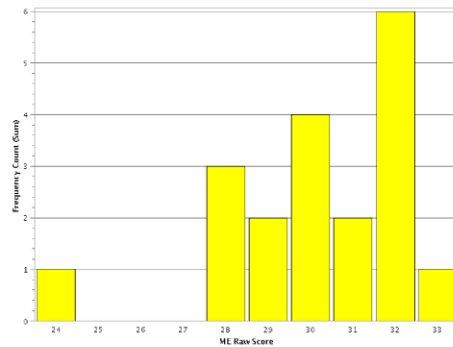


All Three Achievement Levels Concurrently

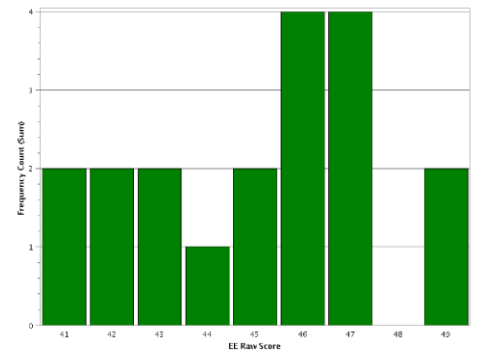
Round 2:



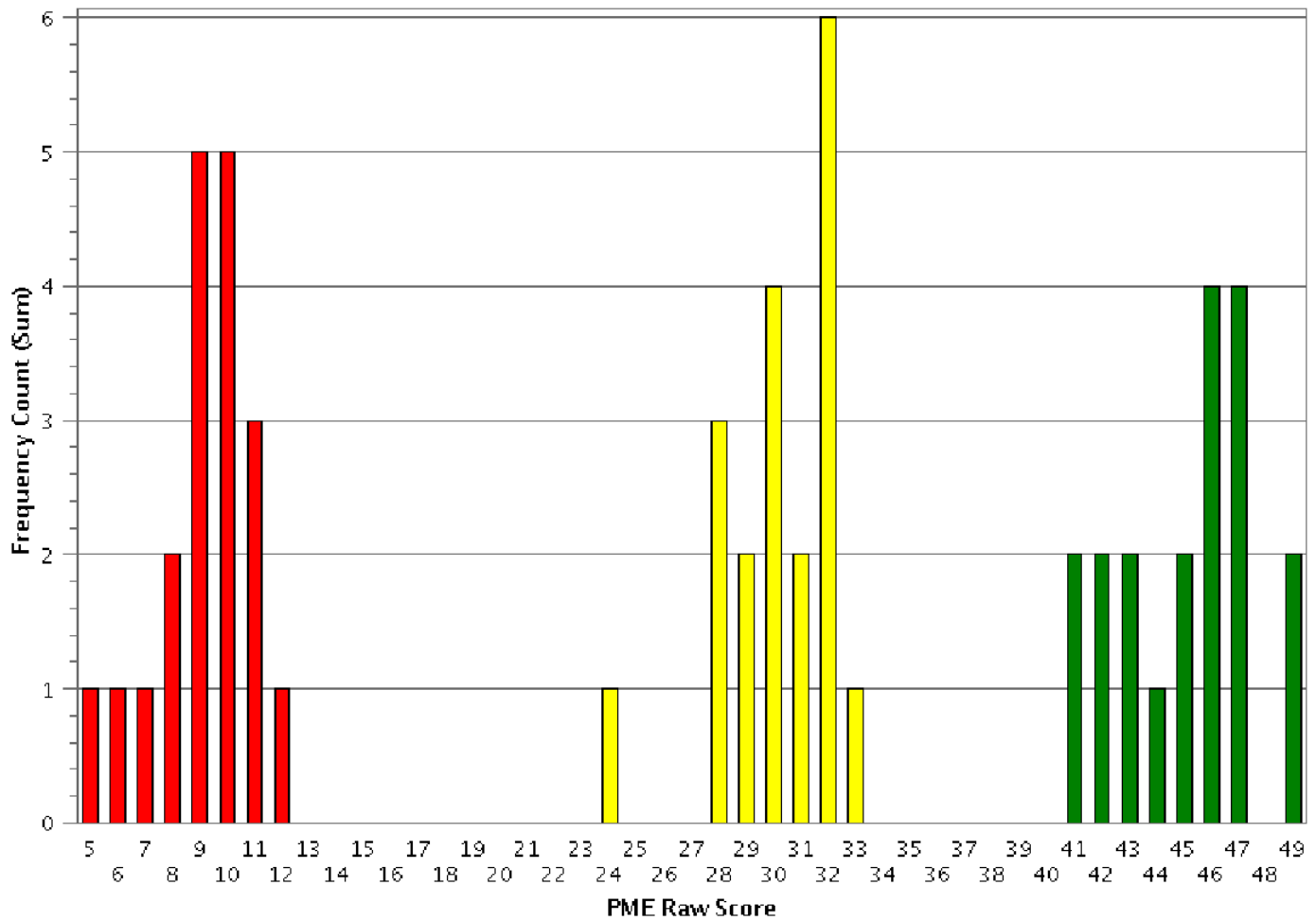
Partially Meeting Expectations



Meeting Expectations

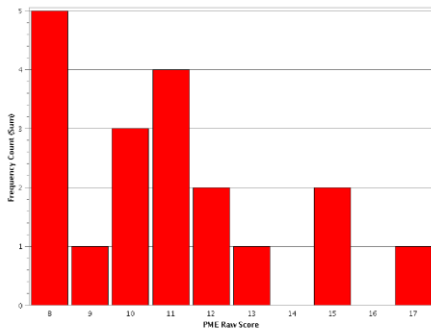


Exceeding Expectations

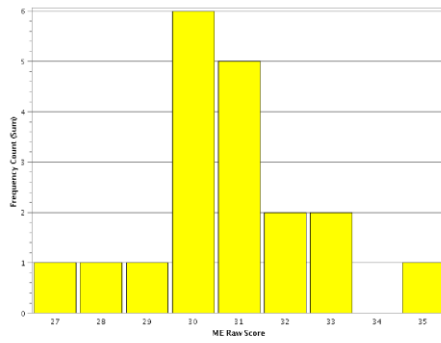


All Three Achievement Levels Concurrently

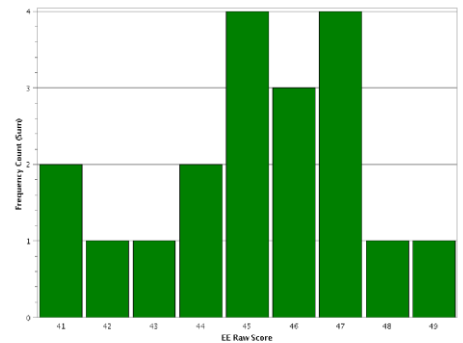
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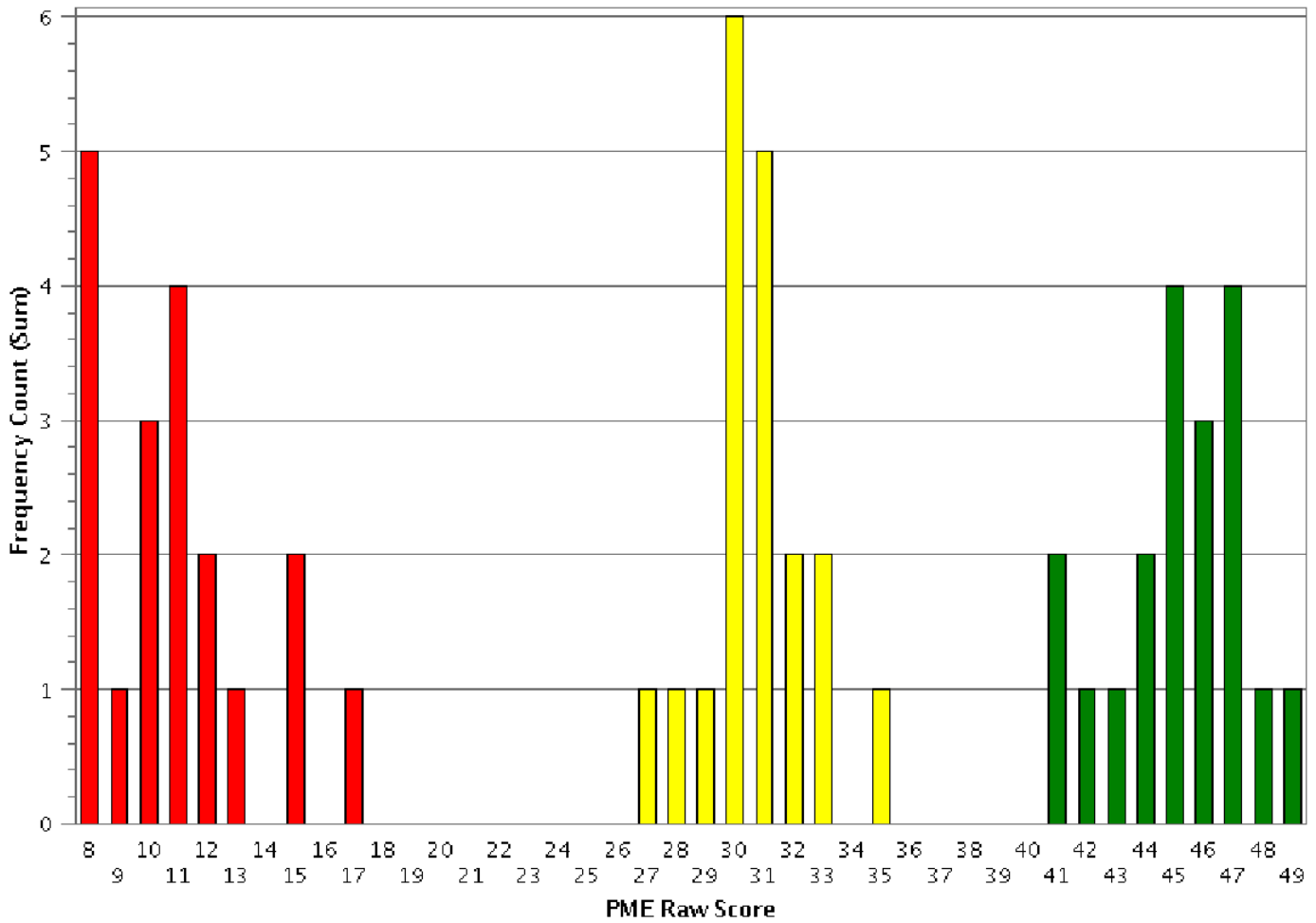
Partially Meeting Expectations



Meeting Expectations



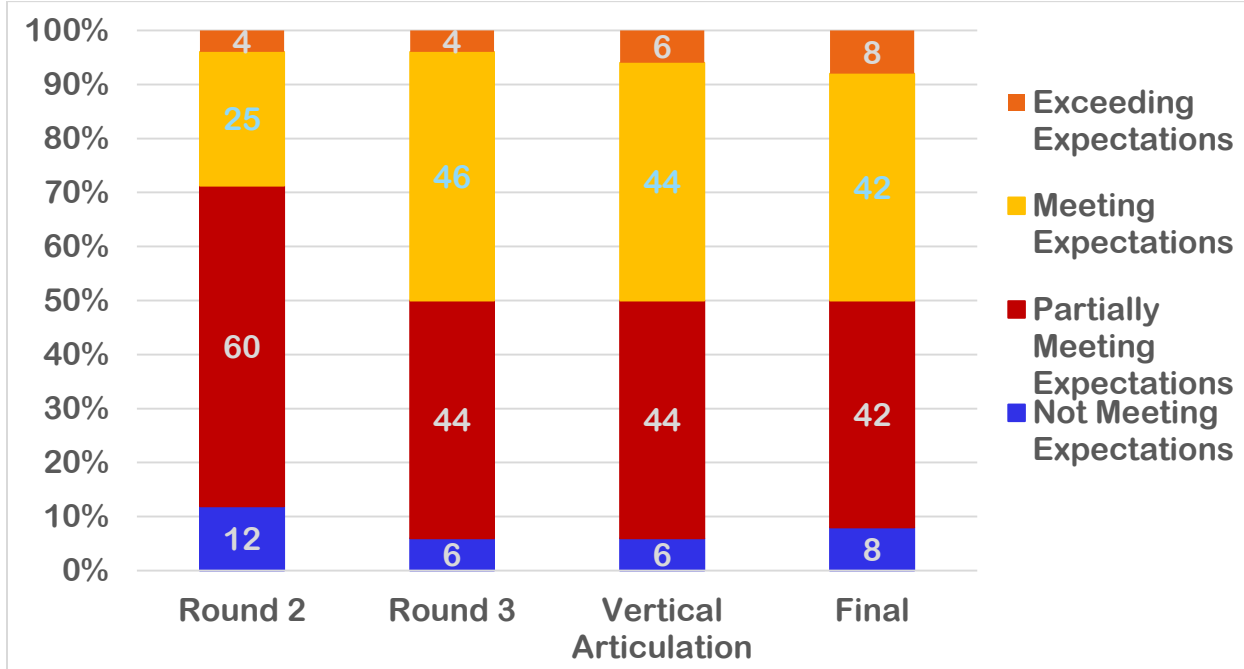
Exceeding Expectations



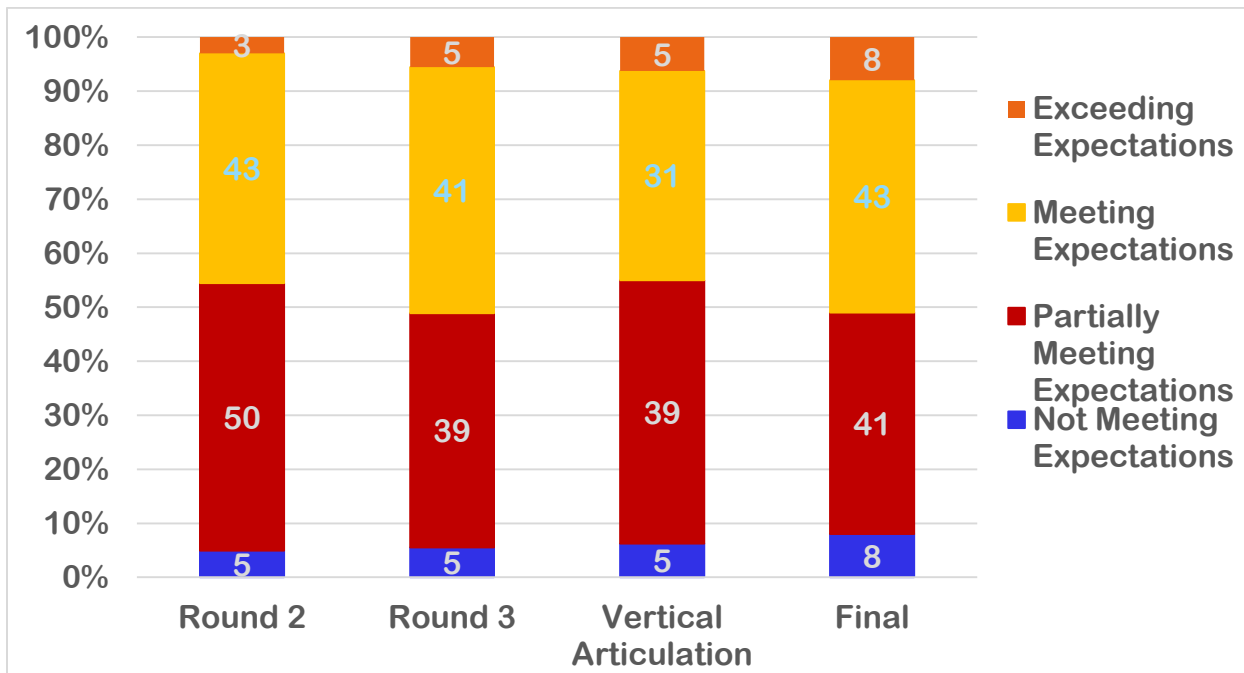
All Three Achievement Levels Concurrently

Appendix J – Impact Data

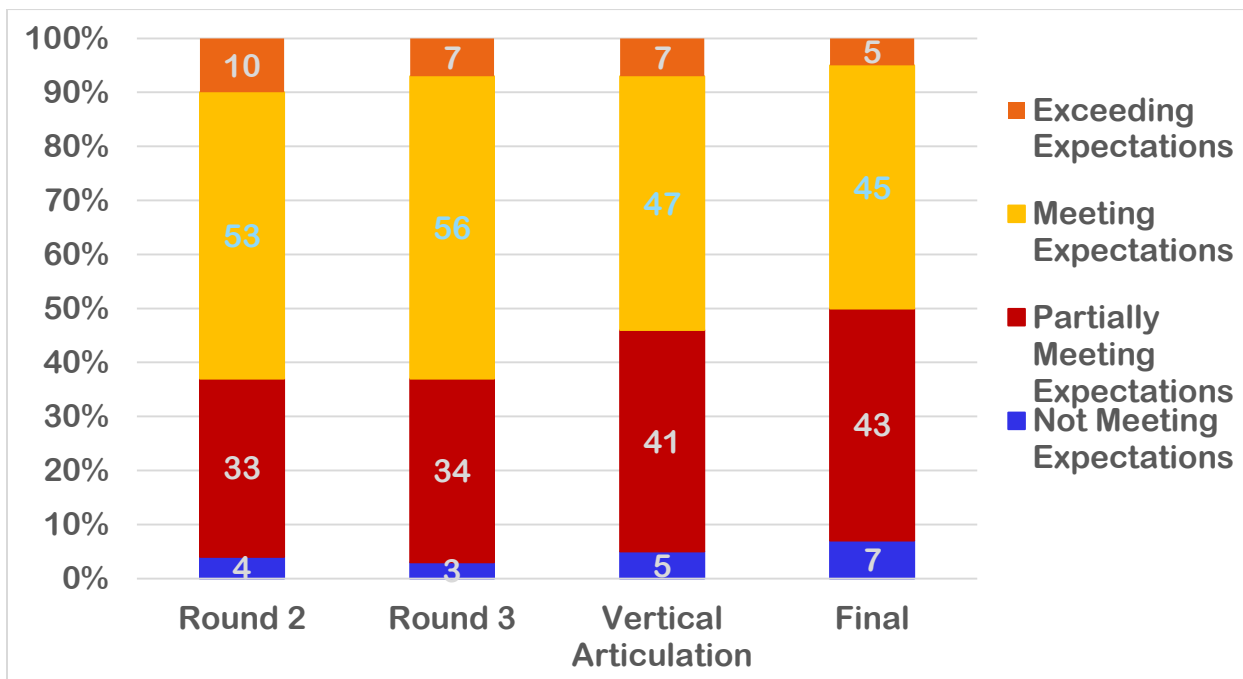
ELA Grade 3



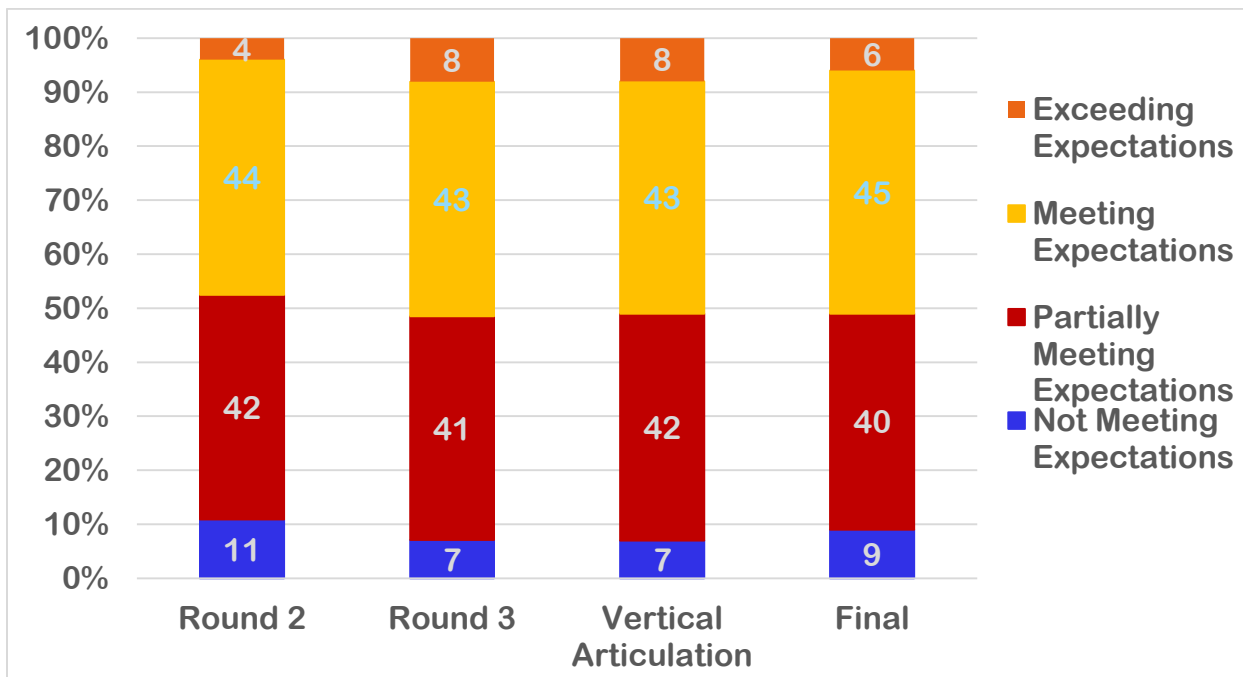
ELA Grade 4



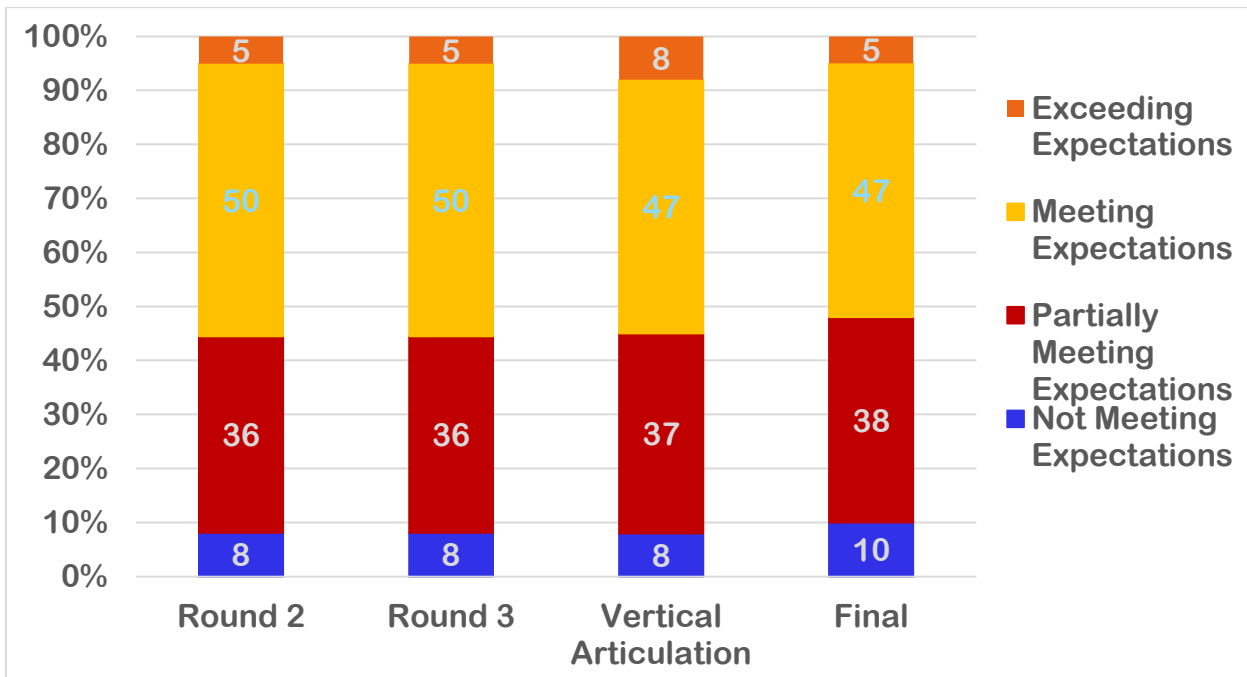
ELA Grade 5



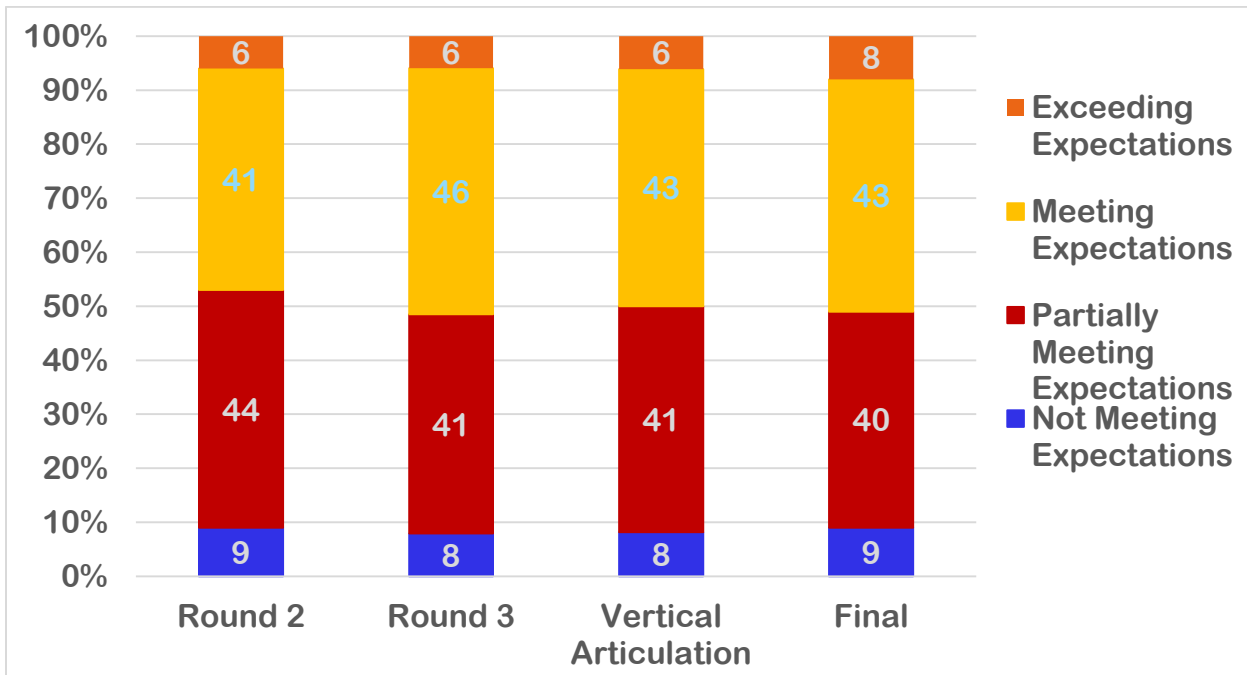
ELA Grade 6



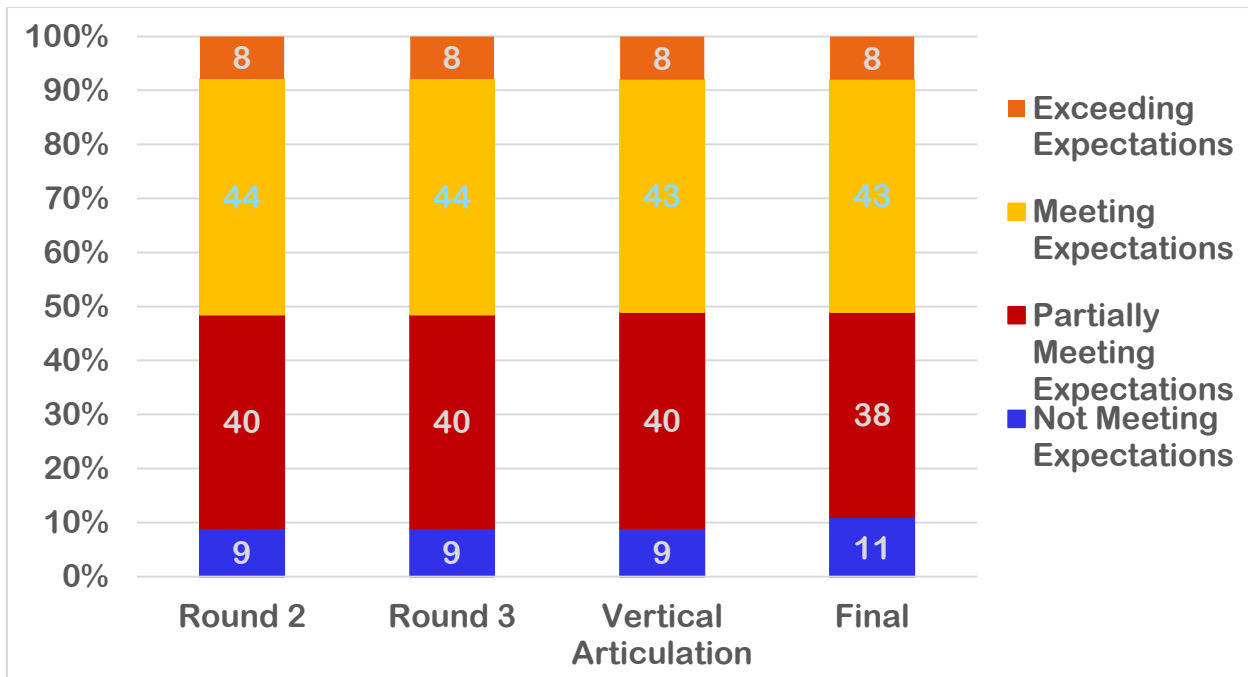
ELA Grade 7



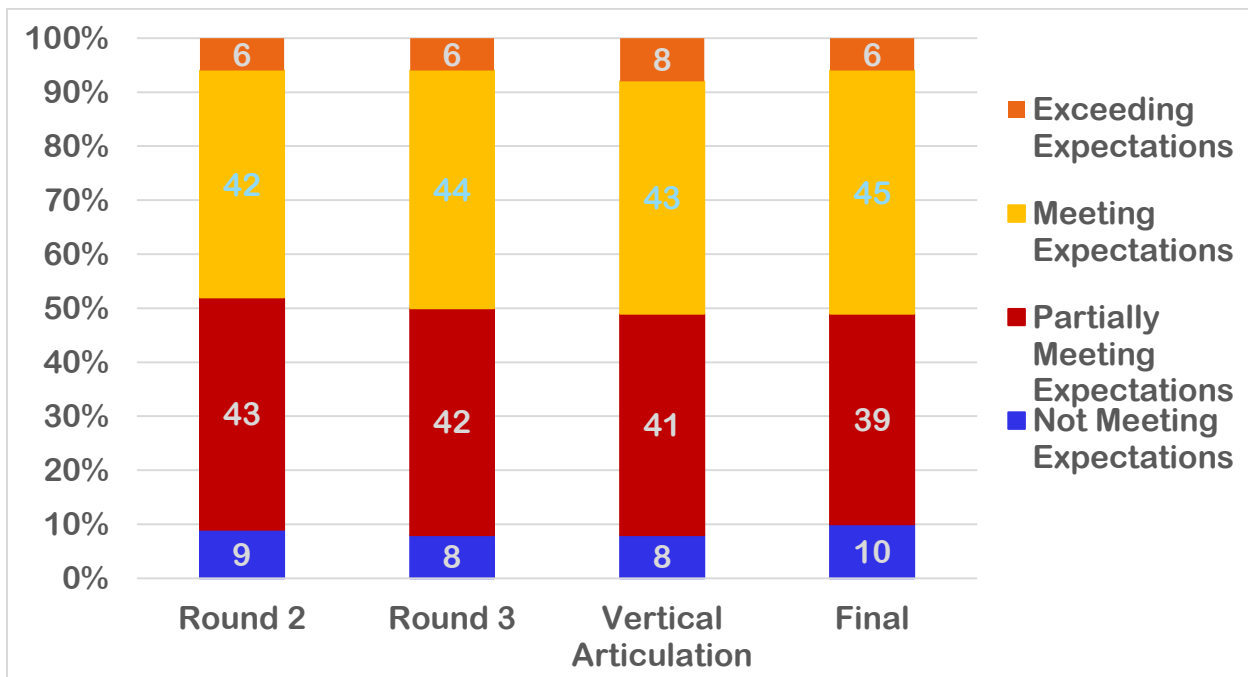
ELA Grade 8



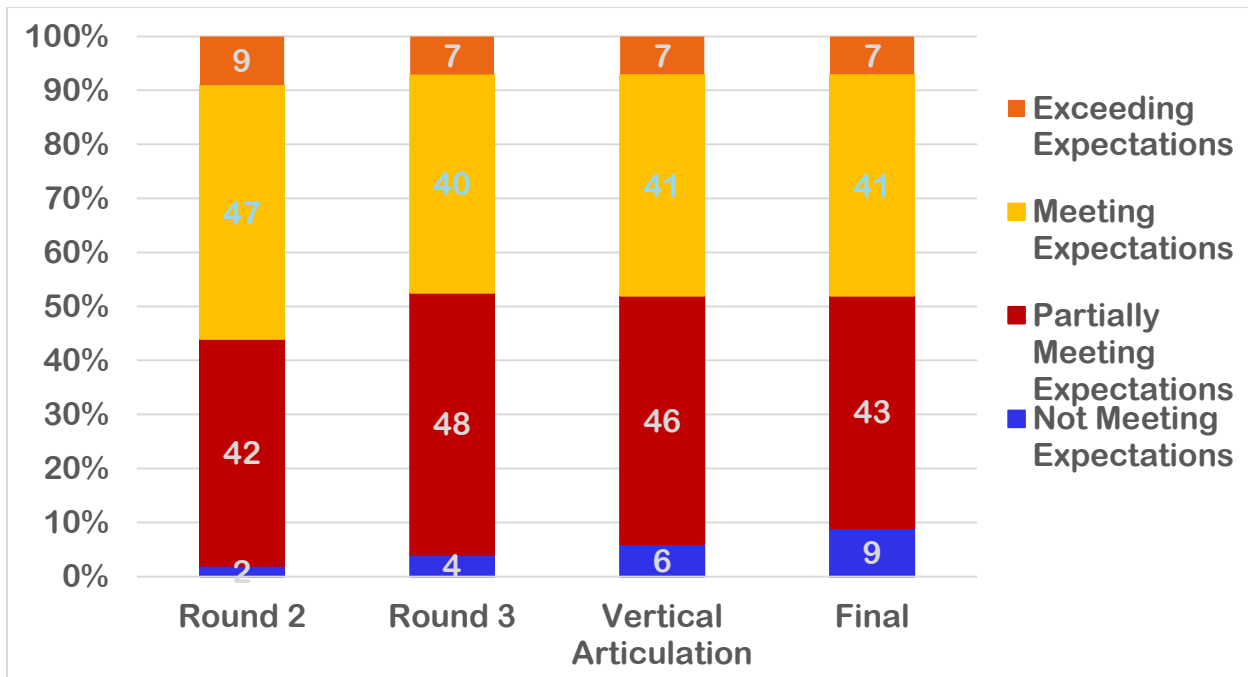
Mathematics Grade 3



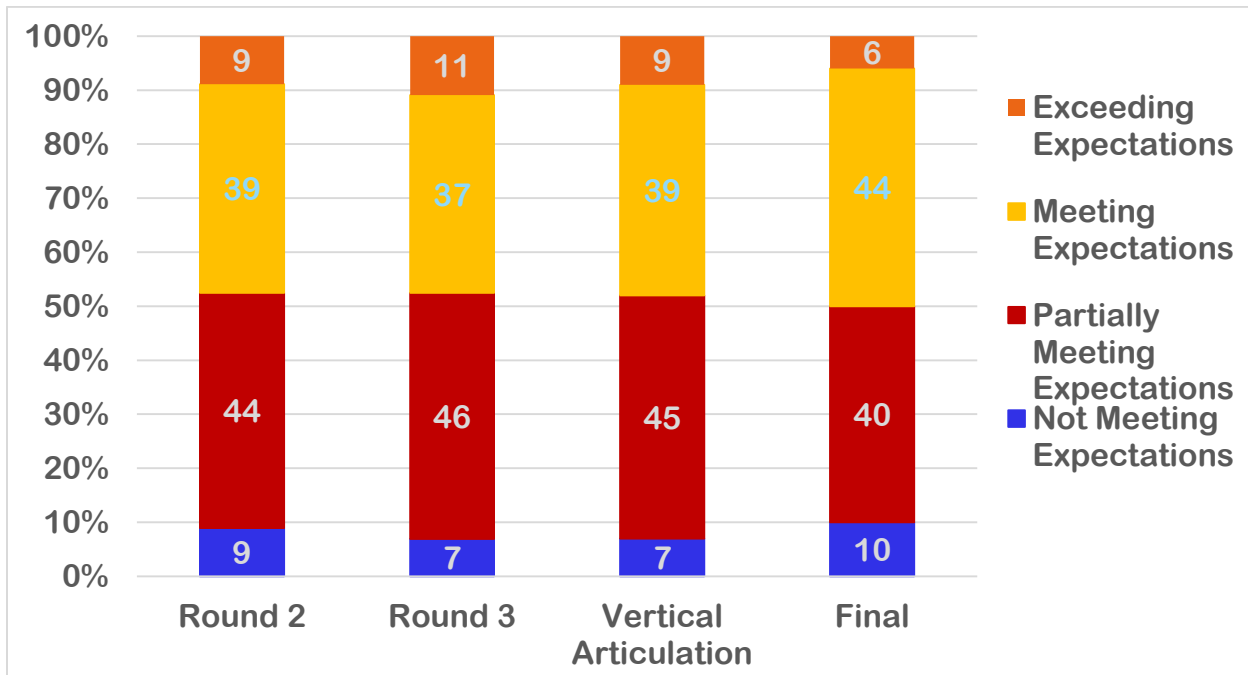
Mathematics Grade 4



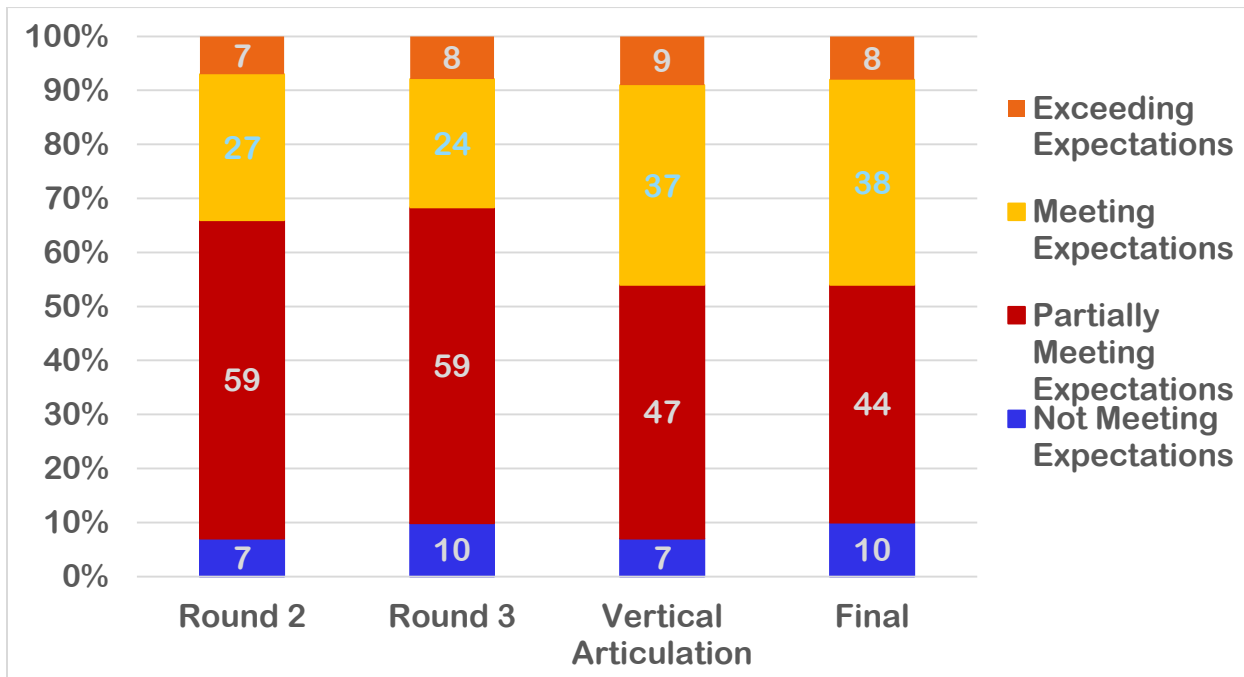
Mathematics Grade 5



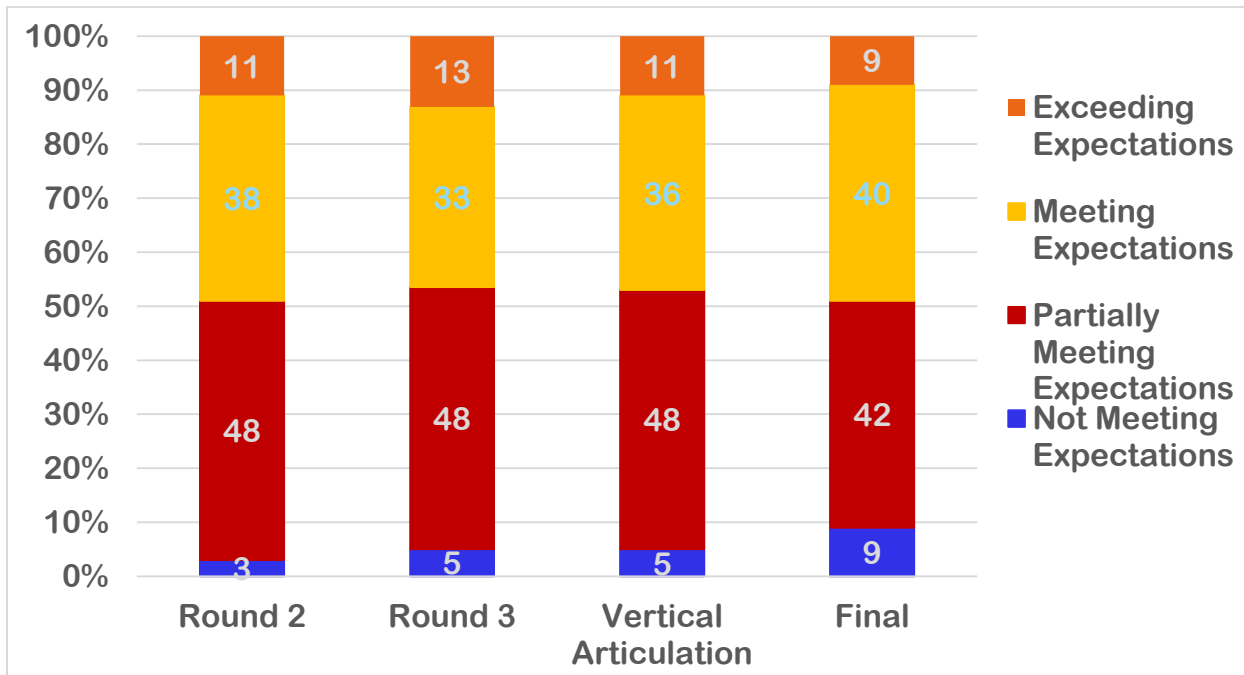
Mathematics Grade 6



Mathematics Grade 7



Mathematics Grade 8

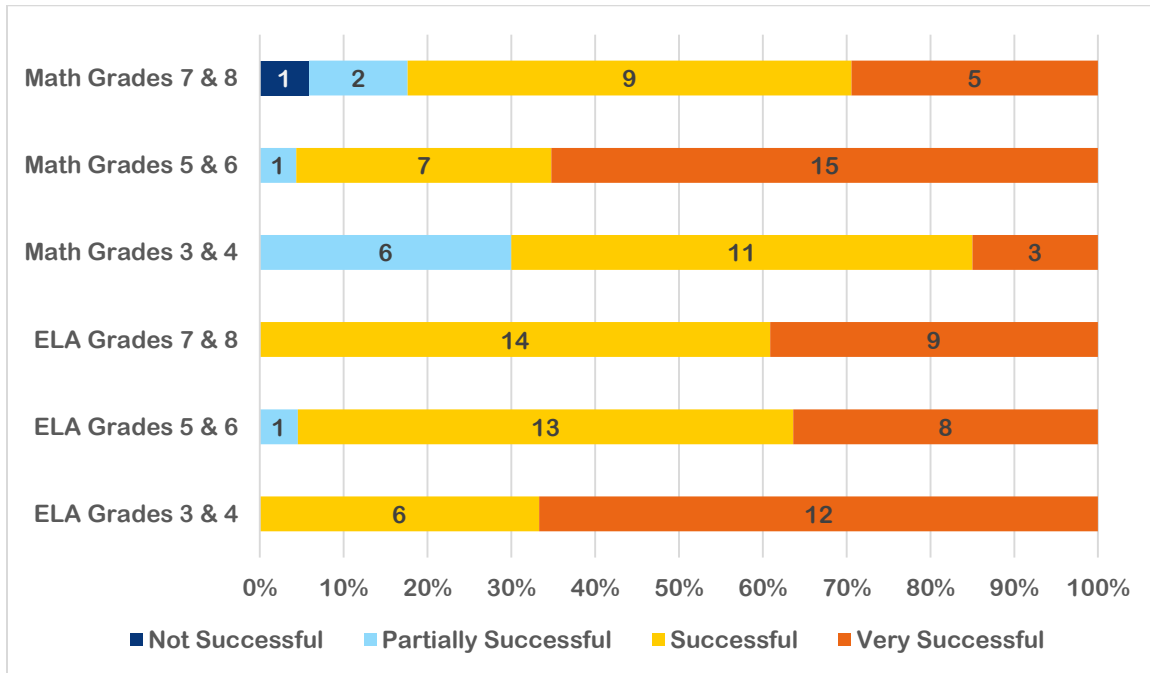


Appendix K – Participant Evaluation Results

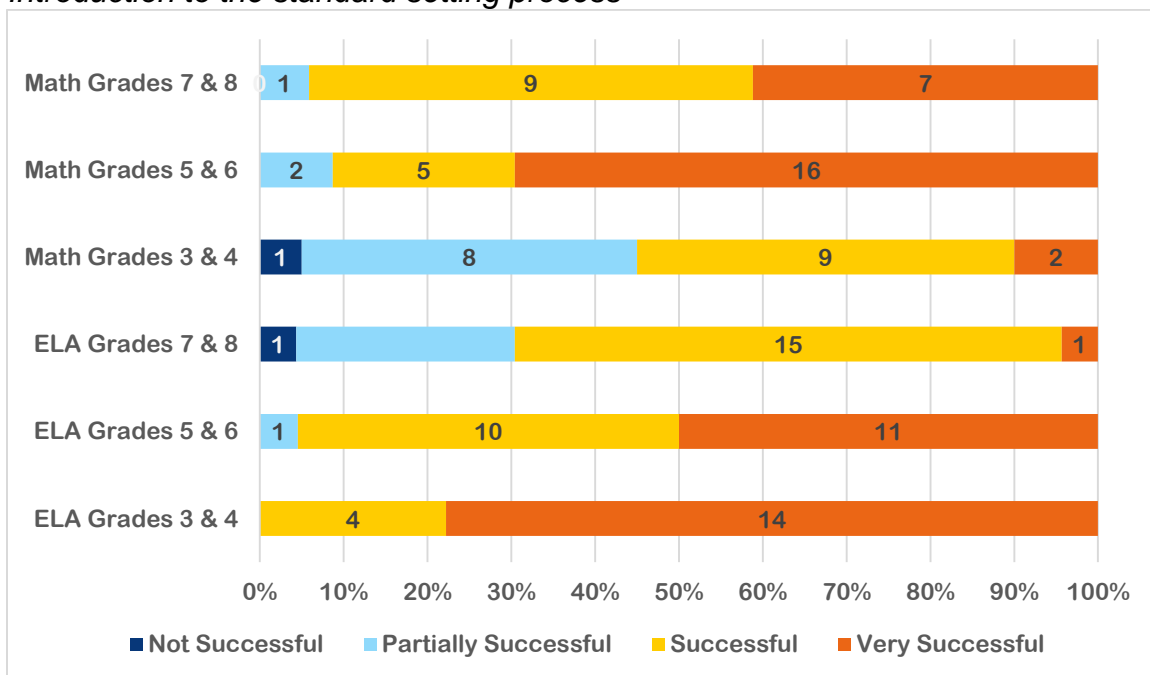
Breakout Session Process Evaluation

Question 1: Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

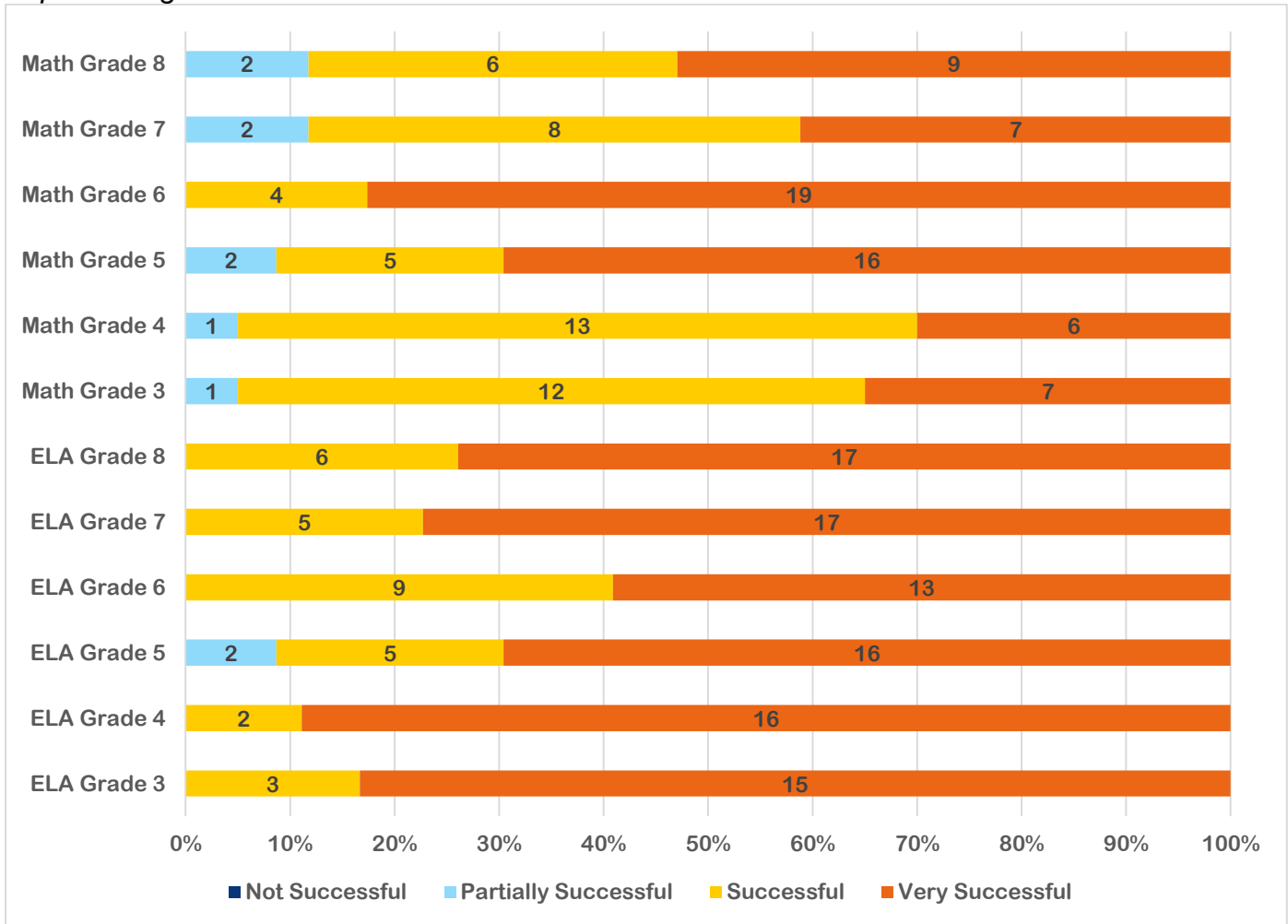
Overview of the MCAS Assessments



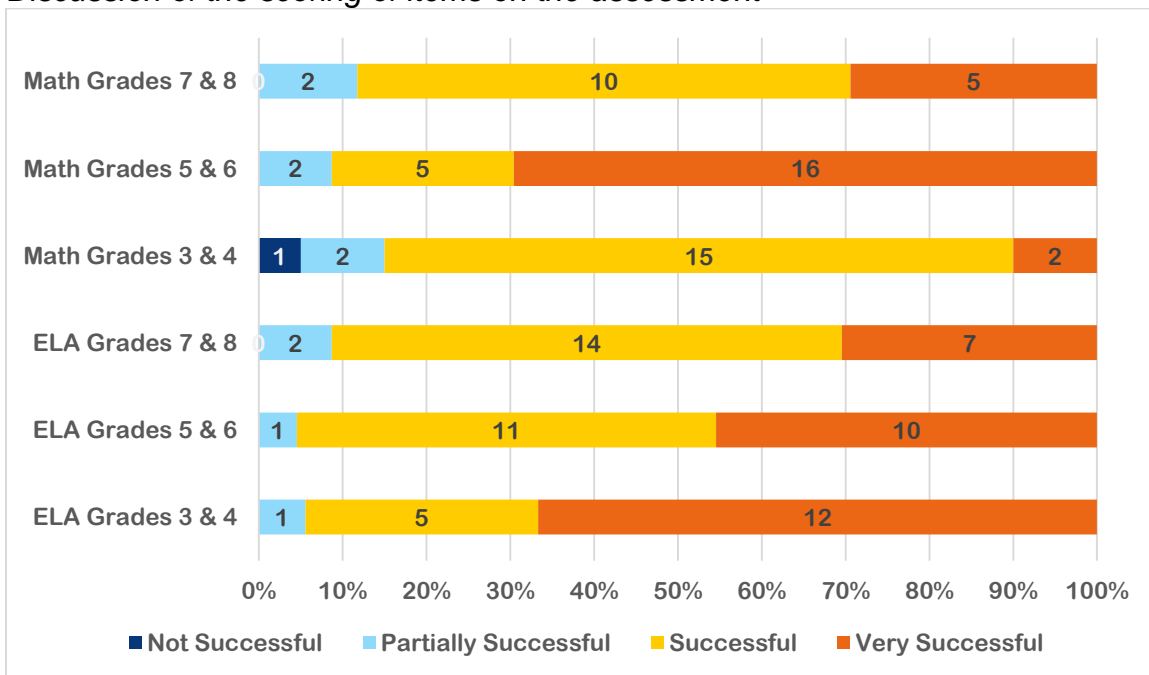
Introduction to the standard setting process



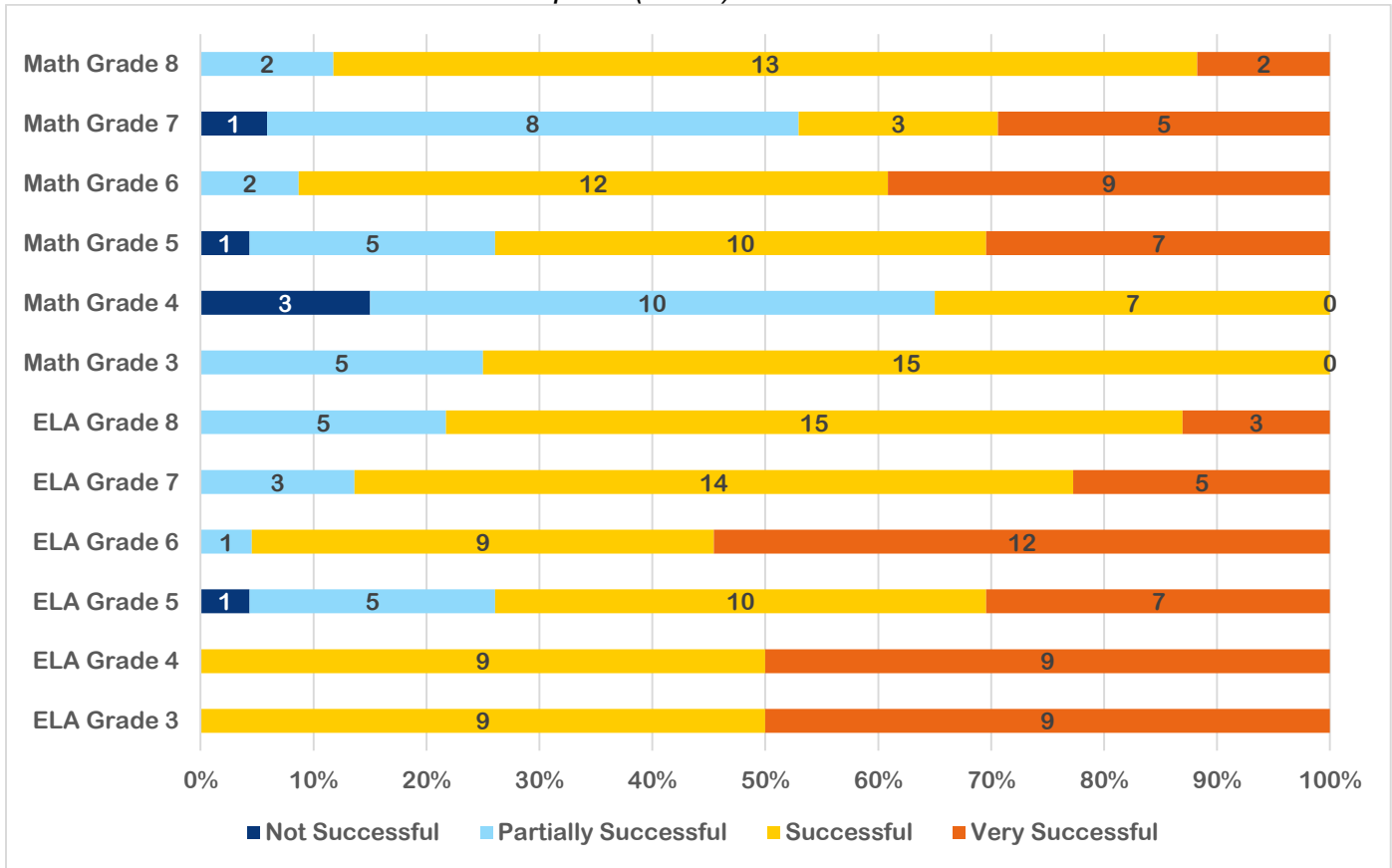
Experiencing the actual assessment



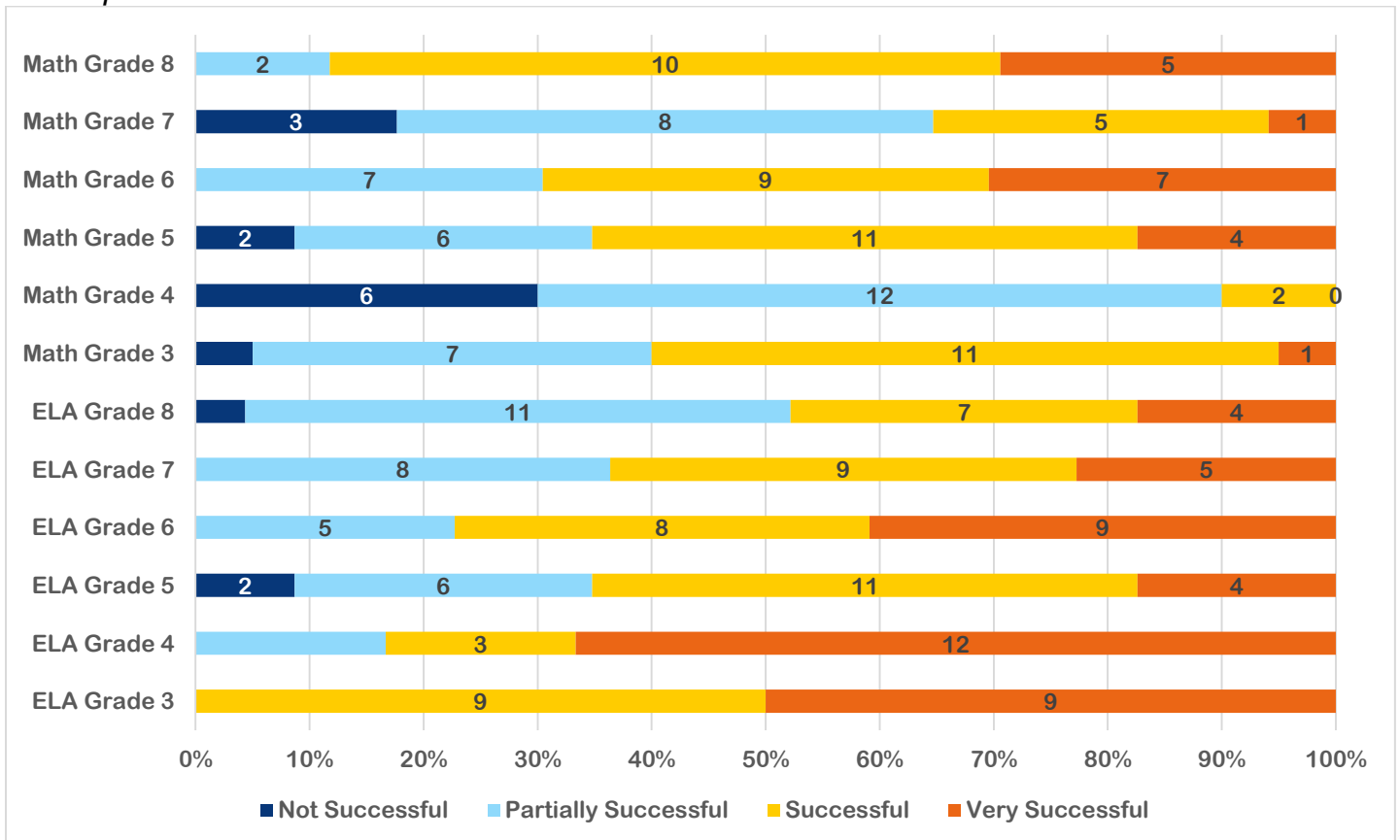
Discussion of the scoring of items on the assessment



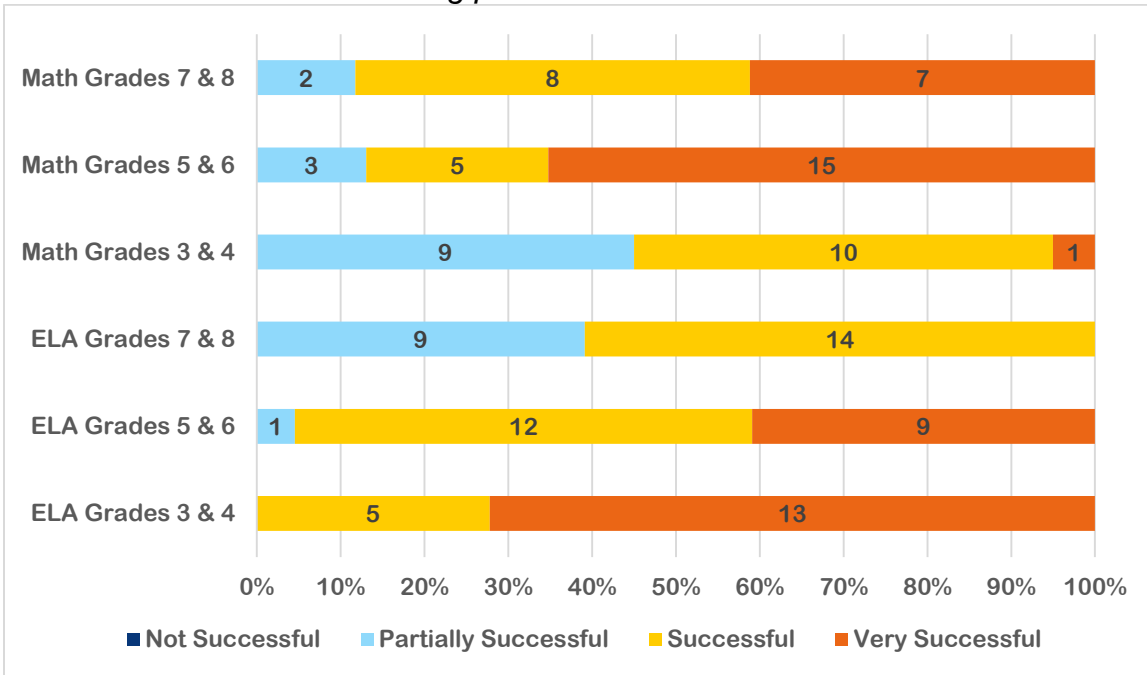
Discussion of achievement level descriptors (ALDs)



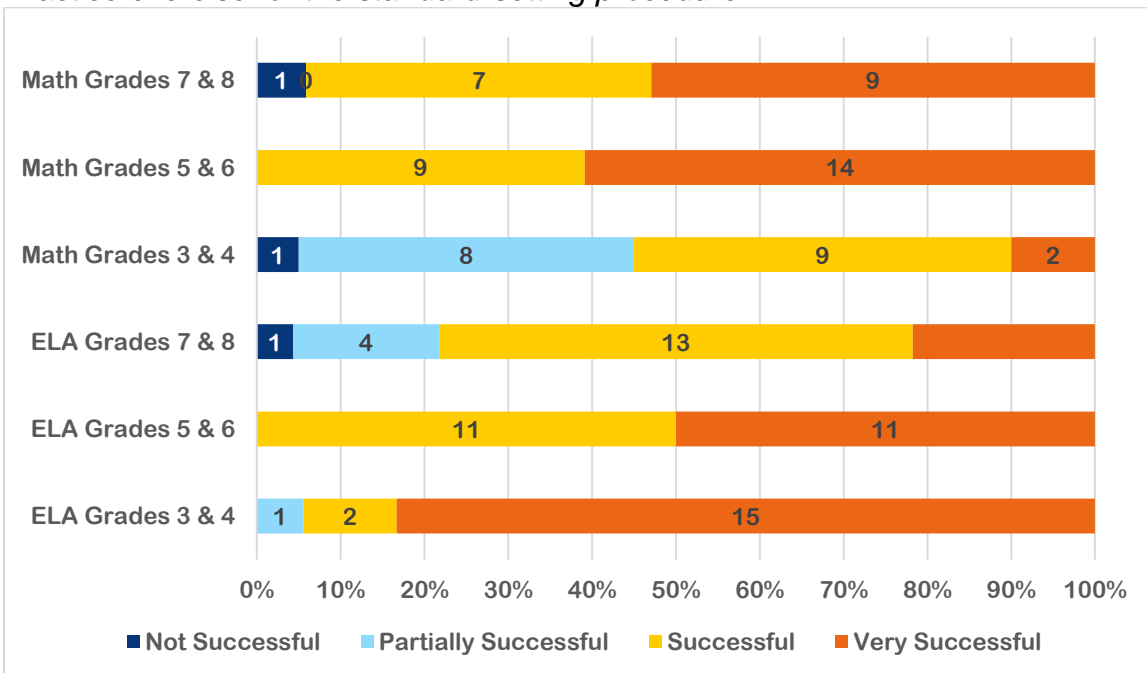
Development and discussion of the borderline ALDs



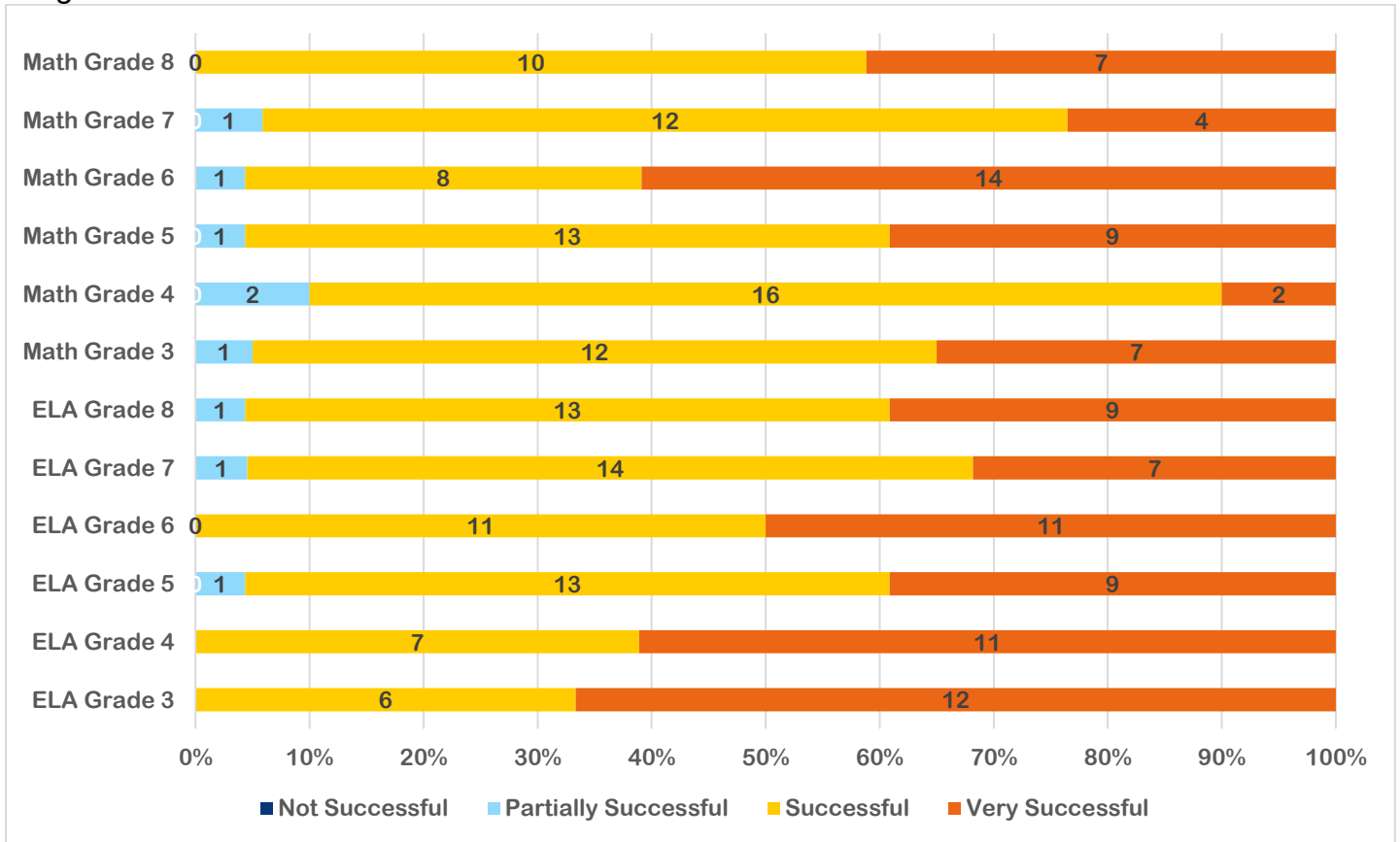
Overview of the standard-setting procedure



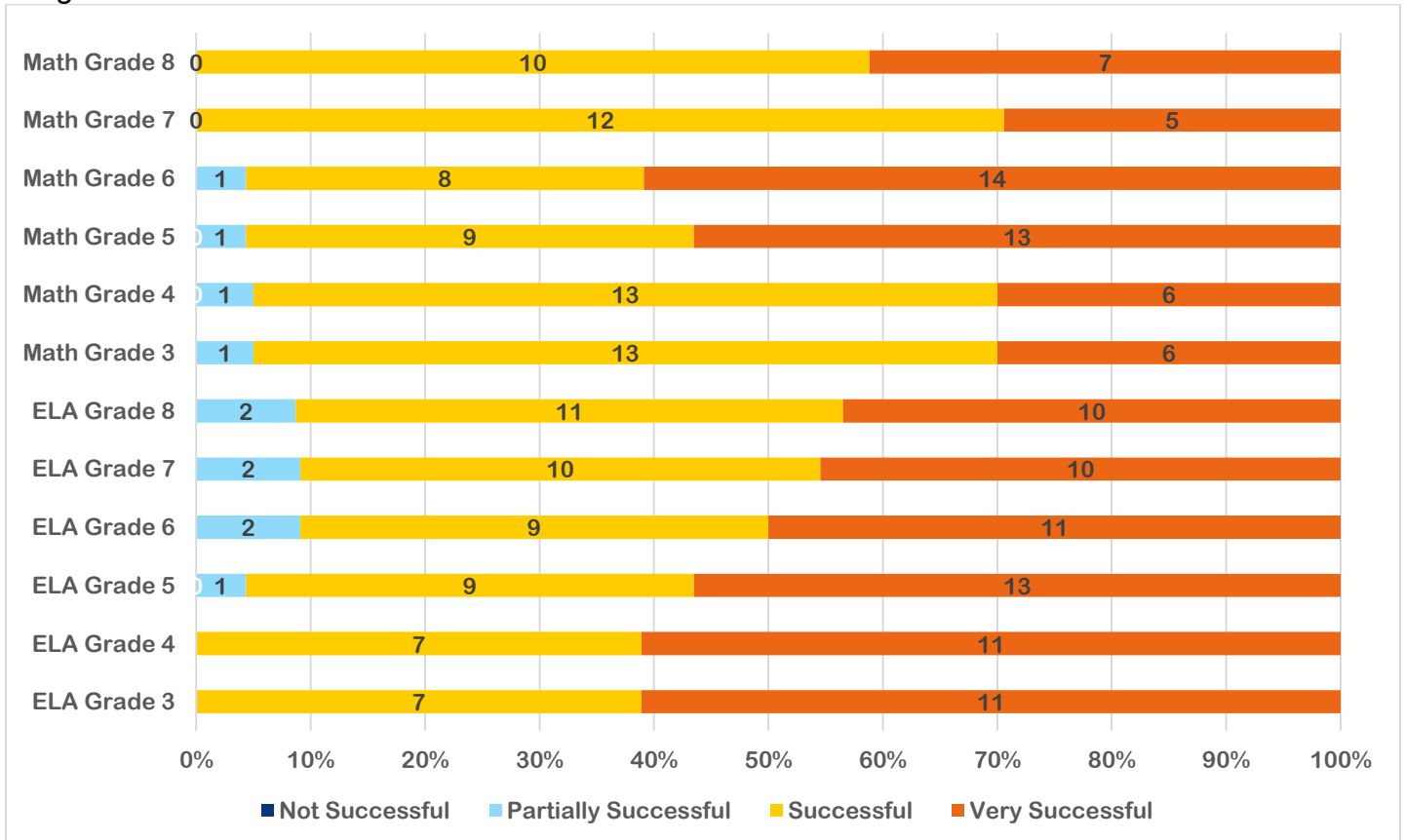
Practice exercise for the standard-setting procedure



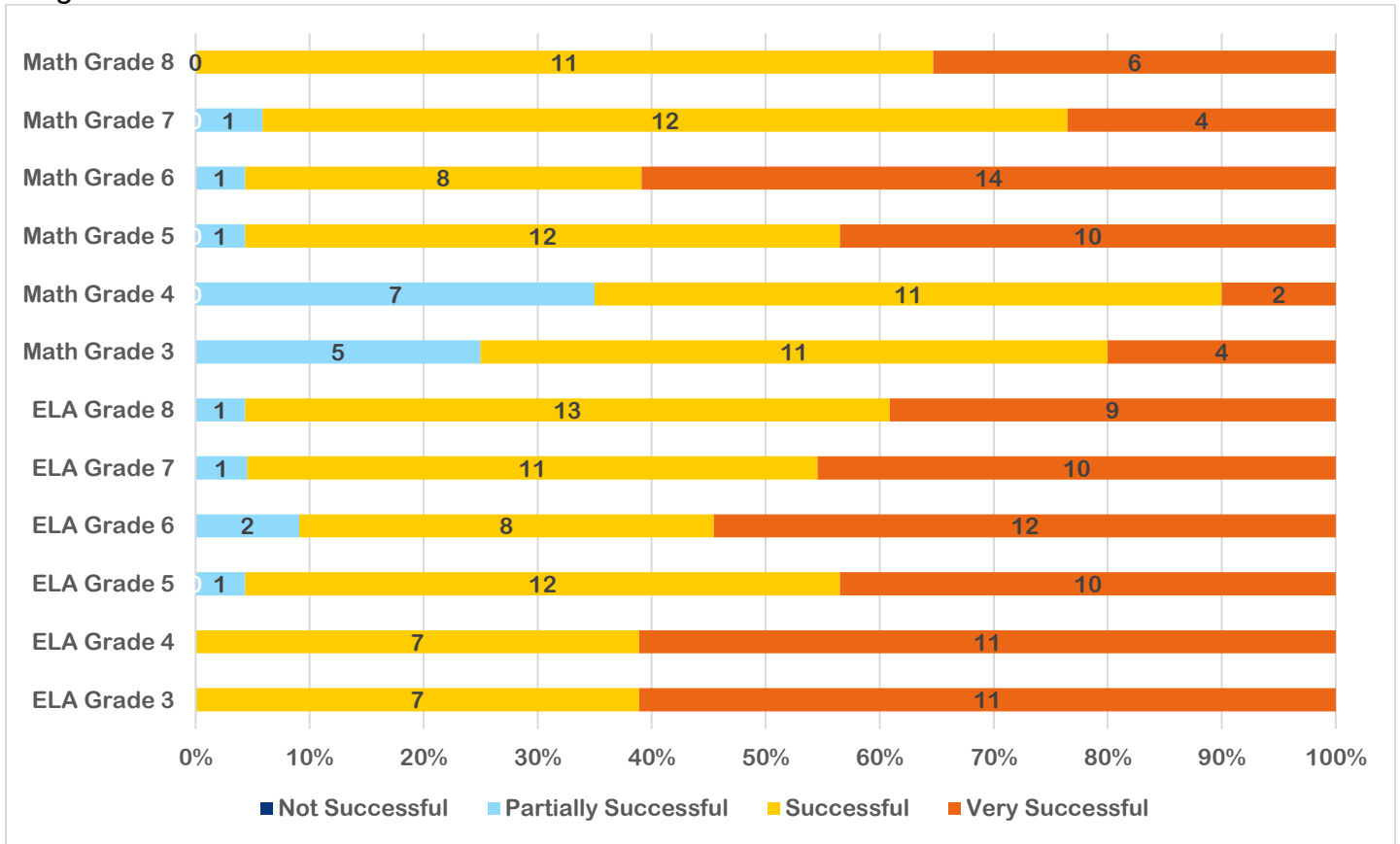
Judgment rounds



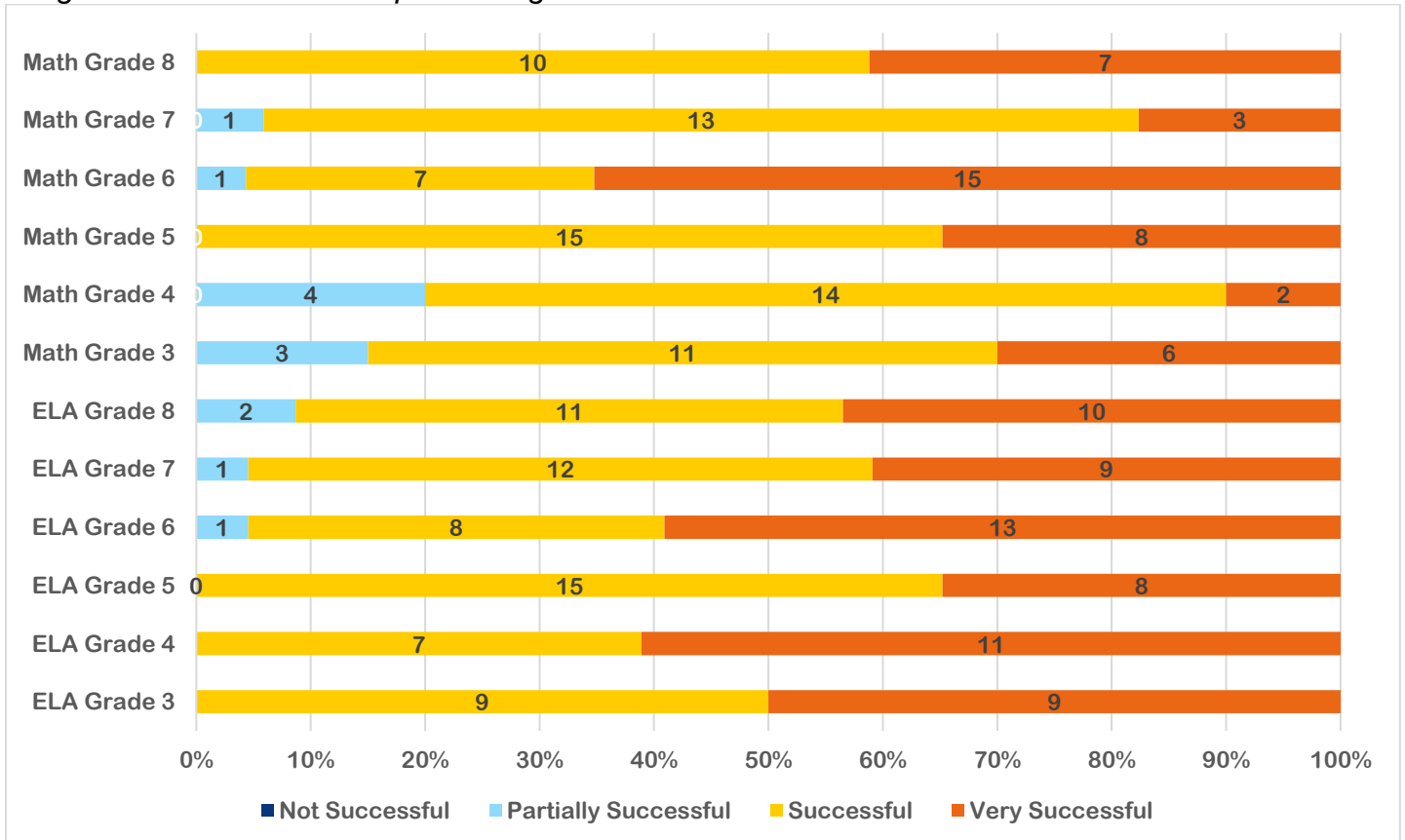
Judgment round feedback - table-level statistics



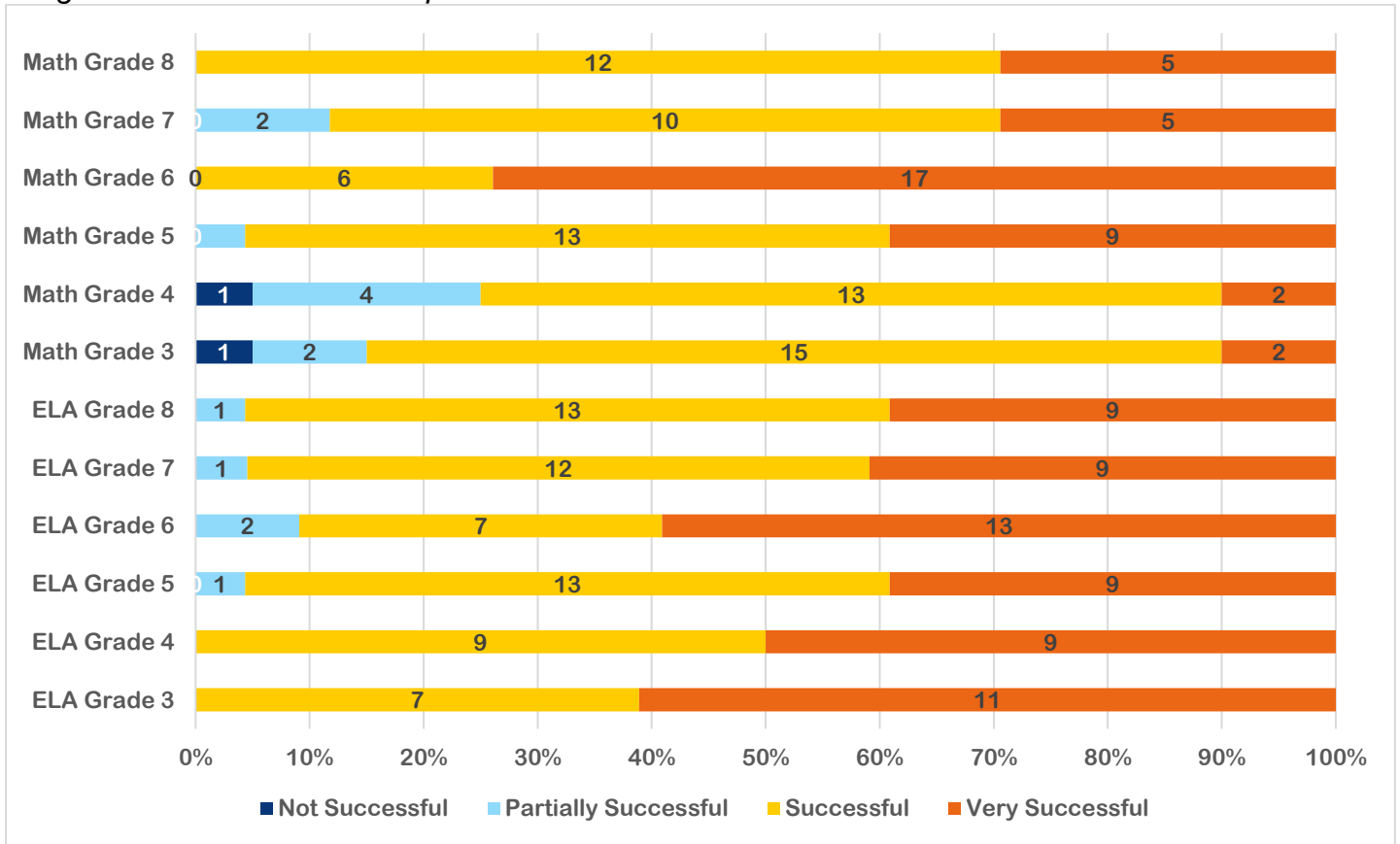
Judgment round feedback - committee-level statistics



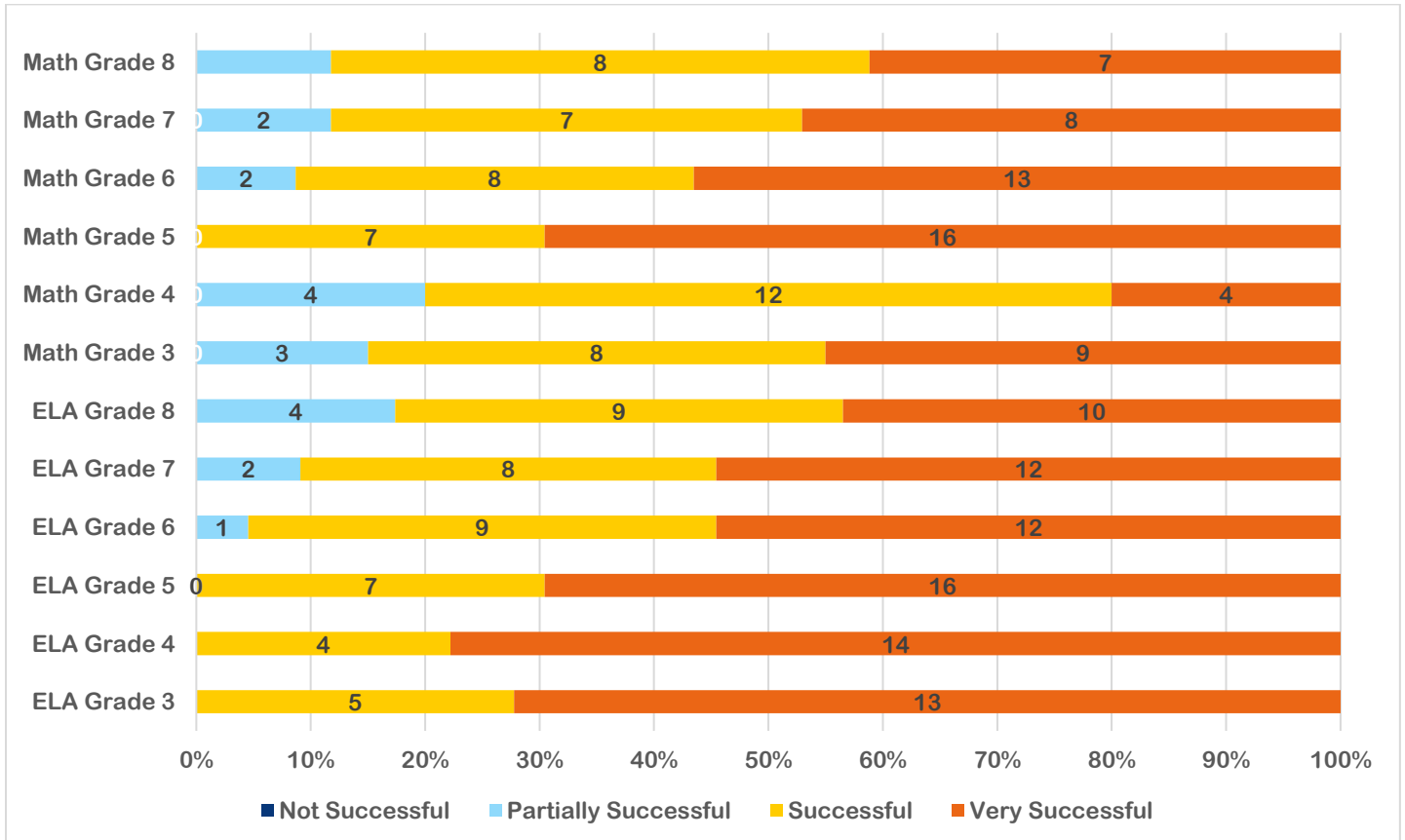
Judgment round feedback - panelist agreement data



Judgment round feedback - impact data

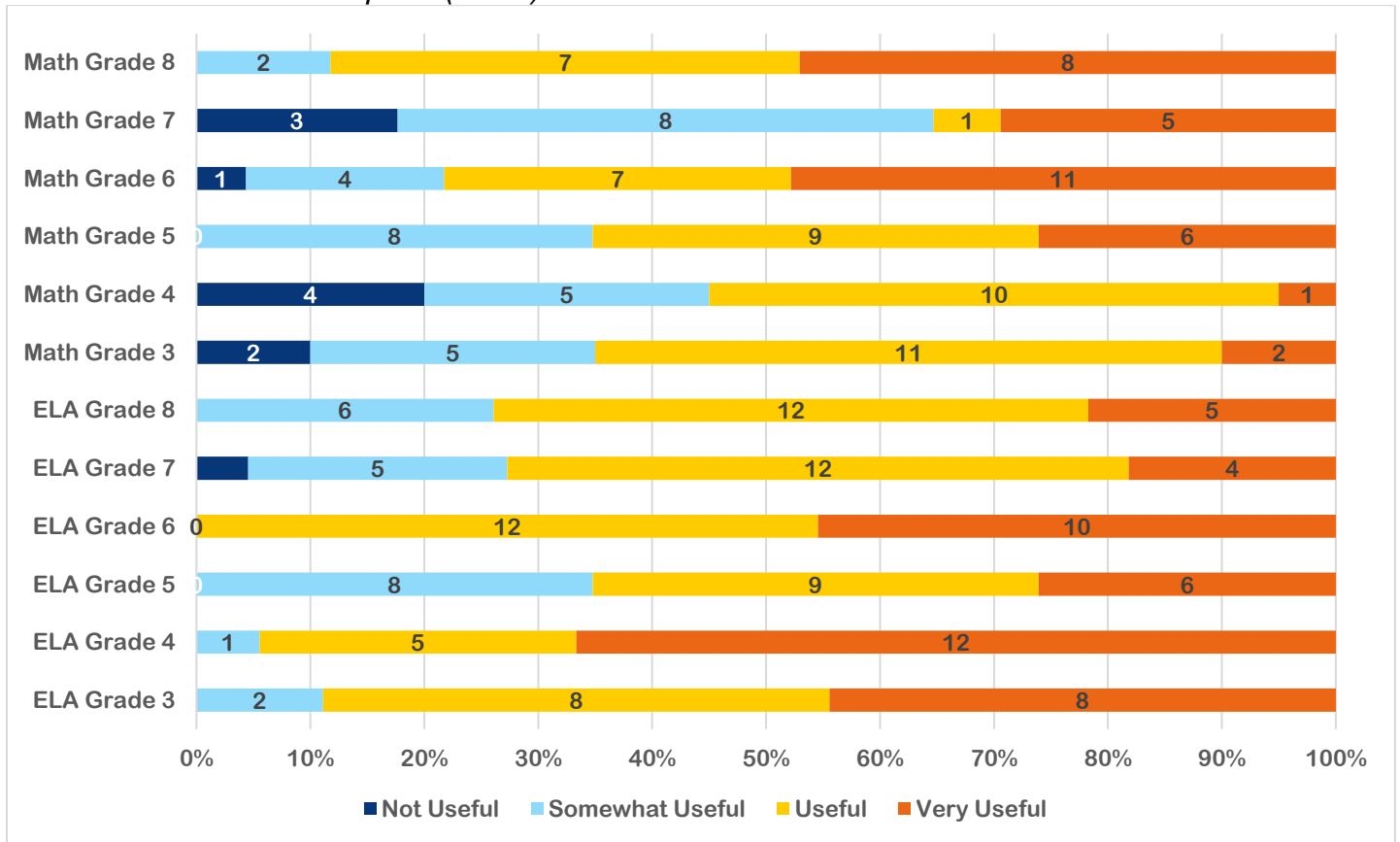


Discussions after each round



Question 2: How useful do you feel the following activities or information were in assisting you to make your recommendations?

Achievement Level Descriptors (ALDs)



Borderline achievement level descriptors

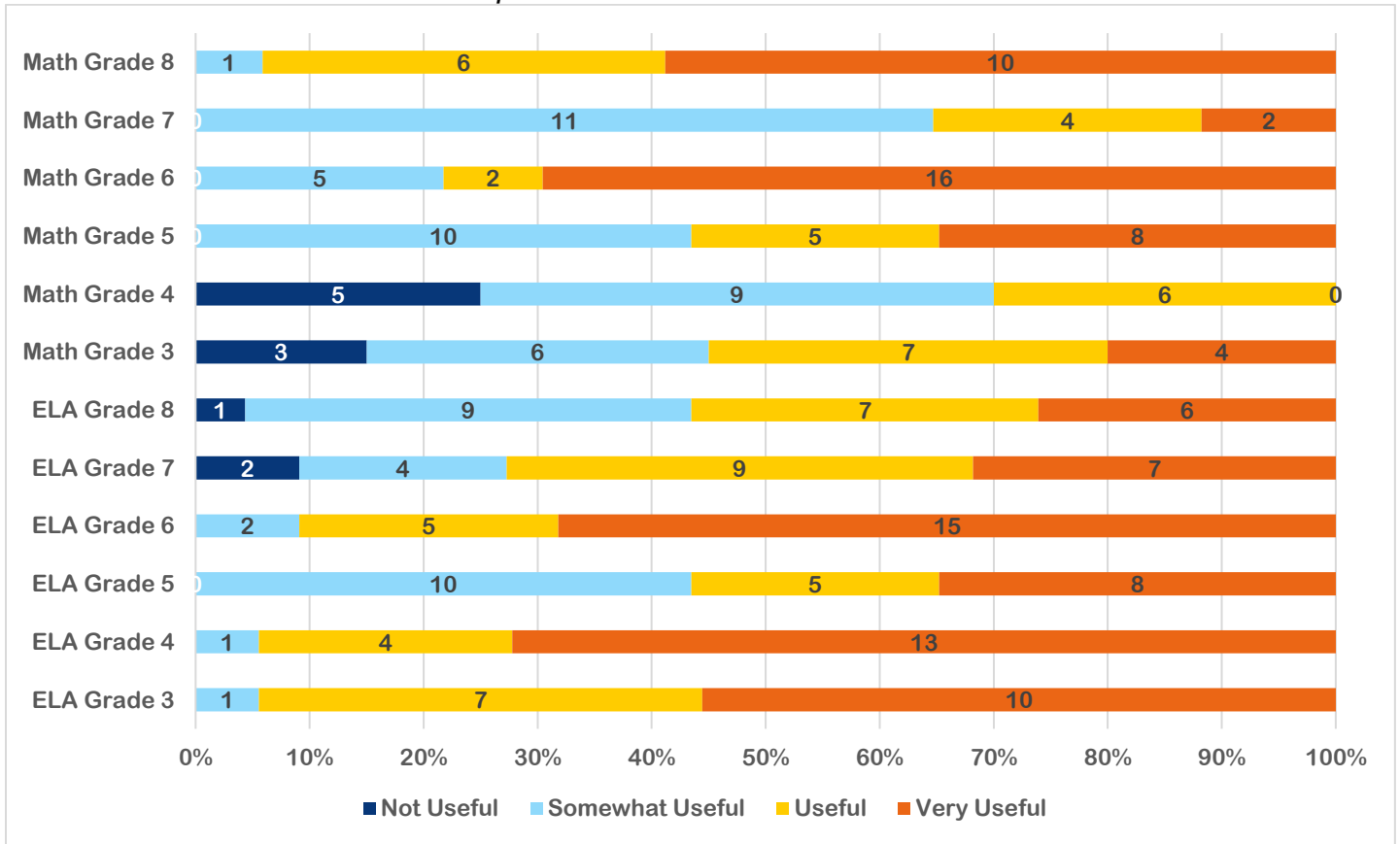
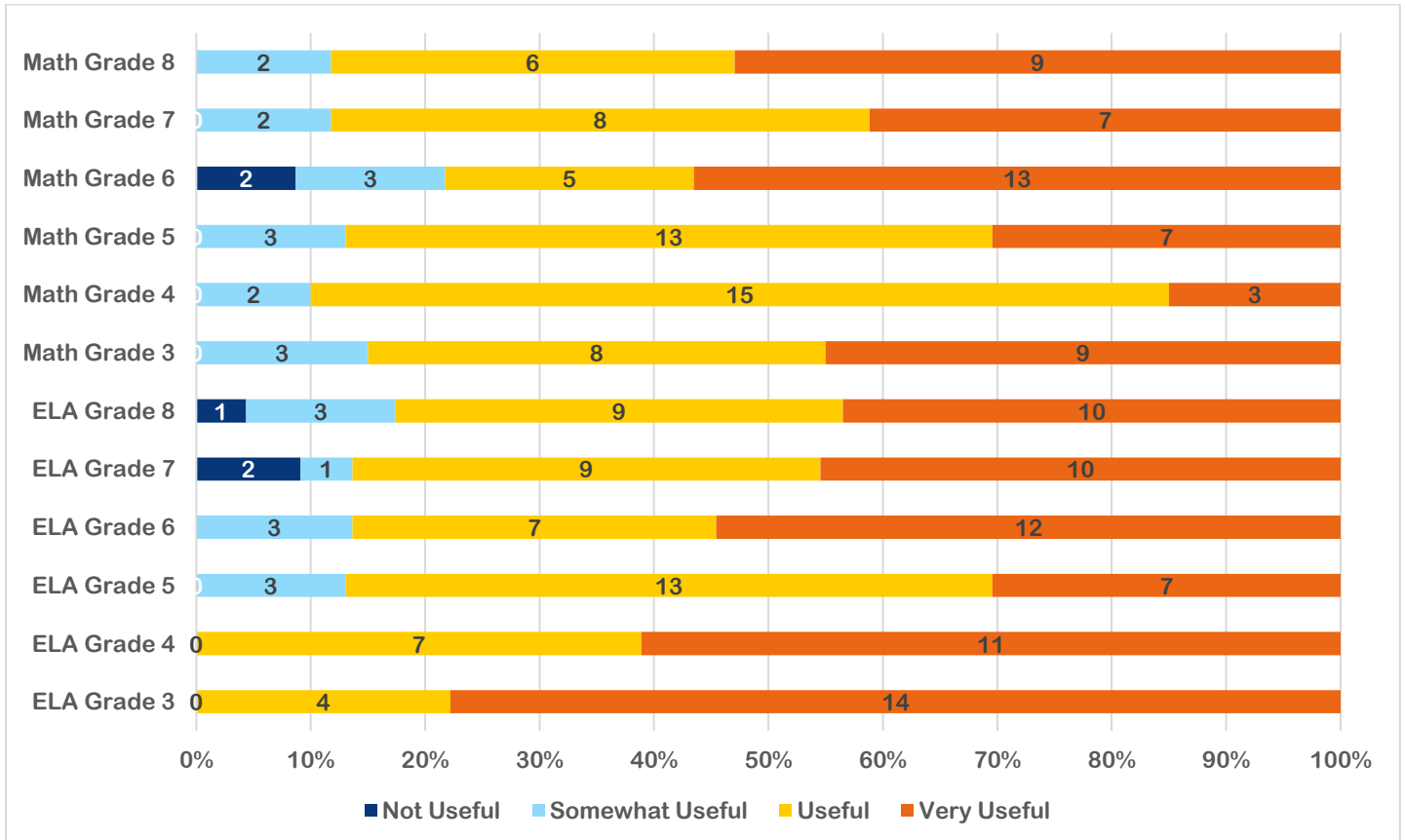
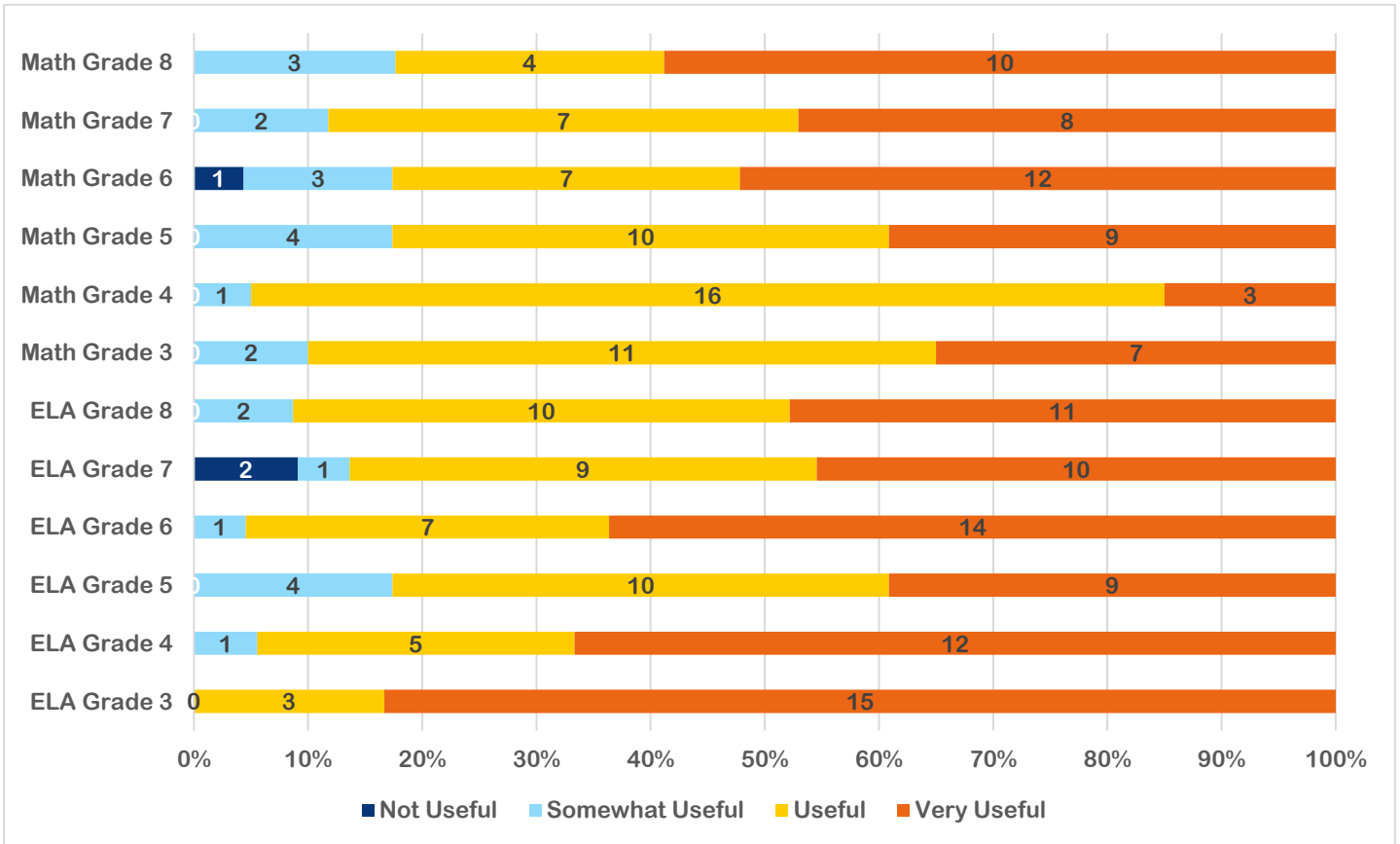


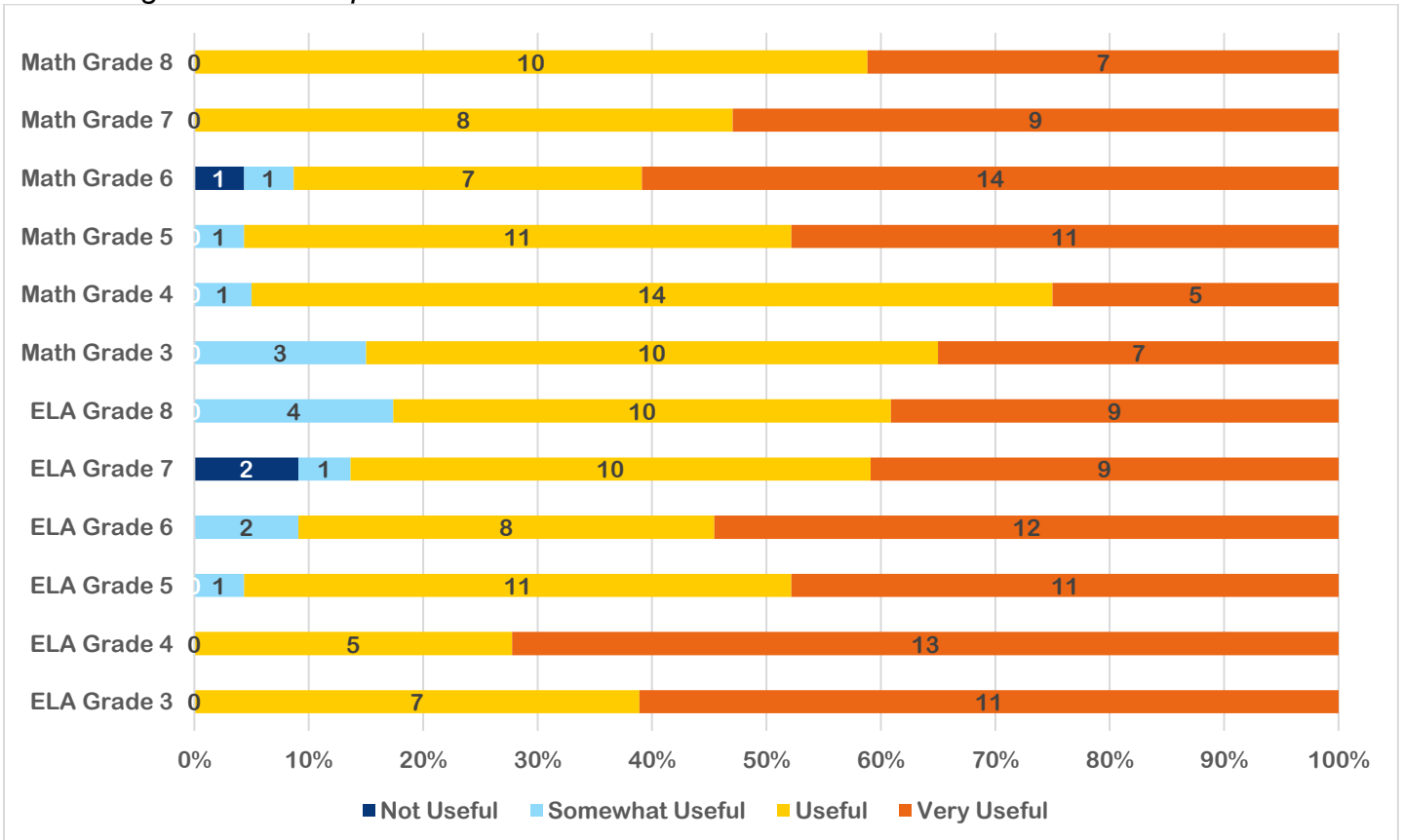
Table-level statistics after Rounds 1 and 2



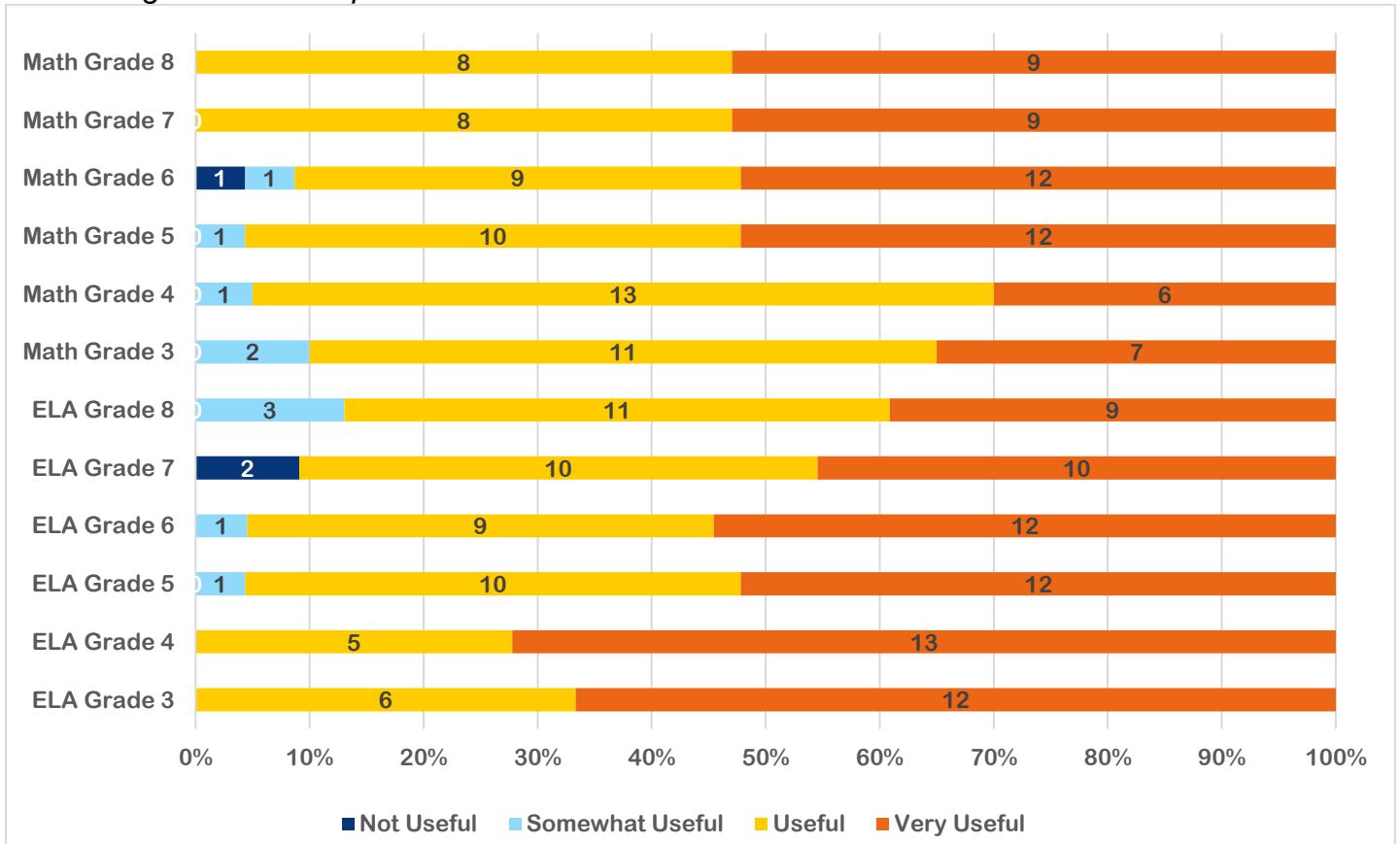
Committee-level statistics after Round 2



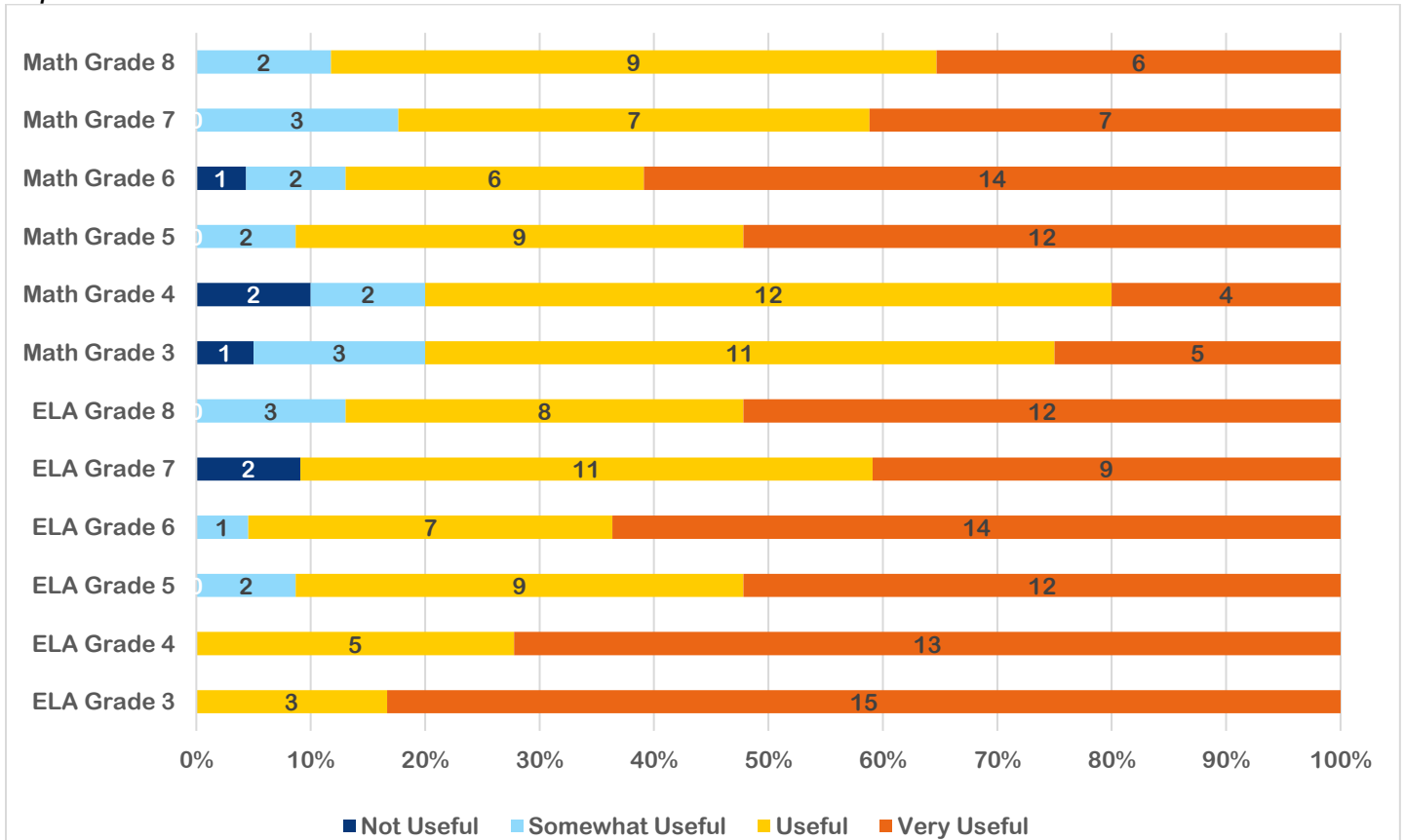
Panelist agreement data provided after Round 1



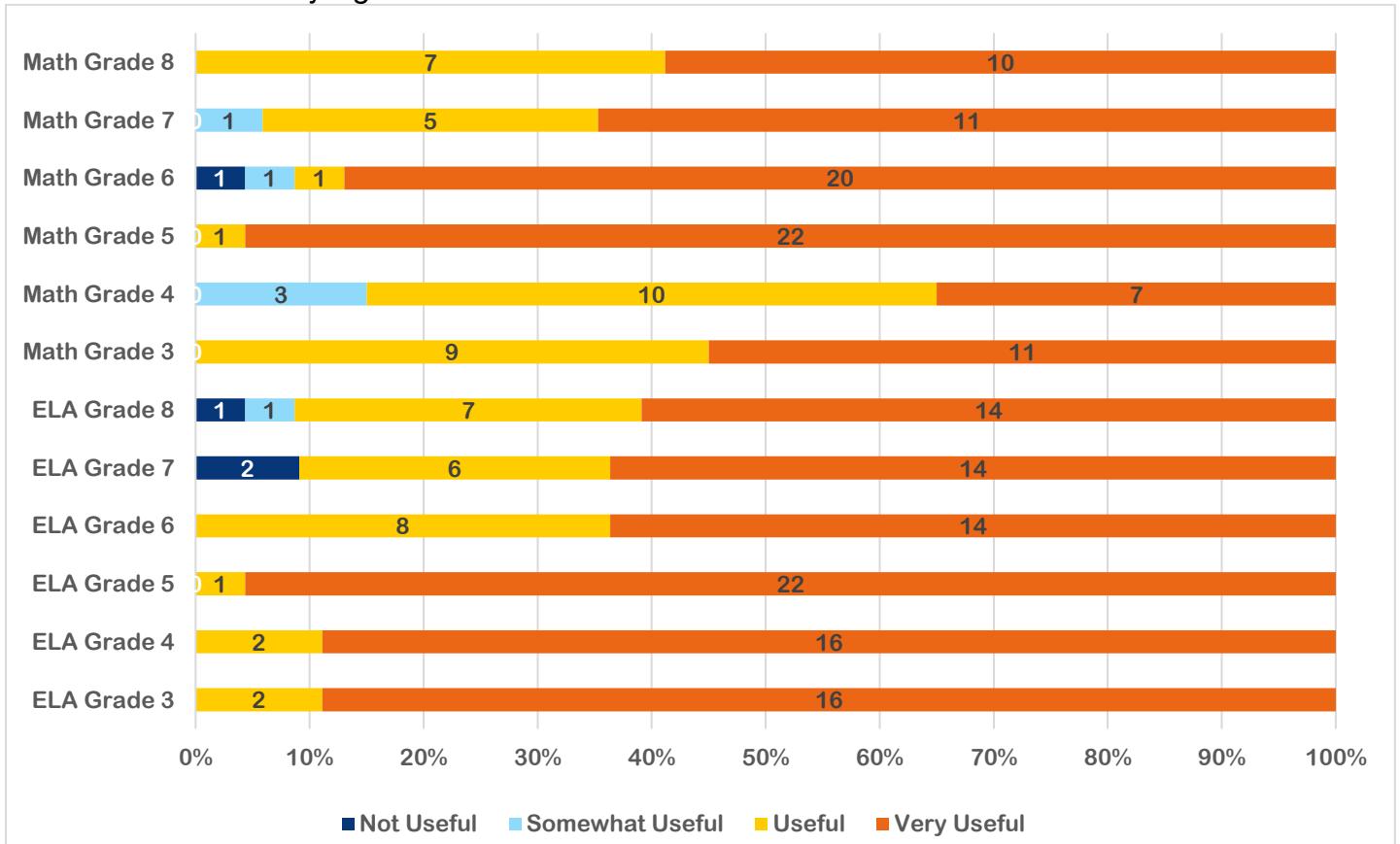
Panelist agreement data provided after Round 2



Impact data after Round 2

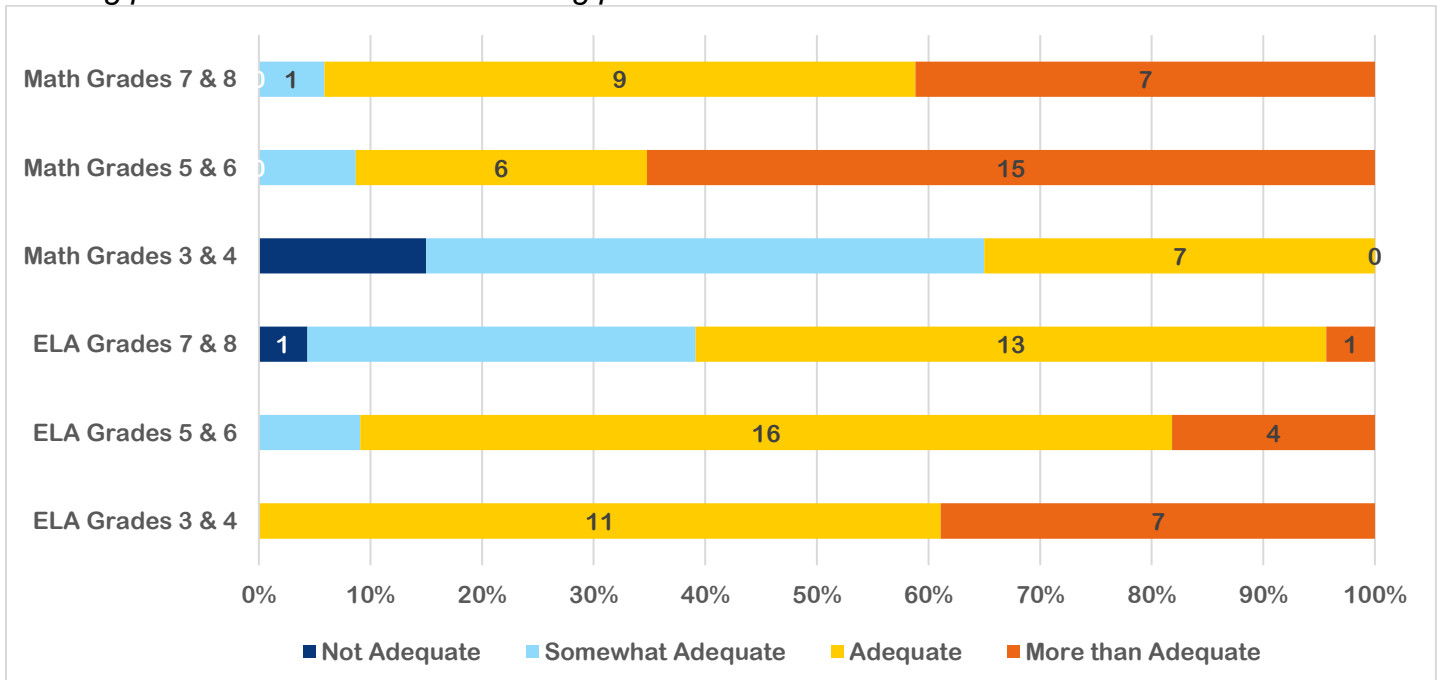


Discussion after each judgment round

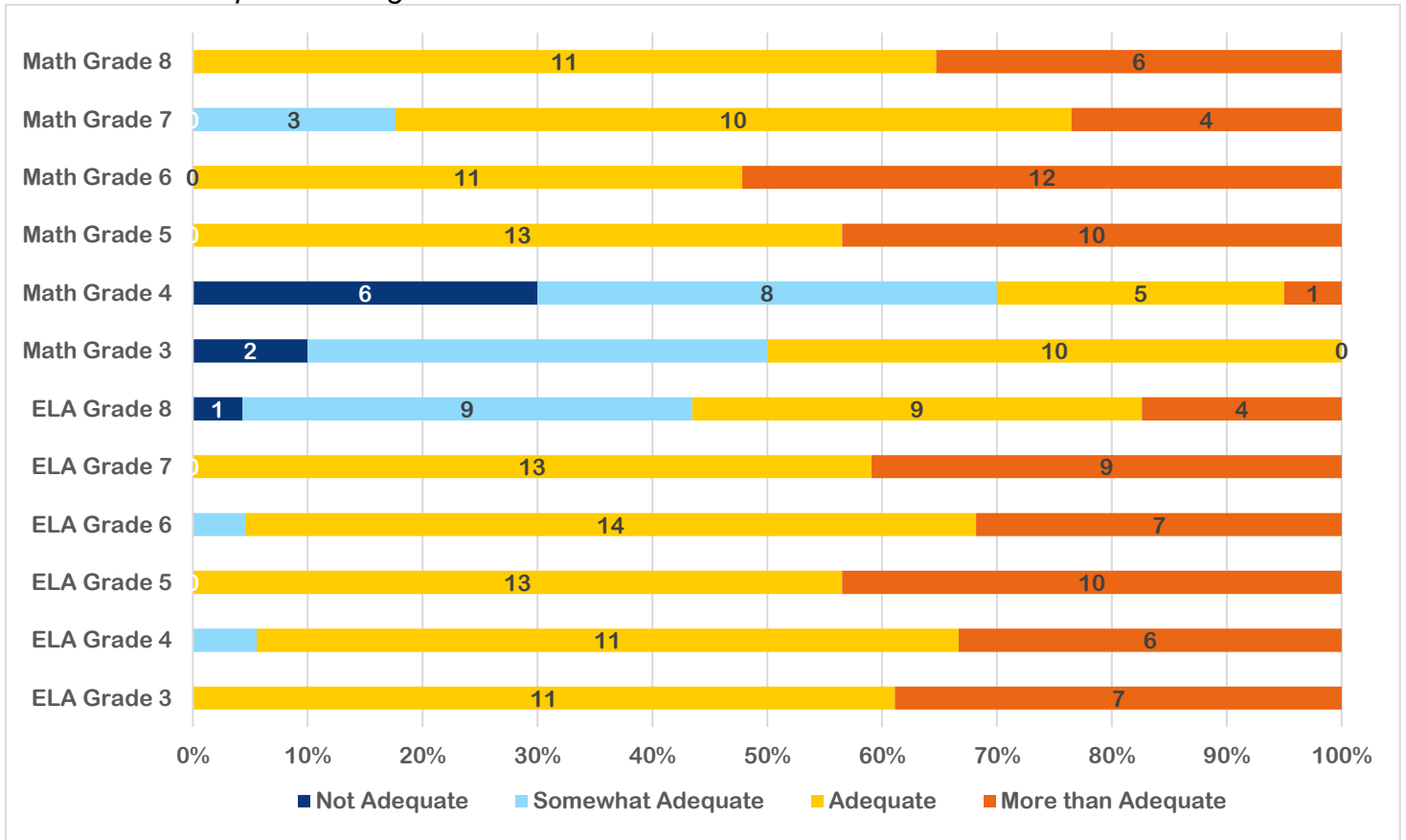


Question 3: How useful do you feel the following activities or information were in assisting you to make your recommendations?

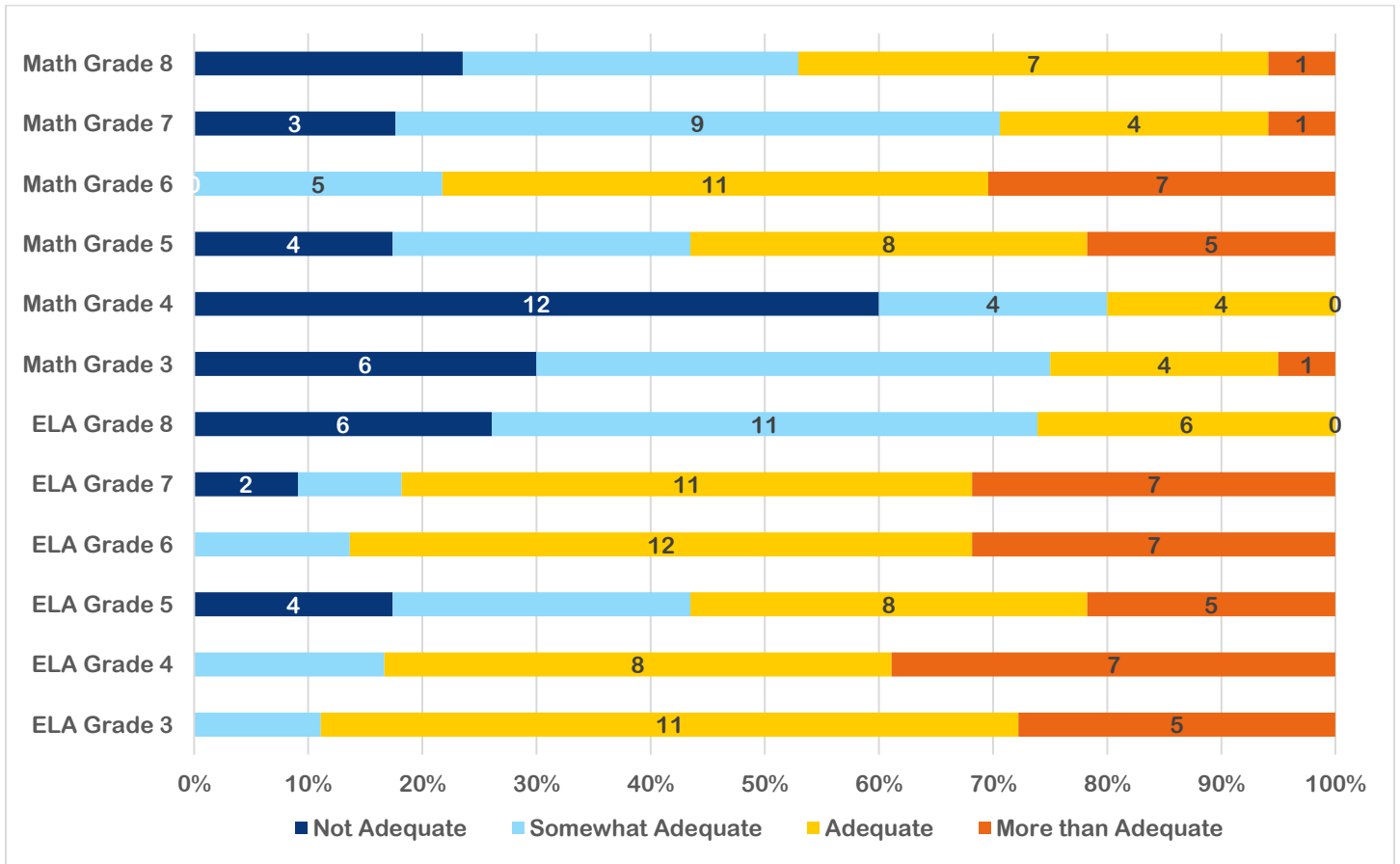
Training provided on the standard-setting process



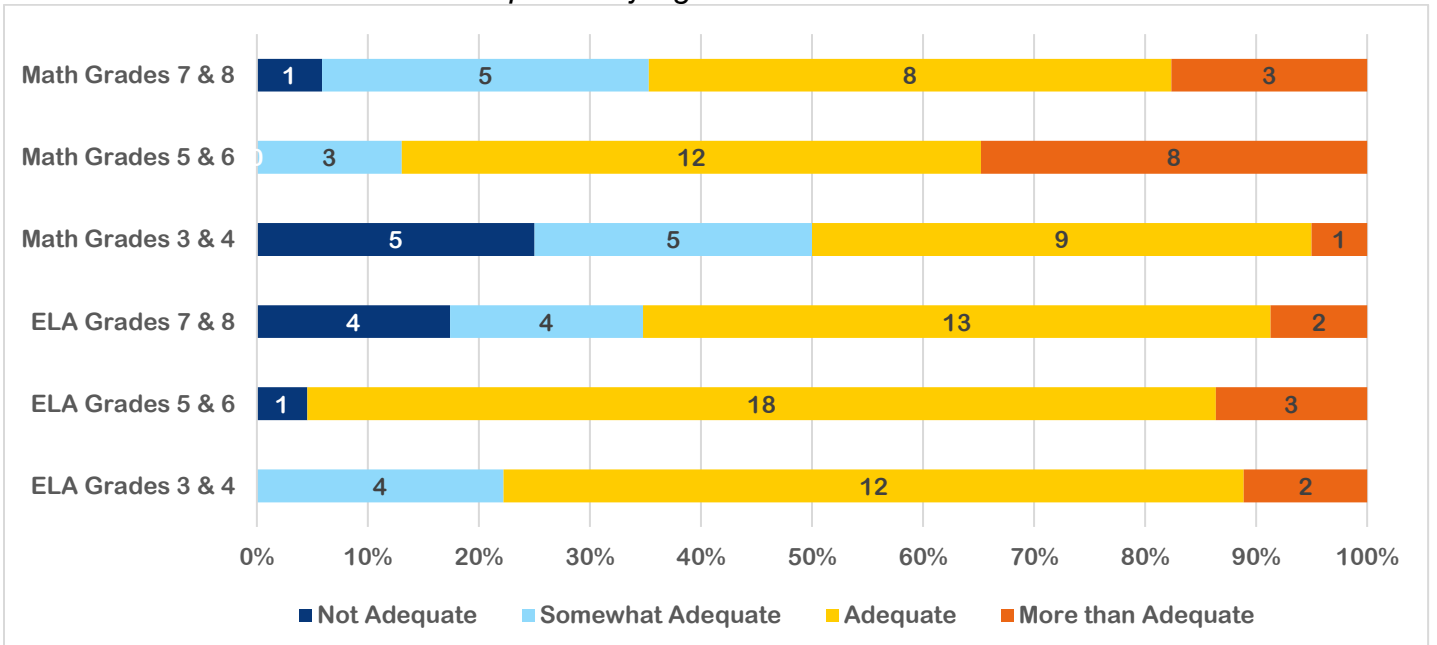
Amount of time spent training



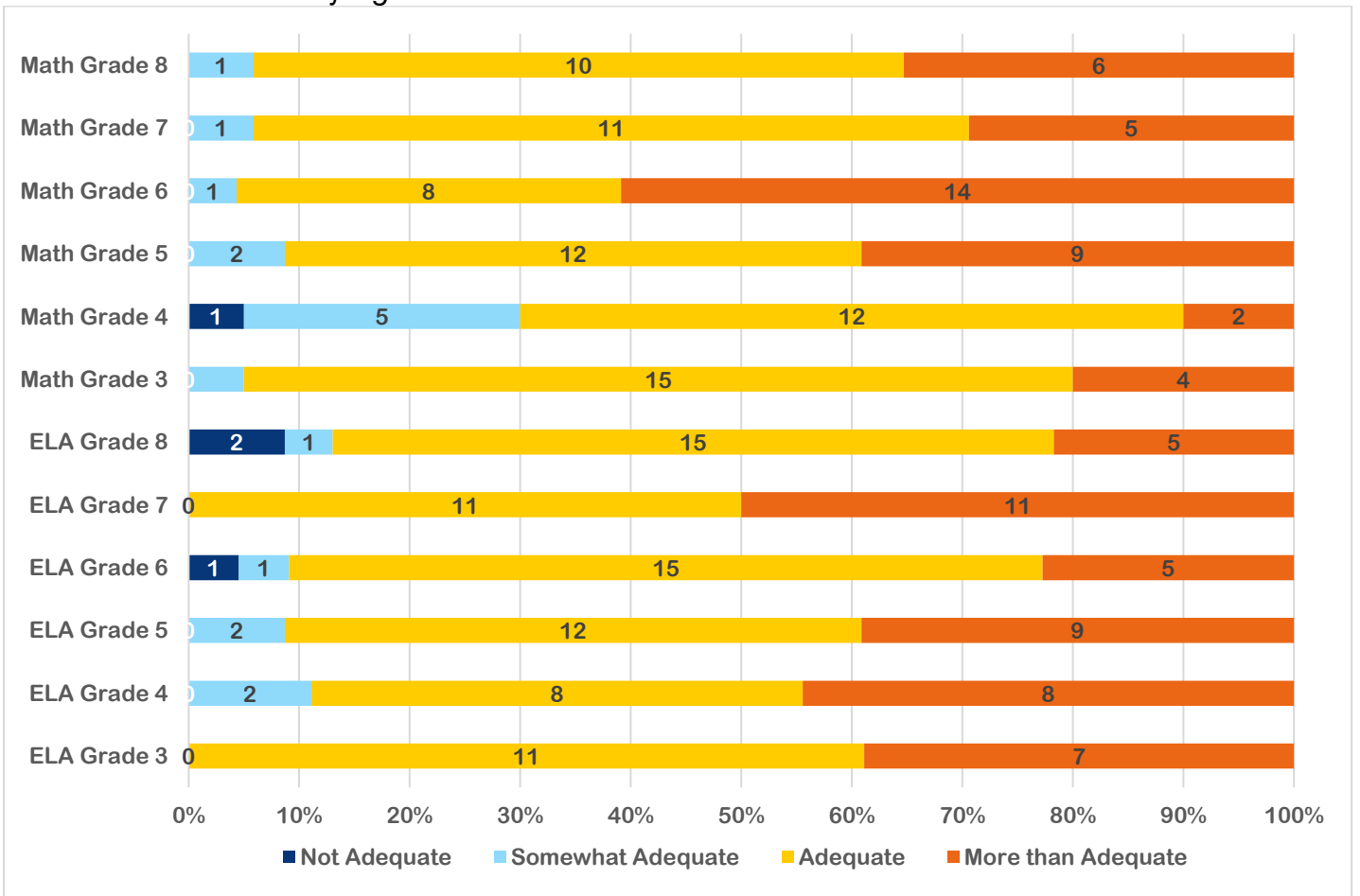
Total amount of time to create and discuss borderline ALDs



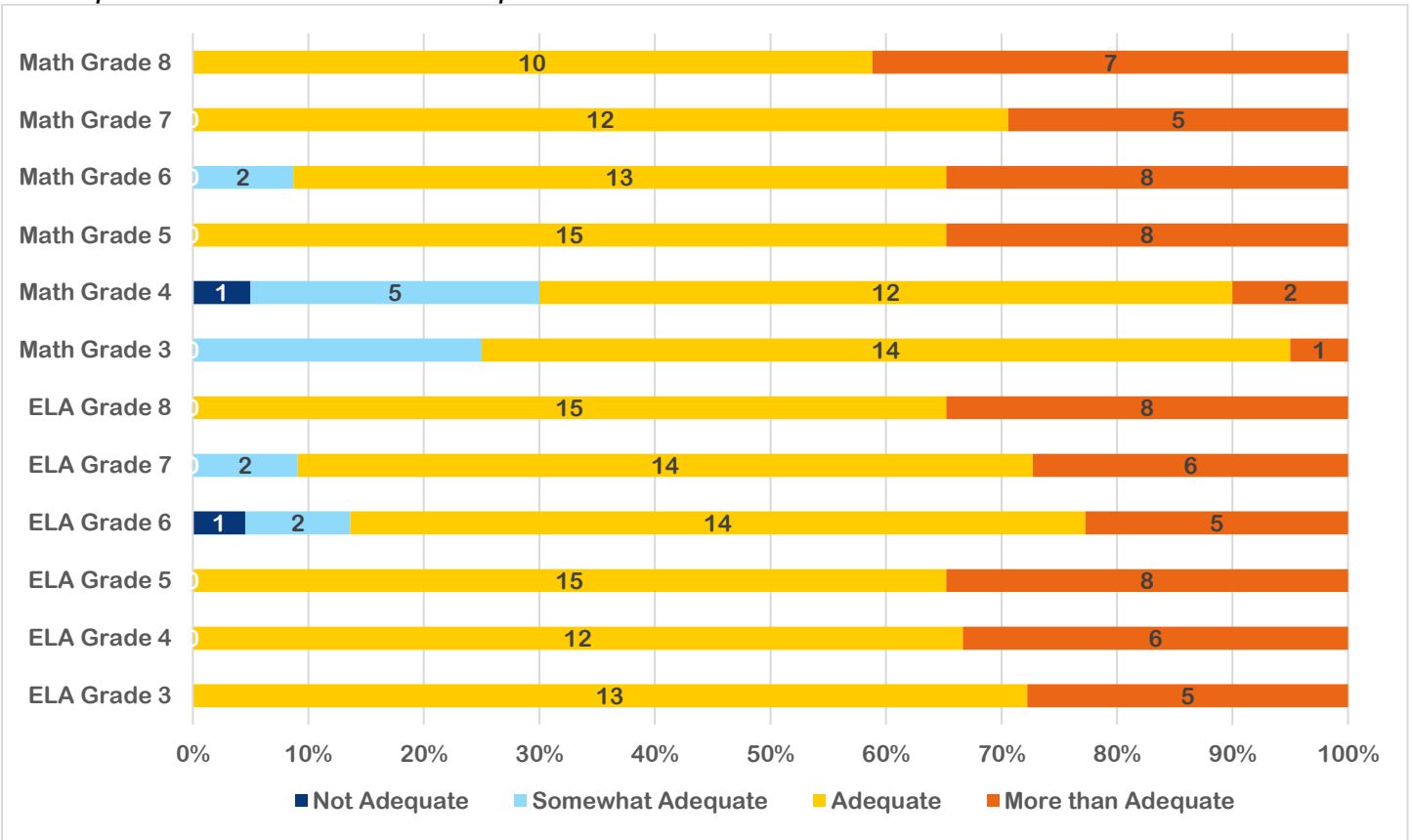
Total amount of time to discuss the practice judgments



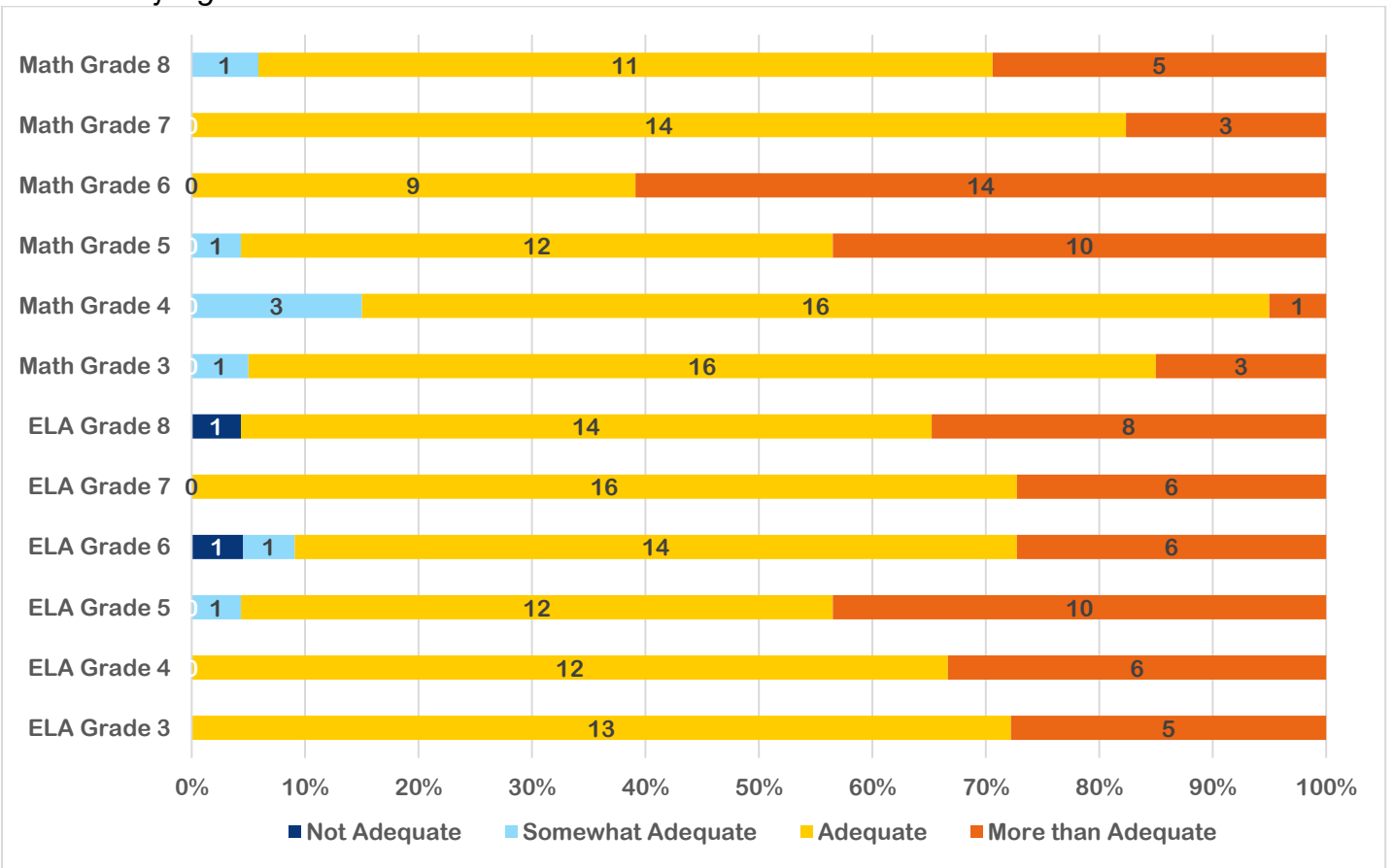
Amount of time to make judgments



Visual presentation of the feedback provided



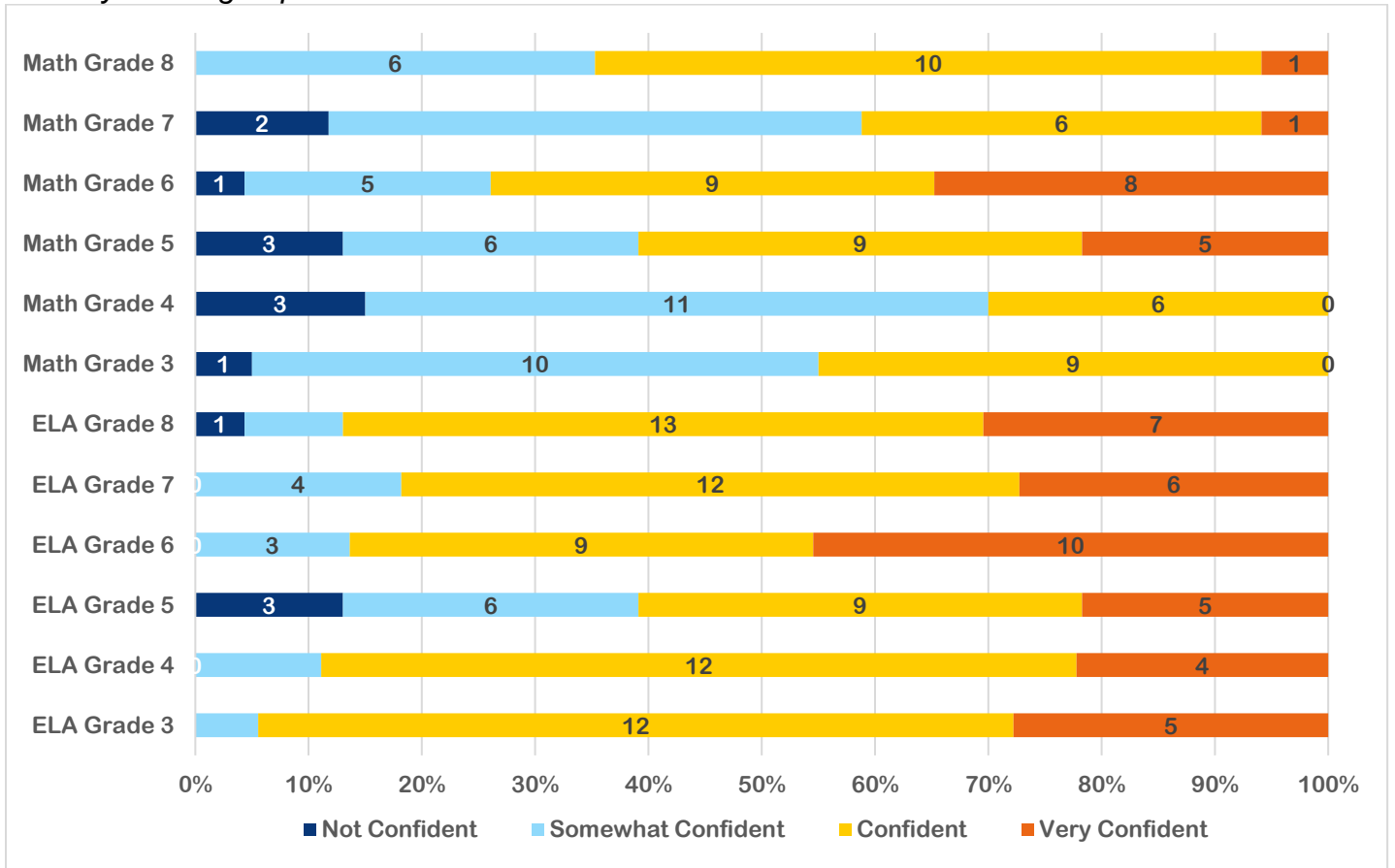
Number of judgment rounds



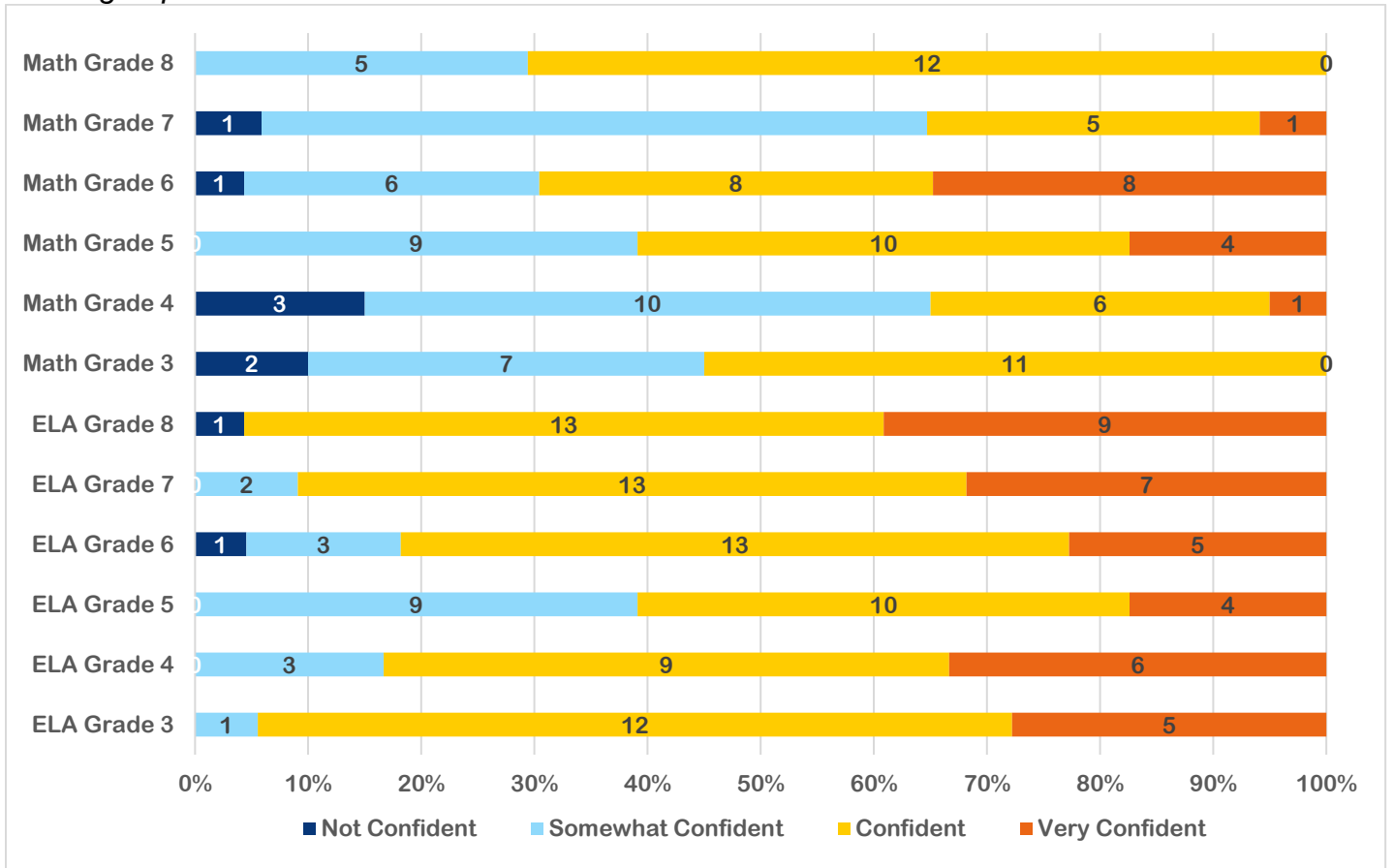
Question 4: In applying the standard-setting method, you were asked to recommend cut scores (separating five proficiency levels) for student performance on MCAS assessments.

How confident do you feel that the Achievement Level Descriptors (ALDs) for specific subject and grade are reasonable for each student performance level?

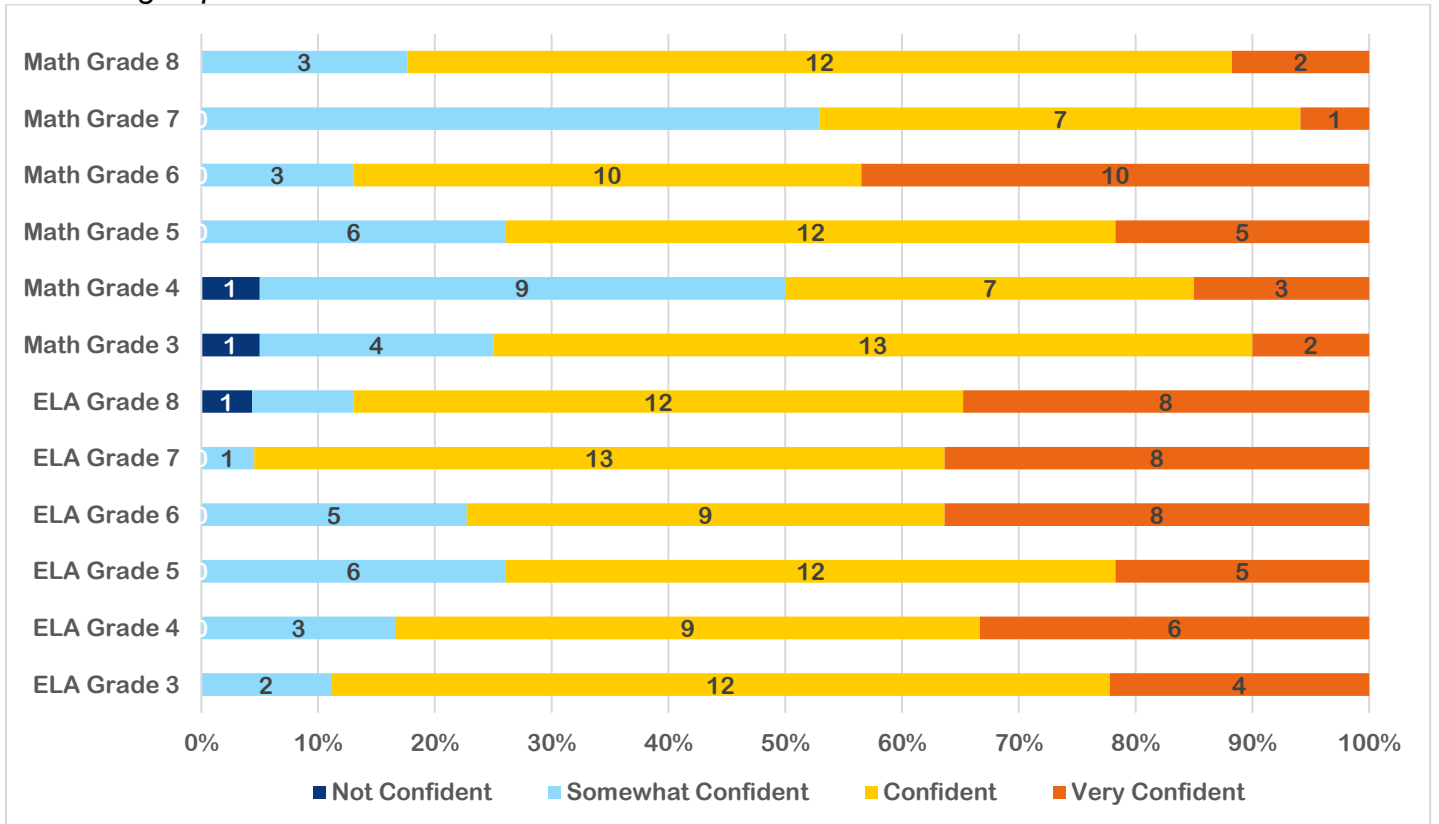
Partially Meeting Expectations



Meeting Expectations

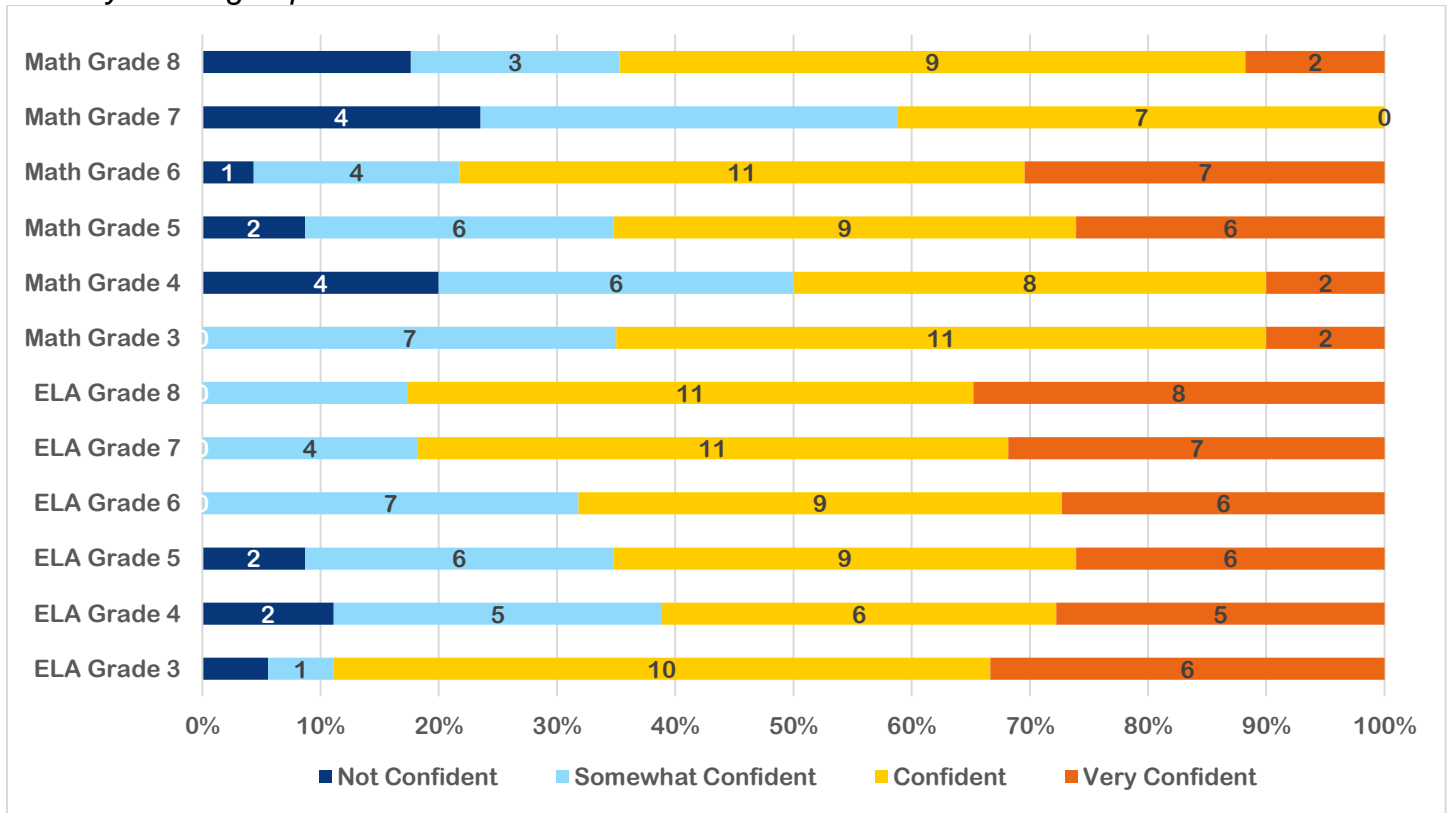


Exceeding Expectations

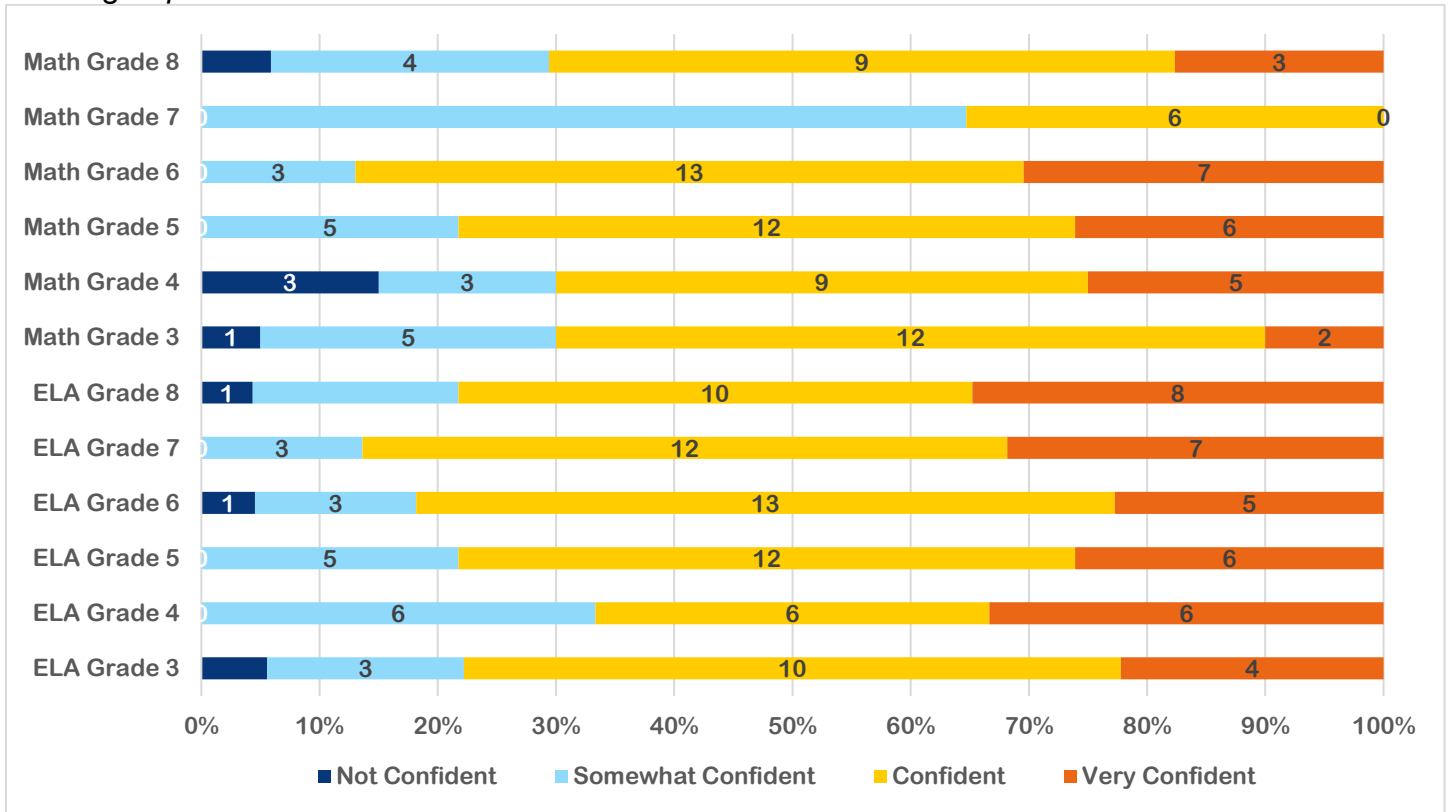


Question 5: How confident do you feel that the final cut score recommendations for the respective subject and grade represent appropriate levels of student performance?

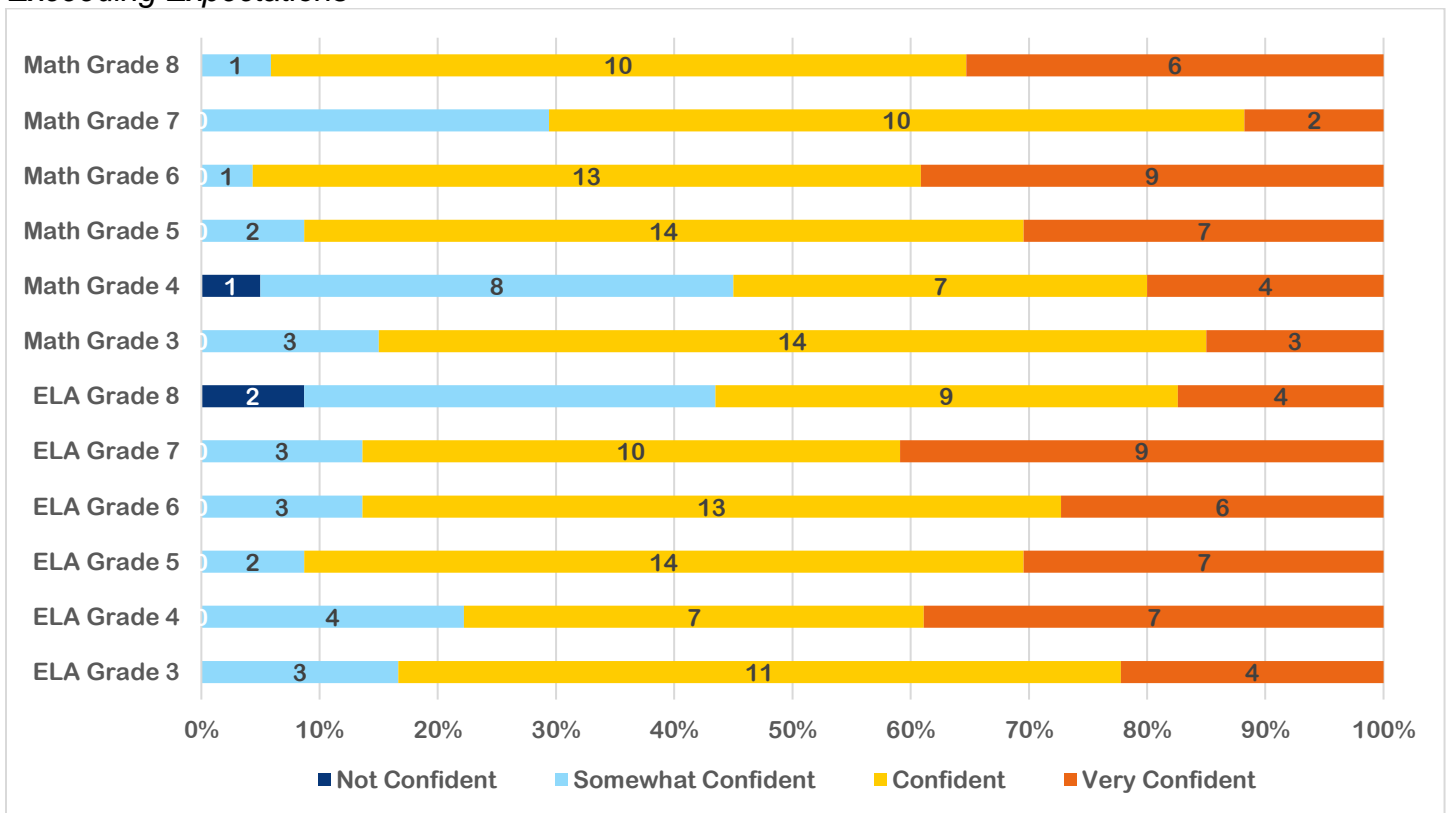
Partially Meeting Expectations



Meeting Expectations

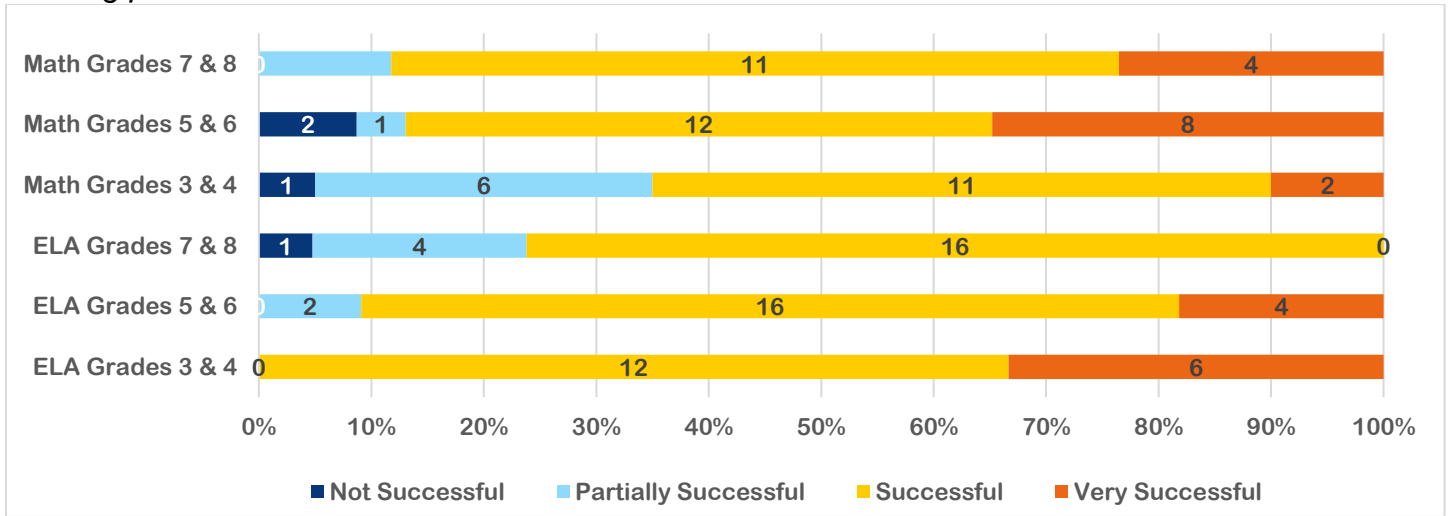


Exceeding Expectations

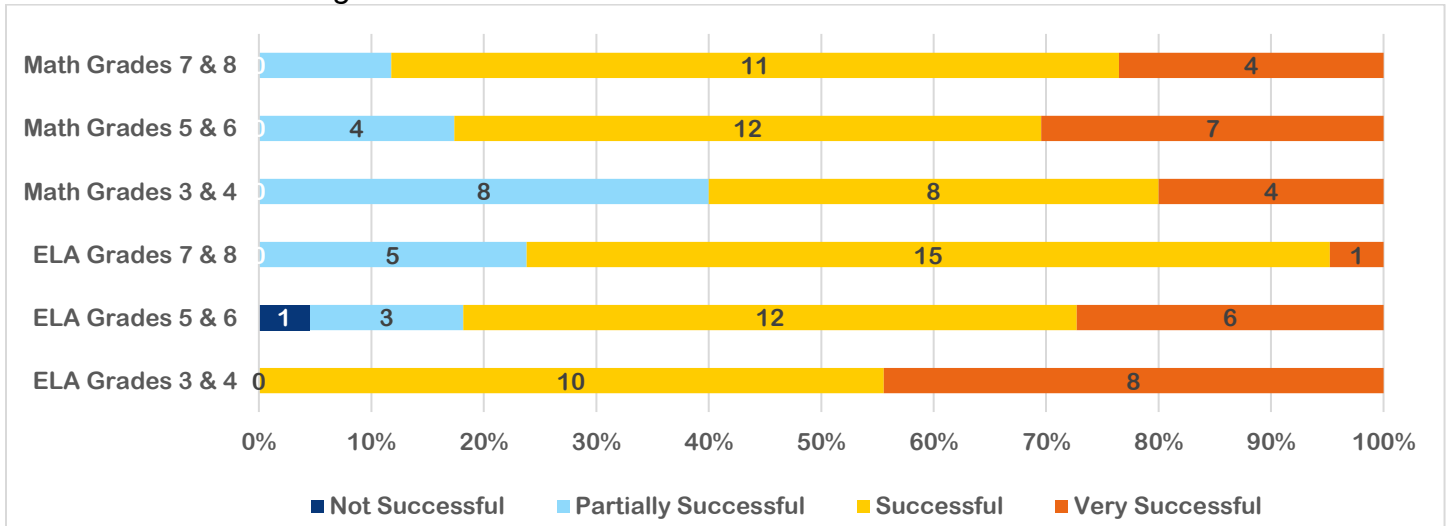


Question 6: Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

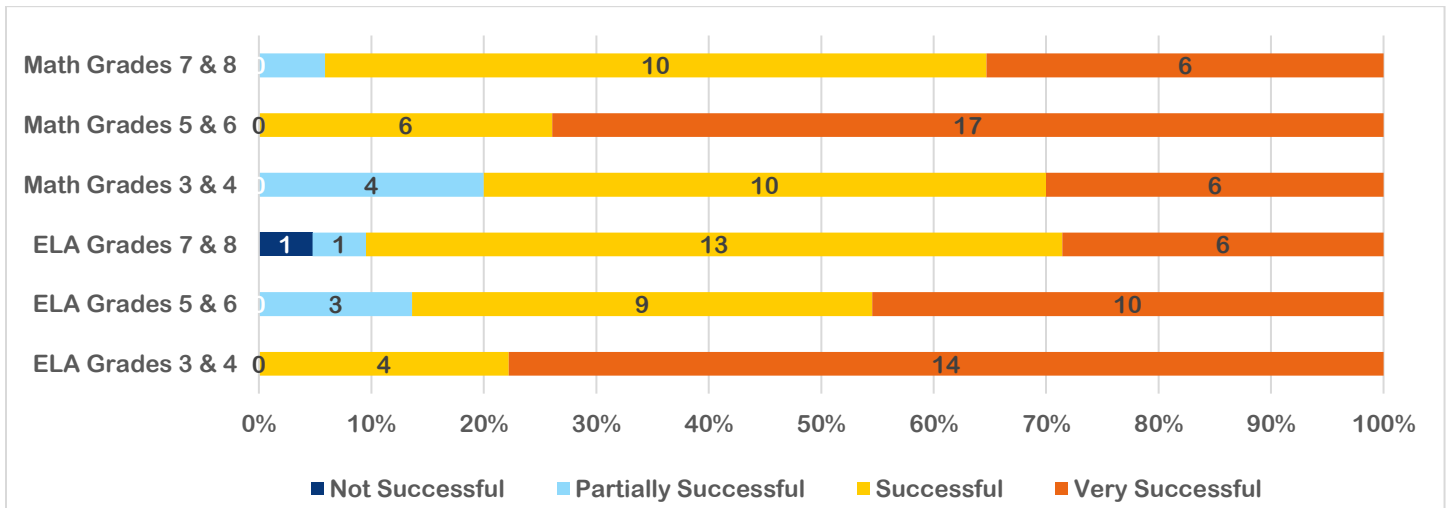
Meeting pre-work



General session training

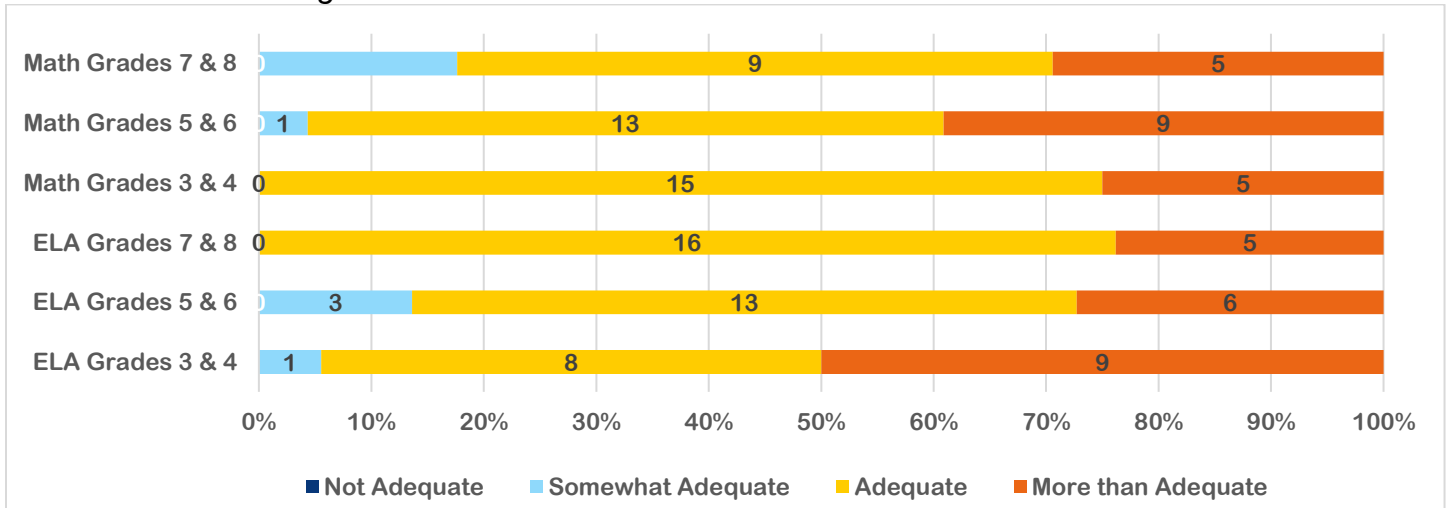


Breakout sessions

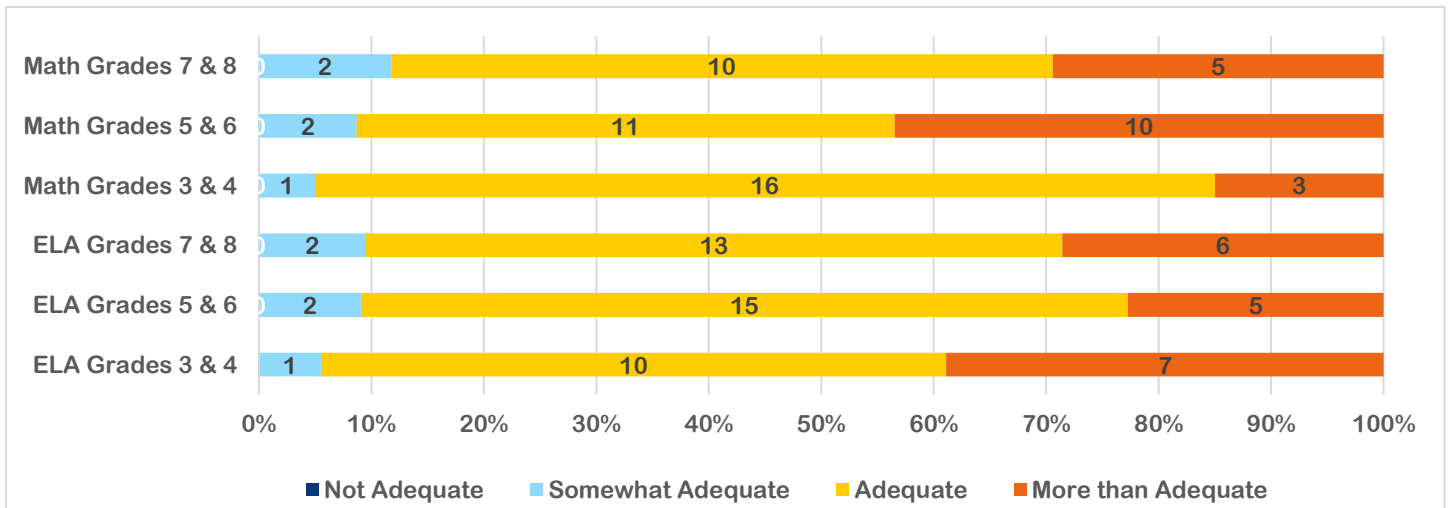


Question 7: How adequate were the following elements of the session?

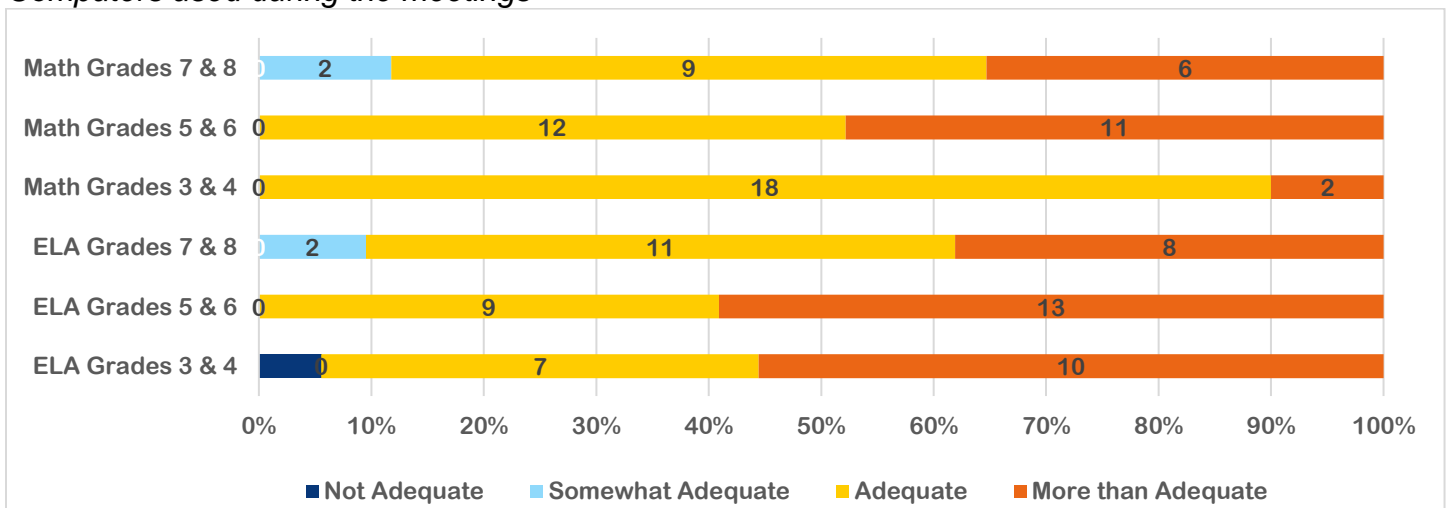
Facilities used for the general session



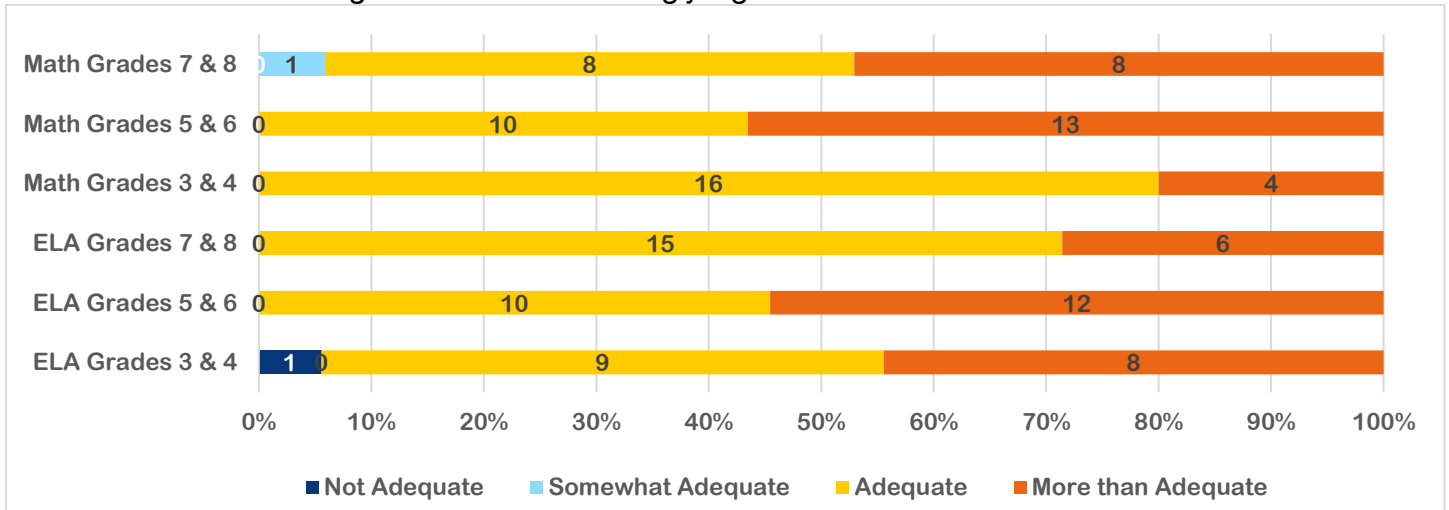
Facilities used for the breakout session



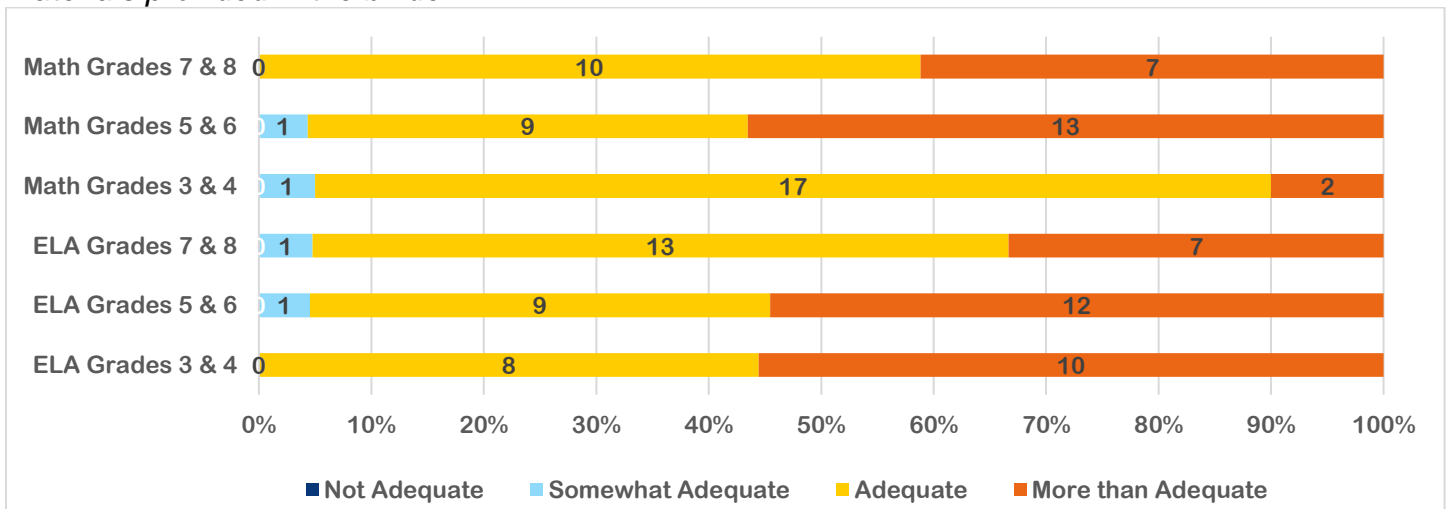
Computers used during the meetings



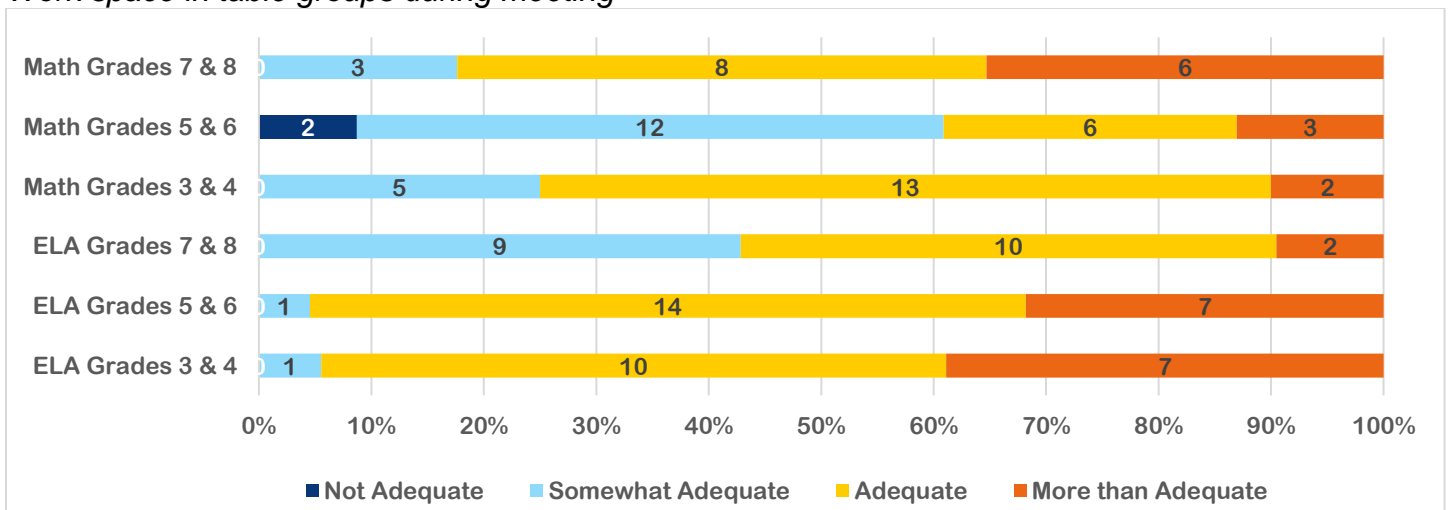
Moodle site for accessing materials and making judgments



Materials provided in the binder

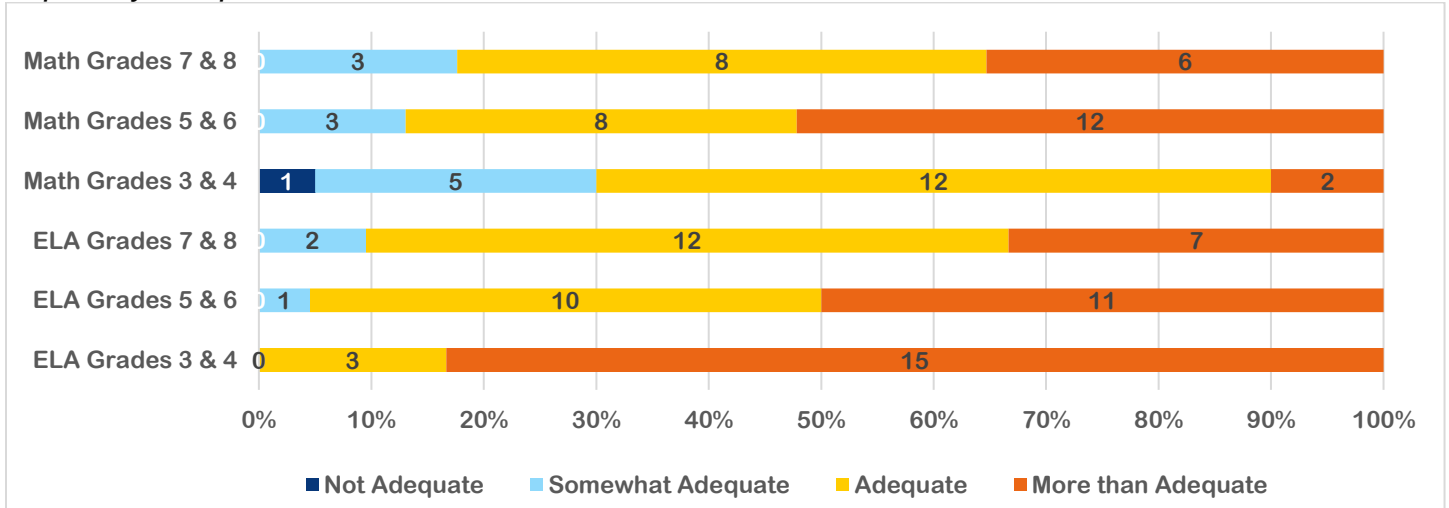


Work space in table groups during meeting

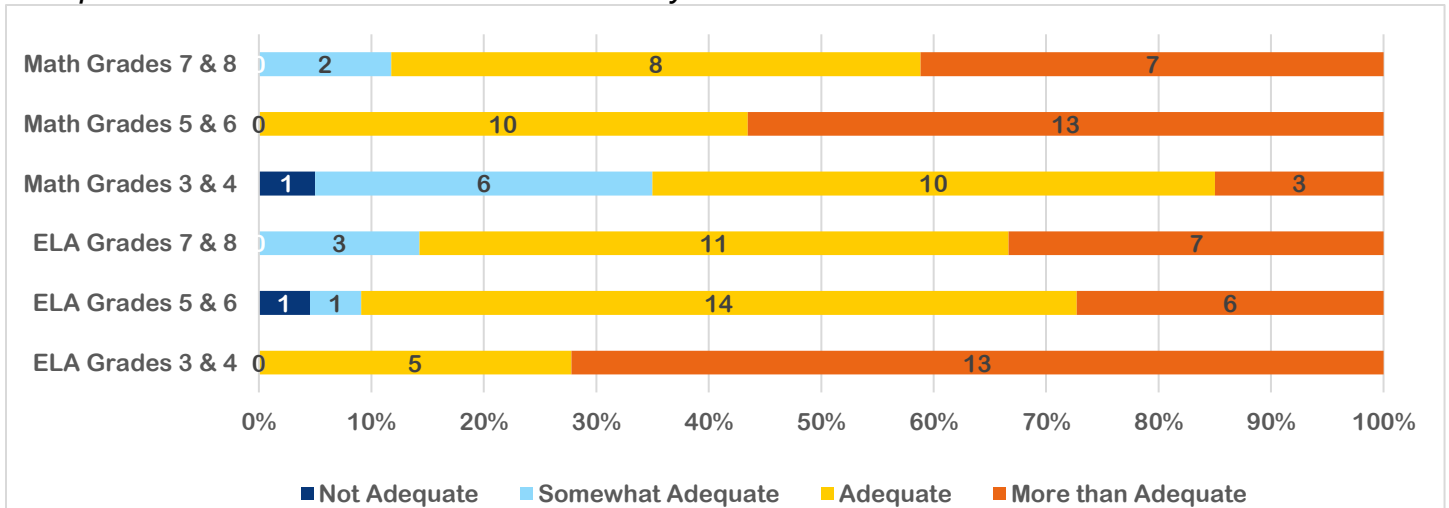


Question 8: Did you have adequate opportunities during the session to:

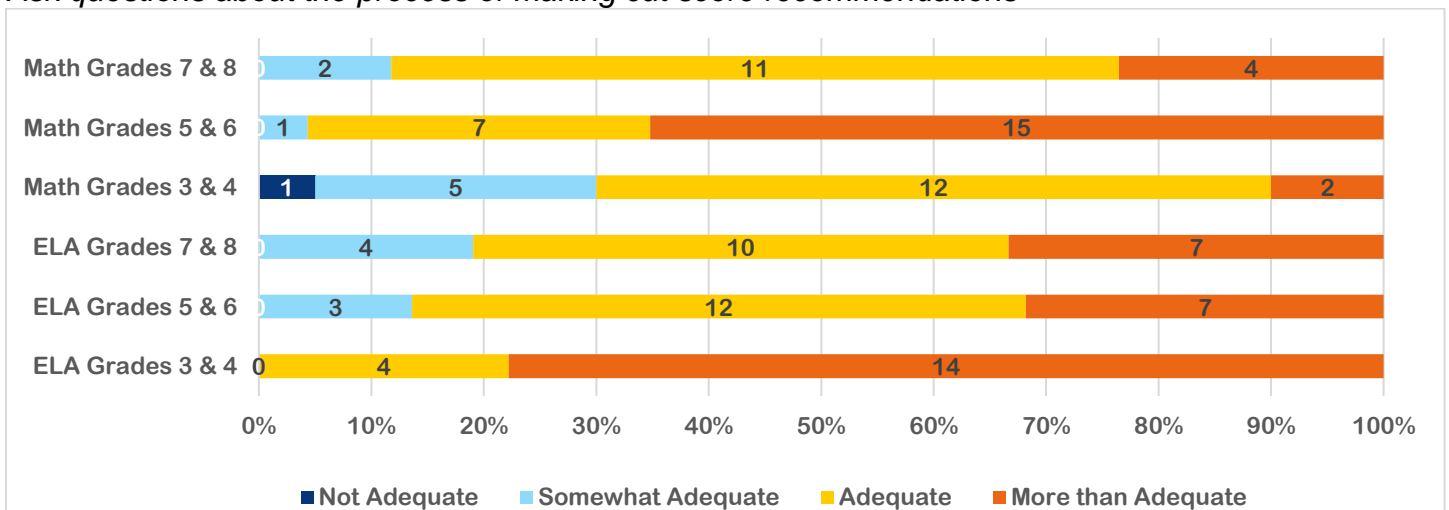
Express your opinions about student achievement levels



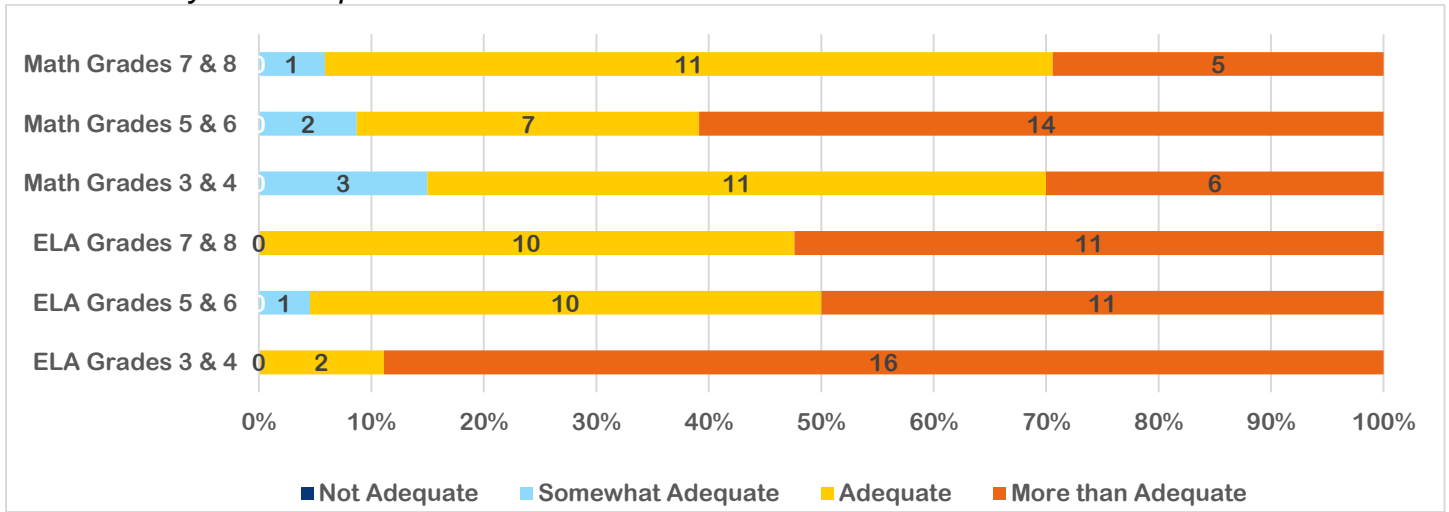
Ask question about the cut scores and how they will be used



Ask questions about the process of making cut score recommendations

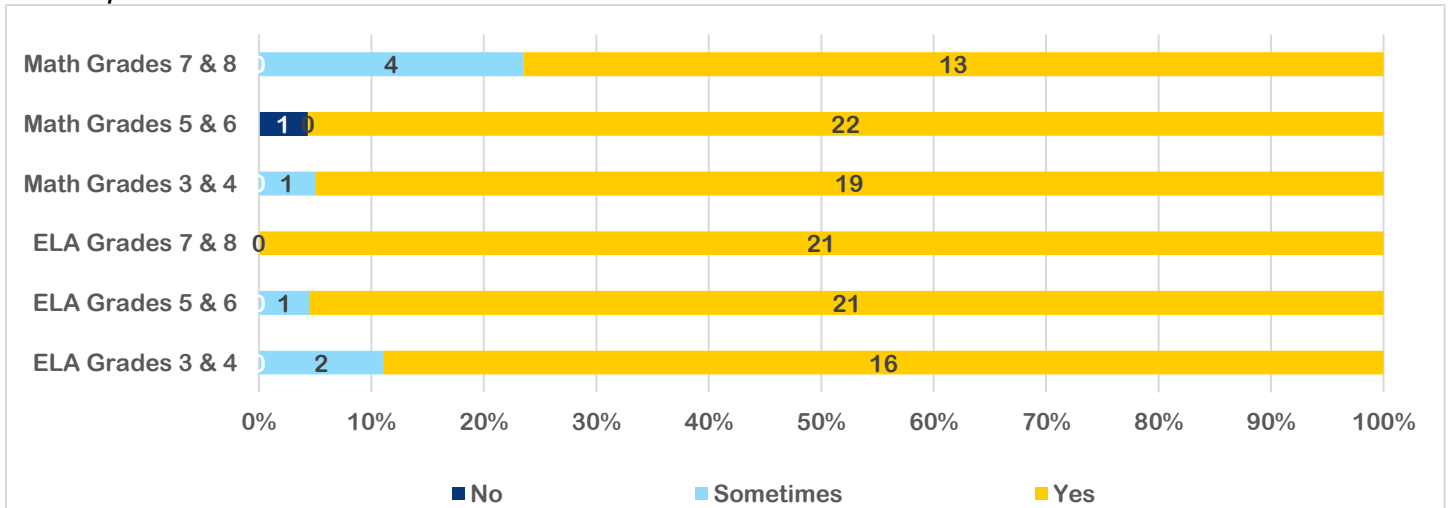


Interact with you fellow panelists

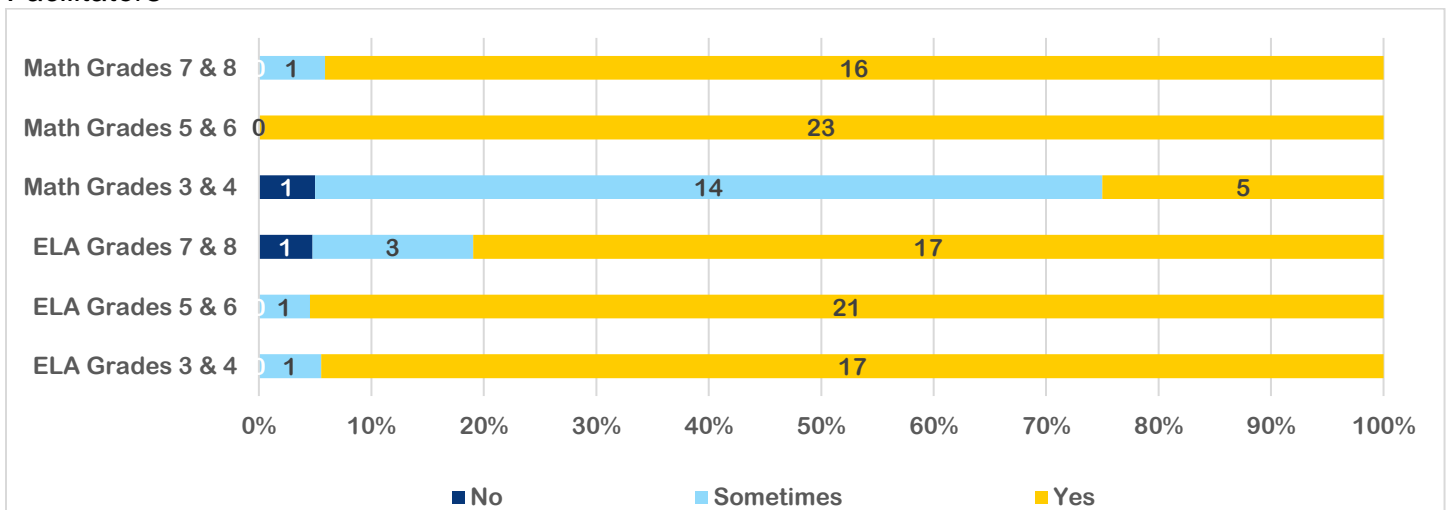


Question 9: Do you believe your opinions and judgments were treated with respect by:

Fellow panelists



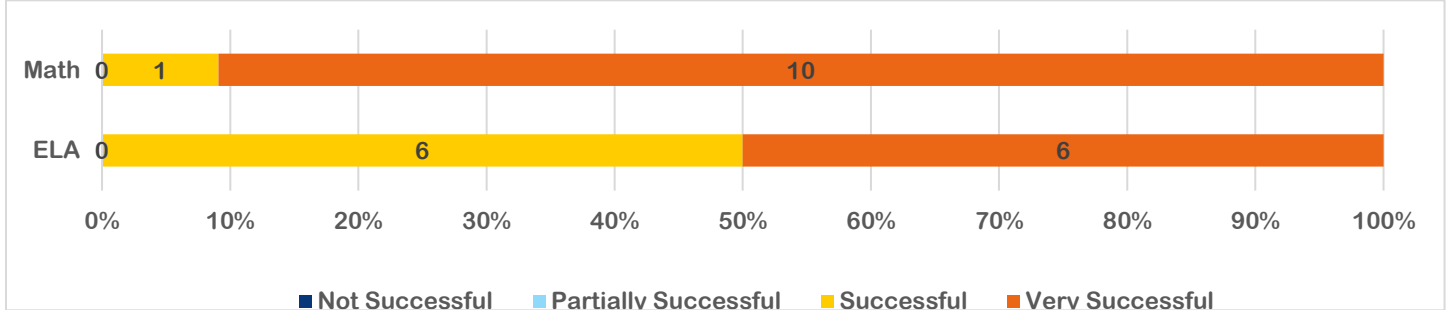
Facilitators



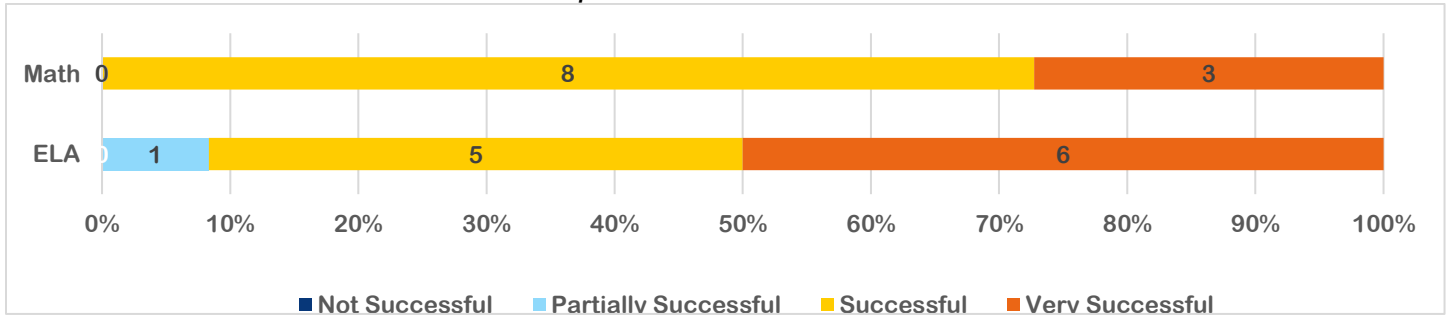
Vertical Articulation Process Evaluation

Question 1: Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

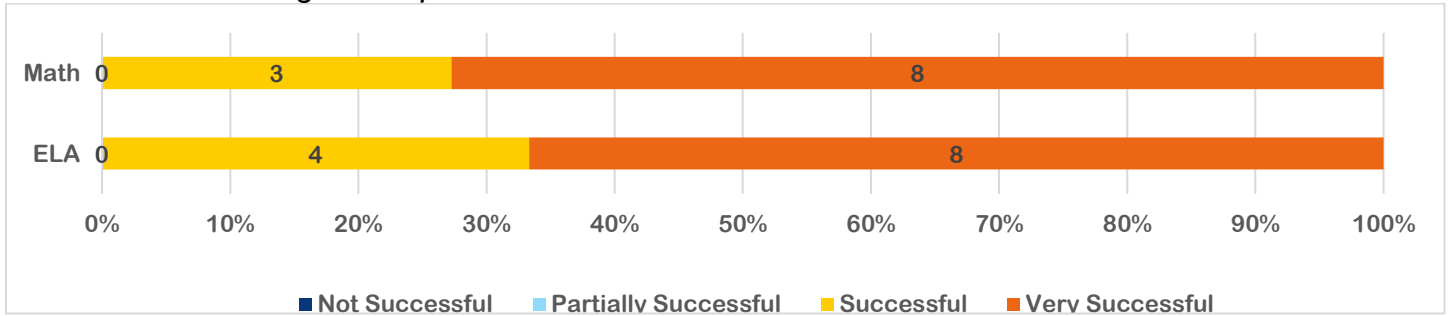
Introduction to vertical articulation process



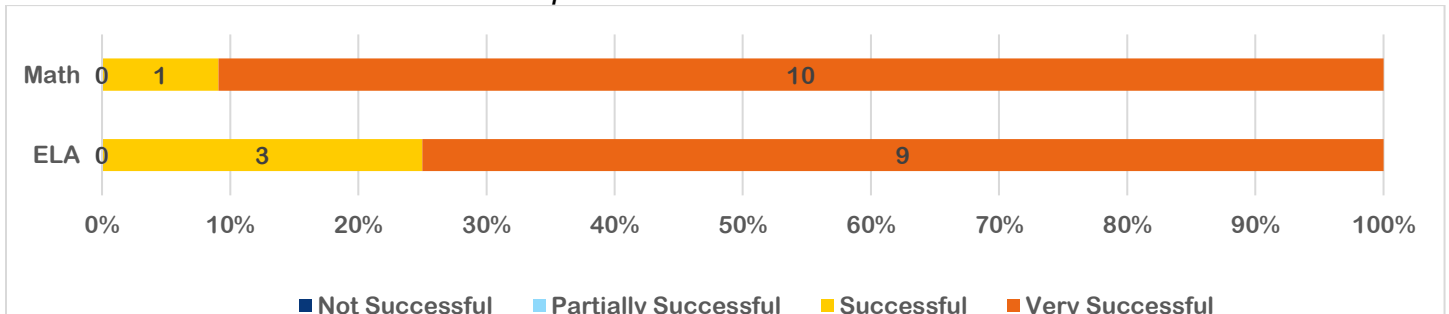
Review of the Achievement Level Descriptors



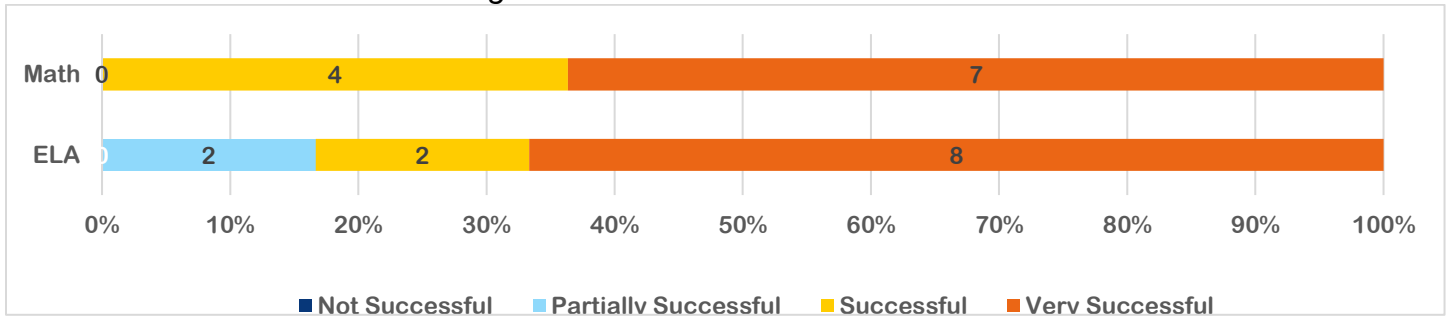
Review of the cross-grade impact data



Use of interactive vertical articulation spreadsheet

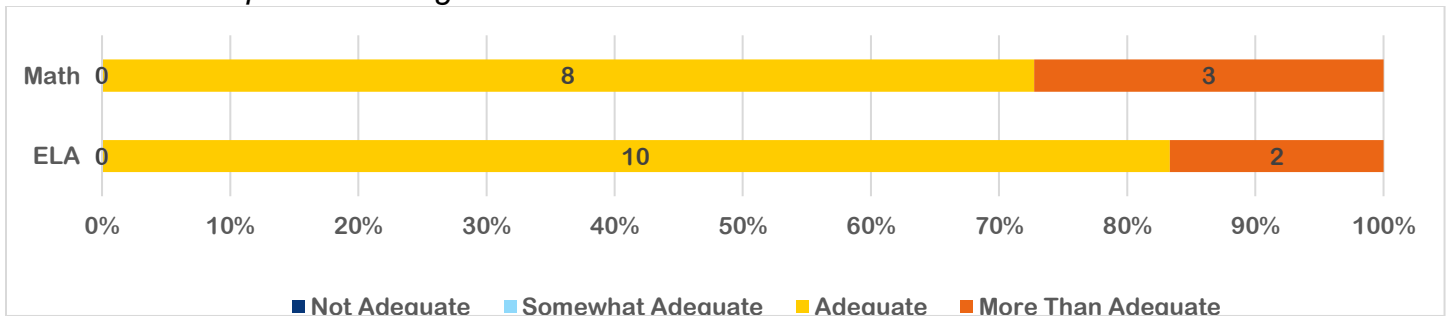


Discussion of recommended changes

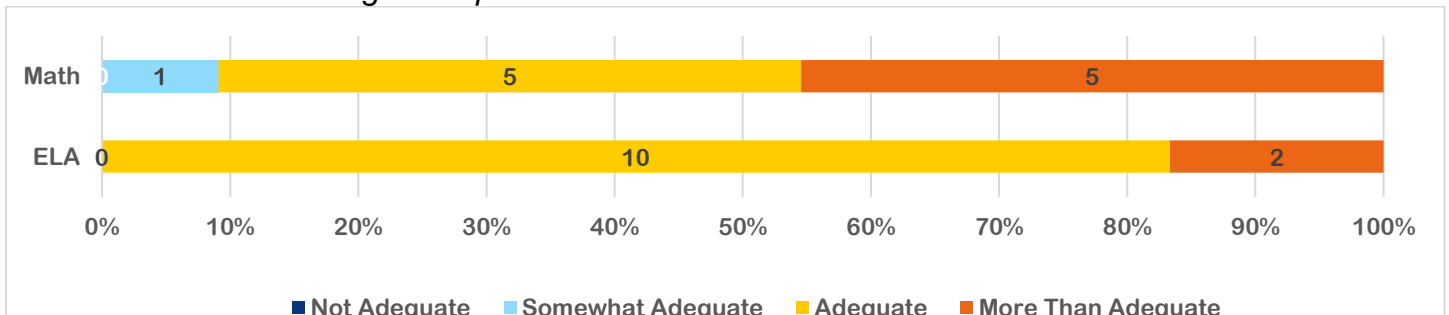


Question 2: How adequate were the following elements of the session?

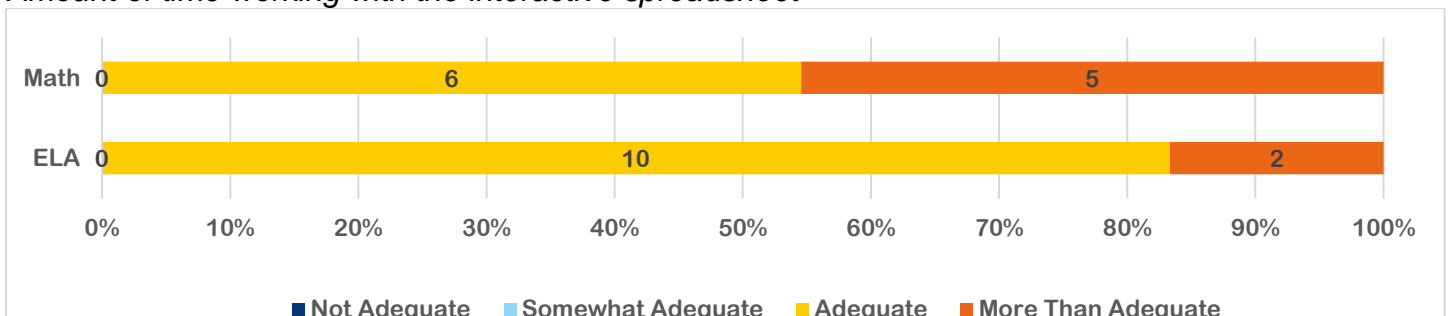
Amount of time spent reviewing the ALDs



Amount of time discussing the impact data

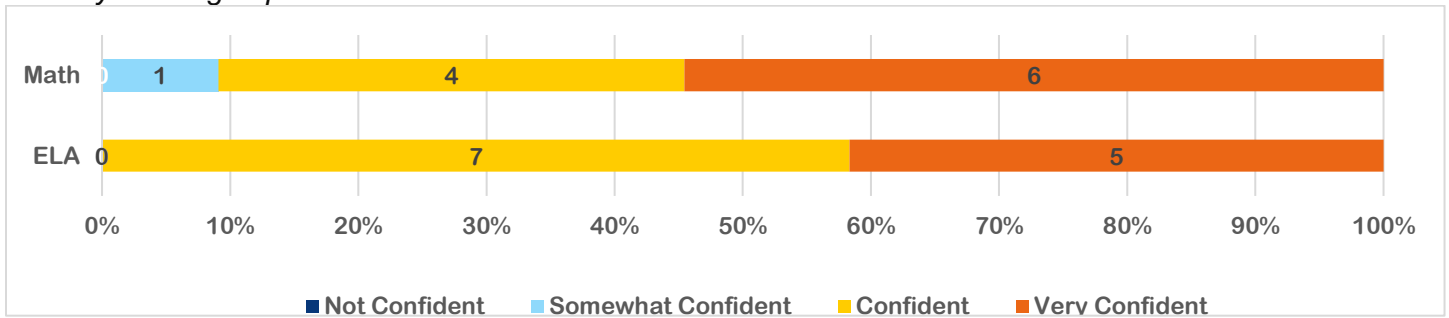


Amount of time working with the interactive spreadsheet

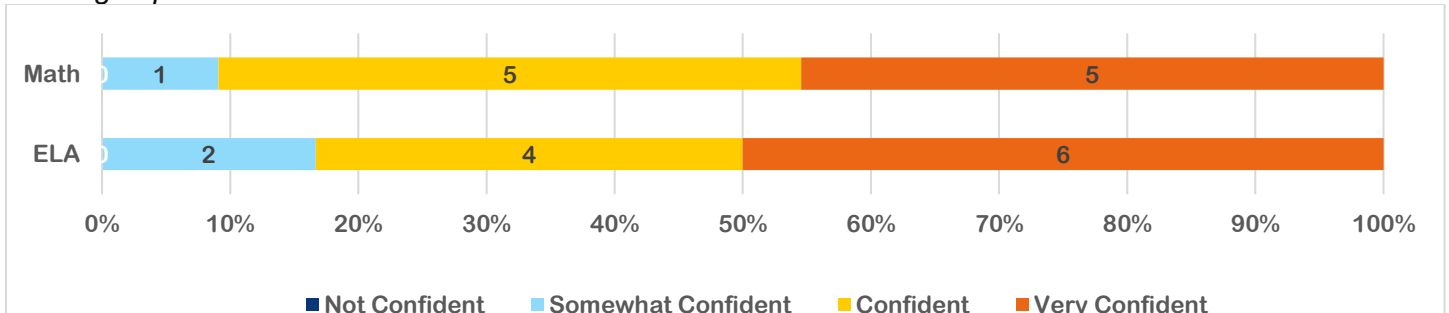


Question 3: How confident do you feel that the final cut score recommendations for the grades 3 through 8 ELA represent appropriate levels of student performance?

Partially Meeting Expectations



Meeting Expectations



Exceeding Expectations

