Iowa Statewide Assessment of Student Progress
Math, English, and Science Tests
Standard Setting Technical Report

Summer 2019

Pearson

Version 2.0

Table of Contents

Executive Summary

This report summarizes the process and results of setting performance levels for the Iowa Statewide Assessment of Student Progress (ISASP) for grades 3-11 English language arts (ELA), grades 3-11 mathematics, and grades 5, 8, and 10 science. The Iowa Testing Programs (ITP) from the University of Iowa and Pearson (assessment contractors) recommend the performance levels shown in Table ES.2 of this report for adoption by the Iowa Department of Education (IDOE) and the State Board of Education.

Iowa Statewide Assessment of Student Progress Standard Setting Process and Results

Performance levels are used to classify and describe student performance on an assessment. In order to classify student performance into the different performance levels, the following components are generally required: 1) Policy-level Performance Level Descriptors, 2) Performance Level Descriptors (PLDs), and 3) cut scores. Policy-level performance level descriptors provide descriptions of what students at each performance level know and what they are able to do. PLDs illustrate the performance levels in terms that are specific to a grade and subject. Cut scores represent the lowest boundary of each performance level on the scale.

The process of recommending performance standards for the Iowa Statewide Assessment of Student Progress (ISASP) assessments was in line with national best practice for standard setting. Results and details of the process are presented in the following sections.

Policy Definitions

The policy-level performance level descriptors for the ISASP assessments are shown in Table ES.1. The titles and descriptions of the performance levels were defined to be part of a cohesive assessment system.

Table ES.1. Policy-level Performance Level Descriptors for ISASP

Performance Level	Policy-Level Performance Level Descriptors
Advanced	Students performing at the Advanced level demonstrate thorough competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and careers in the subject.
Proficient	Students performing at the Proficient level demonstrate adequate competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and careers in the subject area.
Not-Yet-Proficient	Students performing at the not-yet-proficient level have not yet demonstrated the knowledge and skills to the classified as Proficient.

Performance Level Descriptors (PLDs)

A multi-step iterative process was used in developing, reviewing, and approving the PLDs. Prior to the standard setting committee, a draft set of PLDs representing a gradual increase in expectations across the performance levels was created by ITP content staff. The initial draft PLDs were opened for public review and comment, to allow for Iowa educators to review the standards communicated in the PLDs. The comments provided during the open public review period were then reviewed by committees of education stakeholders from across Iowa and a revised draft of the PLDs were created. The revised draft of the PLDs were reviewed and finalized by ITP and IDOE. Panelists who participated in the standard setting committees had the opportunity to provide suggestions and edits to the PLDs utilized during the standard setting meetings.

Cut Scores

The cut scores recommended for adoption for the ISASP assessments for ELA, mathematics, and science are shown in Table ES.2. This table shows the scale score ranges corresponding to each performance level. The cut scores for the performance levels are the lowest cut score within each range.

Table ES.2. Cut Score Ranges for ISASP Performance Levels

		Performance Levels		
Subject	**Grade**	**Not-Yet-Proficient**	**Proficient**	**Advanced**
English Language Arts	3	345 to 397	398 to 446	447 to 510
	4	350 to 413	414 to 477	478 to 540
	5	355 to 436	437 to 512	513 to 590
	6	360 to 455	456 to 540	541 to 640
	7	370 to 474	475 to 568	569 to 680
	8	385 to 493	494 to 593	594 to 720
	9	410 to 504	505 to 617	618 to 750
	10	435 to 529	530 to 641	642 to 780
	11	460 to 560	561 to 659	660 to 800

Table ES.2. Cut Score Ranges for ISASP Performance Levels (cont.)

		Performance Levels		
Subject	Grade	Not-Yet-Proficient	Proficient	Advanced
Mathematics	3	345 to 389	390 to 442	443 to 510
	4	350 to 408	409 to 475	476 to 540
	5	355 to 428	429 to 502	503 to 590
	6	360 to 449	450 to 531	532 to 640
	7	370 to 468	469 to 574	575 to 680
	8	385 to 489	490 to 605	606 to 720
	9	410 to 512	513 to 625	626 to 750
	10	435 to 536	537 to 653	654 to 780
	11	460 to 558	559 to 674	675 to 800
Science	5	355 to 451	452 to 541	542 to 590
	8	385 to 507	508 to 608	609 to 720
	10	435 to 544	545 to 655	656 to 780

Details pertaining to the general method for obtaining the recommended cut scores are provided below.

General Method

From July 22 to July 26, 2019, after the first year of operational administration, a standard setting committee meeting was conducted to provide cut score recommendations for the ISASP assessments for ELA, mathematics, and science. The committees were comprised of individuals, including teachers and non-teacher educators. 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 at the standard setting meeting (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Buckendahl, 2005). This is a content- and item-based method that leads participants through a standardized process in which they consider expectations of student performance, as defined by the borderline descriptions, and the individual items administered to students to recommend cut scores for each performance level. The standardized process was used by the committees for each grade

and subject, which resulted in cut score recommendations.

The process started with participants experiencing the assessment for the respective grade of their review committee from the spring 2019 administration through an online testing environment similar to the one used to administer items. Based on their experience with the test items and a review of the borderline descriptions, participants reviewed each item on the test and answered the following question for each performance level:

"How many points would a student performing at the borderline of the [specific] performance level likely earn if they answered the question?"

The cut score recommendation for each individual participant was the expected raw score a student performing at the borderline of the respective performance 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 of the performance level. Each recommended cut score from the standard setting committee is the median of the recommendations from the individual participants in the committee.

An articulation committee composed of table leaders from each of the individual standard setting committees convened to consider the recommended cut scores from each grade level. There were separate articulation committees for ELA, mathematics, and science. Taking into consideration the recommended cut scores and the patterns of the performance standards across grades, this committee considered the recommendations and made adjustments to promote articulation and consistency across the assessment program for each subject.

Results for ISASP Assessments

Table ES.3 shows the percentage of students who took the ISASP assessments during the Spring 2018-2019 administration that would be classified into each performance level based on the recommended cut scores. The percentage of students in a performance level is not directly comparable across grades and subjects. The population of students tested is different for each assessment. Performance levels from different tests are not comparable because the cut scores for these tests are criterion-referenced—they are based on content-specific expectations of what students should know and be able to do.

Table ES.3. Percentage of Students in Performance Levels

Subject	Grade	Performance Levels		
		Not-Yet-Proficient	Proficient	Advanced
English Language Arts	3	35	56	9
	4	30	63	7
	5	33	61	6
	6	33	61	6
	7	30	63	7
	8	31	61	8
	9	25	66	9
	10	26	64	10
	11	29	59	12
Mathematics	3	28	57	15
	4	28	58	14
	5	30	55	15
	6	31	55	14
	7	30	60	10
	8	28	61	11
	9	31	58	11
	10	33	56	11
	11	33	55	12
Science	5	49	47	4
	8	42	50	8
	10	38	51	11

Chapter 1 – Overview of the Standard Setting Process

Chapter 1 provides an overview of the standard setting process used for the Iowa Statewide Assessment of Student Progress (ISASP) program in English language arts (ELA) grades 3-11, mathematics grades 3-11, and science grades 5, 8 and 10. This chapter includes the following sections:

- Goals of the standard setting meeting
- ISASP performance levels
- ISASP standard setting process

Goals of the Standard Setting Meeting

Once an assessment is administered, various groups—including students, parents, educators, administrators, and policymakers—want to know how students performed on the assessment and how to interpret that performance. By establishing levels associated with different student performance on the assessment, a frame of reference is developed for interpreting student scores. For a criterion, standards-based assessment, such as the next-generation ISASP program, performance on the assessment is compared to a set of predefined content standards. The standards communicated within the *Iowa Core Standards* 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 through the standard setting represent the level of competence students are expected to demonstrate on the assessment to be classified into each performance level.

ISASP Performance levels

Federal statute requires that any statewide assessment used for accountability purposes includes at least three performance levels. The performance levels relate student performance on the ISASP assessments directly to what students are expected to learn, based on the *Iowa Core Standards*. Student achievement on all ISASP assessments is classified into three performance levels that delineate the knowledge, skills, and abilities for which students are able to demonstrate mastery.

The policy-level performance level descriptors provide general expectations for student achievement to be classified into each performance level on the ISASP assessments. These do not differentiate student performance between content areas or grade levels. The policy-level performance level descriptors for the ISASP assessments were developed prior to the standard setting meeting and approved by Iowa Testing Programs (ITP) for use during the standard setting meeting.

The three performance levels and their respective policy descriptions are shown in Table 1.

Table 1. ***Policy-level Performance Level Descriptors for the ISASP Assessments***

Performance Level	Policy-Level Performance Level Descriptors
Advanced	Students performing at the Advanced level demonstrate thorough competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and careers in the subject.
Proficient	Students performing at the Proficient level demonstrate adequate competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and careers in the subject area.
Not-Yet-Proficient	Students performing at the not-yet-proficient level have not yet demonstrated the knowledge and skills to the classified as Proficient.

ISASP 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 performance levels. To establish the performance levels for each assessment, the Extended Modified (Yes/No) Angoff Method (Davis & Moyer, 2015; Plake, Ferdous, Impara, & Buckendahl, 2005) was used to guide panelists as they determined their performance 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 performance levels, including content standards and educator judgments about what students should know, based on the *Iowa Core Standards,* and be able to demonstrate at each performance level.

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

- Pre-meeting development – In anticipation of the standard setting meetings, various tasks were completed, including the development of materials for the panelists, preparation of the Pearson standard setting website site for panelists and facilitators, presentation materials for the facilitators, and development of data analysis sources and procedures.
- Standard setting meetings – Committees of panelists worked with grade- and subject-specific content and referenced borderline descriptions to make recommendations for cut scores that define the different performance levels for each assessment.
- Vertical articulation – The recommended cut scores for each assessment were reviewed for reasonableness and alignment of performance level expectations across grades by select members of the standard setting committees.

The remaining chapters will describe the specific procedures and activities that occurred during each phase of the standard setting process.

Chapter 2 – Preparations for the Standard Setting

Chapter 2 provides an overview of the work completed prior to the standard setting meetings for the ISASP grades 3-11 ELA, grades 3-11 mathematics, and grades 5, 8, and 10 science assessments, and includes the following sections:

- ISASP PLDs
- Development of panelist materials
- Development of presentation materials
- Facilitator training
- Preparation for data analysis during the meetings

ISASP PLDs

The PLDs present the major characteristics of each performance level in each subject area. The PLDs delineate what a typical student within a performance level should know and be able to demonstrate. They show a progression of knowledge and skills across performance levels within a subject. PLDs are a critical part of the process used to set assessment standards because they provide a common framework for understanding the skills needed to be classified into each performance level. Thus, the PLDs are an essential component of standard setting because they guide judgments about how students at different performance levels will perform on assessment items.

The PLDs are associated with the performance levels in the following way.

- *Performance levels* indicate a student's level of mastery of the standards, defined in the *Iowa Core Standards,* through classification of their performance on an assessment for a specific grade and subject as *Not Yet Proficient*, *Proficient*, or *Advanced*.
- *PLDs* indicate the knowledge, skills, and abilities students should be able to demonstrate within each specific content area and each grade level to be classified into a performance level.
- *Cut scores* partition the test scale and represent the minimum test score a student must earn on each subject- and grade-level assessment to be classified into a given performance level.

The development of the PLDs was organized by ITP, with consultation from Susan Loomis Ph.D. Draft PLDs for each subject and grade for ISASP were initially developed by content staff at ITP, using the policy-level definitions for each performance level to guide the formation. The draft PLDs were then made publicly available and sent to specific stakeholder groups to allow individuals across Iowa to provide comments on the initial set of draft PLDs. The public comment period for the PLDs continued for at least one month to allot adequate time for individuals to review and provide comments. The comments from this review were collected and organized by ITP.

Committees of teachers from across Iowa were convened to review the public comments on the initial draft PLDs. Each committee reviewed the PLDs with the associated comments for a set of grades, so any suggested revisions could be made with consideration of the articulation of the PLDs across grades within the same subject. The PLD review committees were facilitated by Susan Loomis.

The suggested revisions from the committees were reviewed by ITP, which made further edits to the PLDs. The revised PLDs were then reviewed by the Iowa Department of Education (IDOE) staff, which provided suggested edits to the content and format of the draft PLDs. Content staff and ITP, with consultation from Susan Loomis, made final edits to the draft PLDs, based on the comments from IDOE.

The draft PLDs resulting from this process were used by panelists during the standard meeting. As part of the standard setting process, panelists had an opportunity to provide comments about the draft PLDs, based on their experience with the PLDs and content. The panelist comments were shared with ITP for possible revisions of the PLDs.

The finalized set of PLDs for grades 3-11 ELA, grades 3-11 mathematics, and grades 5, 8, and 10 science can be found in Appendix A.

Development of Panelist Materials

The ISASP standard setting required a large number of materials for use by panelists during the standard setting meetings. The Pearson standard setting team worked with ITP to develop the materials used during the meeting and to ensure all materials provided to panelists communicated accurate information. The following materials were developed for use by panelists during the meeting:

- Meeting agenda
- Participant information survey*
- ISASP non-disclosure agreement
- Test form for each grade*
- “Experience the assessment” activity response form for each grade
- Test form answer key*
- Open-ended item rubrics and exemplars*
- Item comment form
- Practice judgment items*
- Practice judgment items answer key*
- Practice judgment record form
- Practice judgment survey*
- Judgment round record form
- Judgment round survey* – rounds 1, 2, and 3
- PLDs
- PLD comment form
- Process evaluations*

Because the standard setting meetings utilized the Pearson standard setting website as a tool for facilitating the meeting, the website for each committee needed to be developed. Several of

the documents developed, which are indicated with an asterisk (*), were presented online through the website. After initial development of the websites for the meetings, a complete quality control check was performed to verify that the information provided on the websites matched the information presented on the documents.

Using approved templates, documents were created for each specific committee meeting by the Pearson standard setting team. All documents developed for the website were reviewed and approved by ITP staff before being finalized for publication for the meetings. Additionally, Pearson staff completed a complete check of website and documents, to ensure that all information matched between the website and documents. A sample set of materials for a committee are provided in Appendix B.

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. Staff from ITP and IDOE 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.

- General Session Presentation and Standard Setting Overview
- Standard Setting Breakout Meeting – Day 1
    - ELA: Grades 3 & 4, Grades 5 & 6, Grades 7 & 8, Grade 9, Grade 10, and Grade 11
    - Math: Grades 3 & 4, Grades 5 & 6, Grades 7 & 8, Algebra I, Geometry, and Algebra II
    - Science: Grade 5, Grade 8, and Grade 10
- Standard Setting Breakout Meeting – Day 2
    - ELA: Grades 3 & 4, Grades 5 & 6, Grades 7 & 8, Grade 9, Grade 10, and Grade 11
    - Math: Grades 3 & 4, Grades 5 & 6, Grades 7 & 8, Algebra I, Geometry, and Algebra II
    - Science: Grade 5, Grade 8, and Grade 10
- Standard Setting Breakout Meeting – Day 3
    - ELA: Grades 3 & 4, Grades 5 & 6, and Grades 7 & 8
    - Math: Grades 3 & 4, Grades 5 & 6, and Grades 7 & 8
- Standard Setting Breakout Meeting – Day 4
    - ELA: Grades 3 & 4, Grades 5 & 6, and Grades 7 & 8
    - Math: Grades 3 & 4, Grades 5 & 6, and Grades 7 & 8
- Vertical Articulation Meeting
    - ELA
    - Math
    - Science

Facilitator Training

The breakout sessions were facilitated by a psychometrician from Pearson with knowledge and experience leading standard setting meetings. The facilitator was responsible for ensuring appropriate processes were followed throughout all sections of the meeting and that panelists had a solid understanding of the tasks they were asked to complete.

All facilitators underwent an extensive program of training to prepare them for leading the set of standard setting meetings. The facilitator training included:

- Use of the Pearson standard setting website—Because the standard setting website was used as a facilitation tool during the meeting, facilitators needed to become familiar with the use of the platform. Specific guidelines for modeling the website and providing access to the panelists were discussed.
- ISASP Assessments—The facilitators were provided an overview of the ISASP assessment program, including the content areas assessed, different item types, scoring rules, performance levels, and scaling design.
- Standard setting process—The facilitators participated in a walkthrough of the standard setting meeting agenda with a focus on specific issues for these meetings, such as time management, the use of the online platform, and communicating feedback information.
- Training slides and presentation notes—The facilitators were introduced to the standard setting training slides before the meetings. Notes in the standard setting training slides provided the facilitators with specific guidance throughout the presentation, including when specific language was to be used during the panelist training.

A general facilitator training was conducted on June 28, 2019 for all facilitators. Subject-specific facilitator training meetings were held for 60 minutes each on July 15, 16, and 18, 2019, to prepare the facilitators to address distinctive aspects of the subject specific meeting. A final training and discussion was held on-site July 21, 2019, the day before the standard-setting meetings commenced, to address any final topics. There was also an additional discussion on July 23, 2019 for the facilitators of the grades 9-11 math and ELA committees, since they started mid-week. At the end of each day during the standard setting meetings, a debriefing was held to discuss concerns, positives, and the materials and procedures for the next day.

Content experts from ITP were available, as observers, to assist panelists with content and policy questions during the standard setting meetings. A staffing plan was provided to ITP prior to the standard setting meetings to communicate the psychometric and support staff scheduled to attend.

Preparation for Data Analysis During the Meetings

Creation and testing of analysis programs and the calculation of impact data lookup tables were conducted prior to the standard setting meeting. Standardized analysis code for the standard setting meeting was created for use by statistical analysts. To ensure the accurate analysis of panelists' judgments, replication analysts independently completed the programming necessary using SAS statistical software to perform the analysis. A trial was run with mock data generated through the standard setting website to ensure that each independent analysis produced the same results.

The analysis programs created for the standard setting meetings used panelists' judgment data for each round. Panelists' judgments were downloaded from the website at the conclusion of each judgment round. The panelists' judgment data were analyzed to ensure the judgment pattern for each panelist was logical (i.e., that the judgment increased or stayed the same for increases in the performance level). Any panelist that provided unreasonable judgment patterns was removed from the analysis and indicated for additional instruction or review of the process by the meeting facilitator.

Each panelist's item judgments were summed to determine an expected test-level raw score for each performance level. The analysis program completed the judgment summation for each panelist and calculated summary statistics for each table group and the committee, including the median cut score, which was the committee's recommended cut score. Additionally, the analysis program used the raw scores and student impact data lookup tables to determine the estimated impact data for each performance level, based on the committee's recommended cut scores for each round.

The analysis programs were developed to generate all feedback handouts, plots, and tables needed during the standard-setting meeting. For example, following a round of judgment, the analysts produced:

- Individual panelist feedback — the judgments for each panelist to ensure they were recorded and analyzed accurately (given to all panelists)
- Panel-level feedback — a summary of judgments from all panelists, including a frequency distribution of judgments and the mean and median (given to facilitators and ITP, presented to panelists using tables and histograms in digital presentations)
- Impact data (*after* judgment rounds 2 and 3) — the percentage of students, not disaggregated by demographic groups, in each performance level according to the recommended cut scores for that round (displayed to panelists as stacked bar graphs in digital presentations)

Impact data refers to the percentage of students that fall within a performance level based on the recommended cut scores at the given judgment round for a particular grade, subject test, and testing mode. Impact data were provided to panelists during the standard setting meeting to present the expected results, based on each committee's cut score recommendations, regarding student performance level classifications.

Impact data lookup tables were created using the responses from students who took the subject and grade ISASP assessment during the spring 2019 administration. A frequency distribution of student results on each test was created based on the spring 2019 administration. The frequency distribution was used to determine the expected percentage of students classified into each proficiency level, based on panelists' judgments.

For the ELA assessments, the test design included separate reading and language/writing components that are intended to provide equal weight in determining the final ELA score. To calculate the impact data for ELA, an approach was crafted for weighting the reading and language/writing scores, given that the two components had different maximum scores. The weighting process used to determine the ELA scores was different for grades 3-8 and grades 9-11.

ELA Grades 3-8: ELA score = (Reading score) + 0.60 x (Language/Writing Score)
ELA Grades 9-11: ELA score = (Reading score) + 0.65 x (Language/Writing Score)

Student impact data for the ELA assessment was calculated using the weighted ELA score.

Chapter 3 – Standard Setting Meetings

Chapter 3 provides details about the process used for the ISASP standard setting meetings. The sections of this chapter include:

- Purpose of the standard setting meetings
- Committee panelist composition
- Standard setting meeting facilitators and staff
- Standard setting materials
- Standard setting procedure
- Standard setting meeting proceedings
- Recommended performance 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 achievement expected for each performance level based on their experience with different groups of students and knowledge of the content assessed. A specific process, or standard setting method, is used to capture educators' judgments and to translate them into cut scores for the performance levels. The purpose of the standard setting meetings was to gather expert recommendations from groups of educators from across Iowa for the cut scores that define the different performance levels on each ISASP assessment for grades 3 through 11 in ELA and mathematics and grades 5, 8, and 10 in science.

Student performance on each of the ISASP assessments is classified into one of three performance levels. Each committee was asked to recommend two cut scores that defined the boundaries between the different performance levels. These committee's recommended cut scores represented the performance a student would need to meet or exceed to be classified into the specific performance level on the assessment.

Committee Panelist Composition

All panelists for the standard setting committees were selected by ITP to represent educators and key stakeholders from across Iowa who had knowledge of and experience working with student groups within the populations administered the ISASP assessments. The selection process of committee panelists involved considerations intended to create a sample as representative of the state as possible, including demographic variables (gender, race, etc.), geographic representation, and background (educational experience, education, etc.). ITP placed an emphasis on educators who had relevant content knowledge as well as experience with a variety of student groups.

There was a total of 182 participants at the standard setting meetings. The panelists were divided into 15 breakout committees. Each committee focused on establishing cut score recommendations for one grade (e.g., grade 9 ELA) or grade-band (e.g., grades 3 and 4 ELA). The tables in Appendix C summarize the characteristics and experience of the panelists in each

committee, including demographic information, current positions in education, experience working with various types of student populations, and the types of districts they represent.

The panelists 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 panelists at each table were representative of the committee. The panelists were placed into table groups to facilitate discussions during the standard setting meeting and ensure each panelist had the opportunity to fully engage in the process.

Prior to the standard setting meeting, an individual was selected from each table group to serve as a table leader. The table leaders assisted the process facilitator during the meeting by facilitating the table discussions, encouraging all panelists to participate, and ensuring the discussion remained relevant to the meeting. To assist the table leaders in understanding and fulfilling their role during the meeting, a table-leader training was held during the first day of the standard setting, so table leaders were informed of the expectations for facilitating group discussions and participating in the articulation meeting.

Standard Setting Meeting Facilitators and Staff

Staff members from ITP and Pearson collaborated to conduct the ISASP 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 process facilitator for each breakout committee was a member of the Pearson psychometric staff with experience facilitating standard setting meetings and was responsible for leading panelists through the standard setting process. The facilitator ensured processes were followed throughout all sections of the meeting and that panelists had a solid understanding of the tasks they were being asked to complete.

Though the facilitators had prior experience leading standard-setting meetings, they underwent extensive training to prepare them for this set of standard setting meetings. The lead facilitator of the standard-setting meeting was Eric L. Moyer, Ph.D., a Principal Research Scientist from Pearson. The process facilitators for each standard setting committee are presented in Table 2.

Table 2. ***Process Facilitators for ISASP Standard Setting Committees***

Committee		Facilitator
Subject	**Grade/Grade-Band**	
ELA	3 & 4	Qing Yi, Ph.D.
	5 & 6	Mark Robeck, Ph.D.
	7 & 8	Tony Thompson, Ph.D.
	9	Scott Strickman, Ph.D.
	10	Ethan Arenson, Ph.D.
	11	Robert Schwartz, Ph.D.
Math	3 & 4	Jenna Copella, Ph.D.
	5 & 6	Jennifer Beimers, Ph.D.
	7 & 8	David Shin, Ph.D.
	9	Ou Zhang, Ph.D.
	10	Stanley Rabinowitz, Ph.D.
	11	Ye Tong, Ph.D.
Science	5	Ou Zhang, Ph.D.
	8	Sarah Quesen, Ph.D.
	10	Jennifer Galindo, Ph.D.

Statistical Analysts

For the standard setting meeting, six statistical analysts performed all analysis for the committees. The statistical analysts were Miky Lee, Brian Wrobel, Aaron Manternach, George Liao, Quentin Coller, and Andrew Austin. All statistical analysts were onsite to complete and verify all analysis. During the meetings, the analysts collected panelist judgment data, performed independent analysis to verify results, and prepared panelists' feedback for specific committees, with one analyst being the lead and the other analyst being the replicator. The assignment of analysts to standard setting committees is displayed in Table 3.

Table 3. ***Statistical Analysts for ISASP Standard Setting Committees***

Committee		Statistical Analyst	
Subject	**Grade/Grade-Band**	**Lead**	**Replicator**
ELA	3 & 4	Brian Wrobel	Drew Austin
	5 & 6		
	7 & 8		
	9		
	10	Miky Lee	George Liao
	11		
Math	3 & 4	Aaron Manternach	Quentin Collier
	5 & 6		
	7 & 8		
	9		
	10	Miky Lee	George Liao
	11		
Science	5		
	8		
	10		

ITP and IDOE Staff and Observers

ITP and IDOE staff members attended the standard setting meeting to observe the process as well as answer assessment, curriculum, and policy questions. ITP staff also monitored the cut score recommendations for each performance level throughout the standard setting meetings. Observers, other than vendor staff, were invited to attend the meeting by ITP. The number of observers in a committee meeting was kept to a minimum, so the committee panelists did not feel overwhelmed. Whenever possible, observers were assigned to a single committee meeting for the duration of the breakout sessions.

Technical Advisors

A technical advisor, Susan Loomis, Ph.D., monitored the standard setting meetings for ITP. The technical advisor observed the standard setting and shared feedback with ITP before, during, and after the meetings. The technical advisor did not participate in or contribute to the cut score recommendations.

Standard Setting Materials

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

Pearson Standard Setting Website

The Pearson standard setting website served as the online platform during the standard setting meetings. The website provided panelists access to the standard setting meeting materials and tools used to collect panelist judgments (see Figure 1).

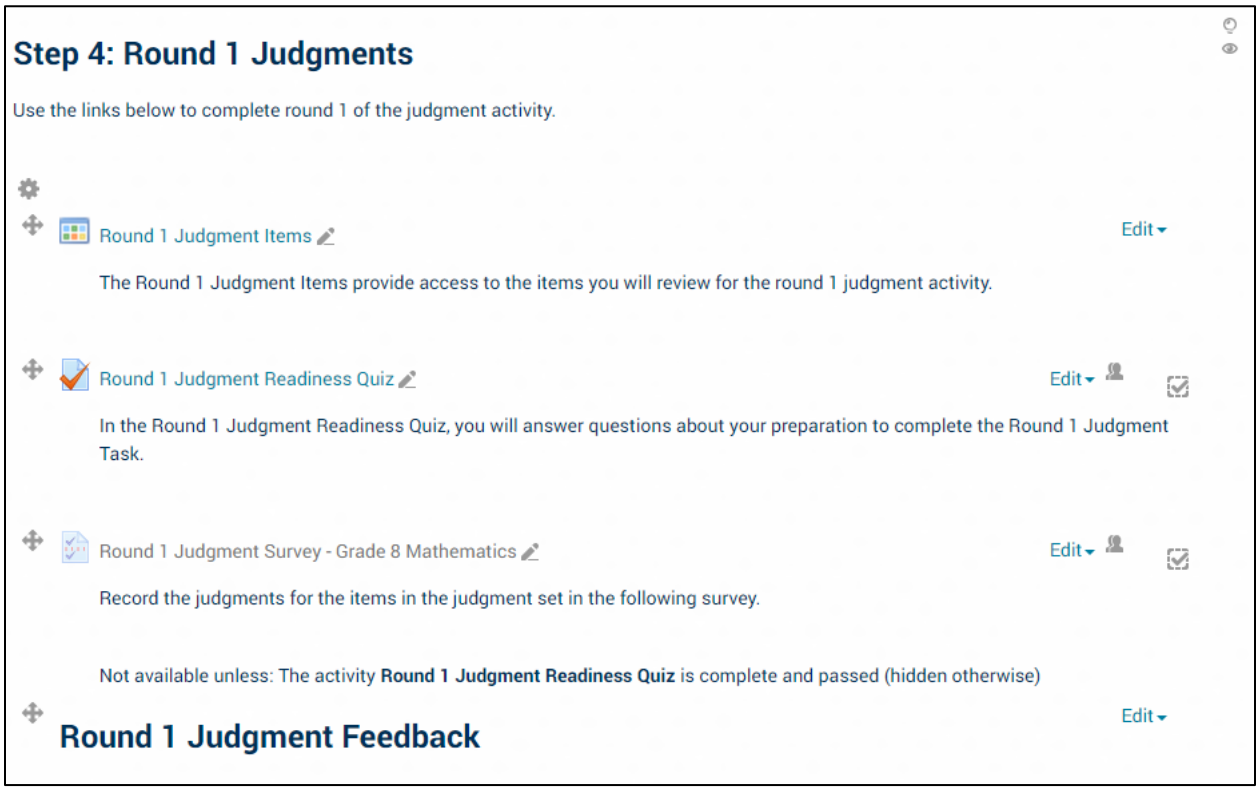


Figure 1. **Example website interface with links to standard setting materials**

The website was built using Moodle, an online, open-source collaboration and learning tool. Each panelist was given unique login credentials that allowed secure access to the website. Panelists' access was restricted to only sections of the website associated with the standard setting meeting, as defined by their assigned subject area. Because the ISASP assessments are computer-delivered using TestNav 8, the standard setting website allowed panelists to view items as students did during the spring 2019 administration.

The website enabled panelists to access online documents that provided background information about the ISASP assessments prior to the standard setting meeting. The preparation materials on the website included:

- Standard setting orientation video
- Iowa Core Standards for each grade level

- Policy-level performance level descriptors
- Grade-level PLDs
- ISASP standard setting non-disclosure agreement

The website also provided panelists access to materials and tools necessary for completing activities during the standard setting meeting. The standard setting materials and tools on the website included:

- Grade-level PLDs
- Test item map and answer key
- Borderline descriptions worksheet
- Practice judgment activity items
- Practice judgment readiness survey
- Practice judgment survey
- Judgment items for rounds 1, 2, and 3
- Judgment readiness survey for rounds 1, 2 and 3
- Judgment survey for rounds 1, 2, and 3
- Judgment feedback folders for rounds 1 and 2
- Process evaluations 1, 2, and 3

A unique course site was created for each test associated with the committee in the Pearson standard setting website. The meeting facilitator controlled panelist access to each section of the website. Website access was disabled at the end of each meeting day to prevent panelists from viewing secure website materials outside of designated meeting times. Following the meetings, the online materials were archived.

Committee Panelist Folders

In addition to the online resources provided through the website, panelists were given a meeting folder to organize a variety of hard copy materials they used throughout the meeting. The materials provided to committee panelists in their folders included:

- Meeting agenda
- Non-disclosure agreement
- Policy-level performance level descriptors
- Grade-level PLDs
- PLD comment form
- “Experience the assessment” activity response form
- Item comment form
- Practice judgment record form
- Rounds 1, 2, and 3 judgment record form

The panelist folders were prepared in advance of the standard setting meetings. Panelists were required to check-in at the start of each day and to return their folders and check-out at the end of each day of their meetings. Panelists were provided additional materials throughout the meeting, which they were instructed to insert into their folders.

Computers

Each panelist was provided a laptop computer in his or her meeting room to access online resources through the Pearson standard setting site. The laptops were Dell latitudes with 15.6" screens, standard keyboards with a full-size number pad, and an external mouse. Panelists were not provided with external keyboards, numeric keypads, or monitors. Panelists were seated at tables and provided enough space to freely work with the computer and folder materials. Power supplies for the computers were centrally located in the middle of each table. The panelists used Google Chrome to access the standard setting site. Each computer was programmed with a whitelist of websites that restricted to work associated with the standard setting meeting.

Standard Setting Procedure

To set performance standards, the Extended Modified (Yes/No) Angoff Method was used. This standard-setting procedure operates as both a content- and item-based method that leads panelists through a standardized process in which they consider student expectations, as defined by the PLDs, and the individual items administered to recommend cut scores for each performance level. The same standardized process was used by all committees and resulted in cut score recommendations.

Panelists completed three rounds of judgments. Between judgment rounds, panelists were presented feedback information regarding their individual and committee-level cut score recommendations, panelist agreement data, and item-level agreement.

Standard Setting Meeting Proceedings

The standard setting meetings were conducted across five days, July 22–26, 2019, in Cedar Rapids, Iowa. The complete agenda for the meetings is available in Appendix D. A general overview of the schedule is provided in Table 4.

Table 4. ***General Overview Schedule for Standard Setting Meetings***

<table>
<tr><th rowspan="2">Subject</th><th colspan="5">Meeting Date</th></tr>
<tr><th>July 22</th><th>July 23</th><th>July 24</th><th>July 25</th><th>July 26</th></tr>
<tr><td rowspan="2">ELA</td><td colspan="3">Grades 3 - 8 Committees (Grades 3 and 4, Grades 5 and 6, Grades 7 and 8)
(3 committees)</td><td rowspan="2">V.A.
(ELA)</td><td rowspan="2"></td></tr>
<tr><td colspan="2"></td><td>Grades 9 - 11 Committees
(3 committees)</td></tr>
<tr><td rowspan="2">Math</td><td colspan="3">Grades 3 - 8 Committees (Grades 3 and 4, Grades 5 and 6, Grades 7 and 8)
(3 committees)</td><td rowspan="2">V.A.
(Math)</td><td rowspan="2"></td></tr>
<tr><td colspan="2"></td><td>Grades 9 - 11 Committees
(3 committees)</td></tr>
<tr><td>Science</td><td colspan="2">Grades 5, 8 and 10 Committees
(3 committees)</td><td>V.A.
(Science)</td><td colspan="2"></td></tr>
</table>

Note: V.A. = Vertical Articulation

The remaining sections of Chapter 3 will describe the steps used to guide panelists through the entire standard setting process.

Standard Setting Meeting Pre-Work

The standard setting panelists completed a set of activities prior to attending the meeting. The purpose of the pre-work was to expedite training by providing panelists an opportunity to become familiar with the information that would be used throughout meeting. The pre-work included:

- Pearson standard setting website – The pre-work was provided via documentation or links embedded within the secure Pearson standard setting website developed for the meeting. The panelists were provided their unique login and temporary password through an email sent to the email address they provided during registration. The panelists were instructed to log in to the website to complete the pre-work activities, which also gave them an opportunity to experience the website and navigate through the pre-work sections and activities.
- Participant information survey – Panelists completed a survey to document their demographic information as well as current teaching position, experience, and school information. Panelists were able to access the survey before and during the meeting.
- Standard setting orientation video – A short video was uploaded to the website to introduce panelists to the purpose and concepts associated with the ISASP standard setting meeting.

- *Iowa Core Standards* – Panelists were provided access to the current version of the *Iowa Core Standards* for the subject associated with their meeting.
- Performance Level Descriptors - Panelists reviewed policy-level performance level descriptors and grade-level PLDs for their specific grade and course.
- Security and Non-disclosure agreement – A Security and Non-disclosure agreement was uploaded to the website for panelists to review prior to the standard setting meeting. The intention was to familiarize panelists with security protocol in advance of the meeting so they would be familiar with expectations when requested to sign the agreement at the meeting.

General Session

The purpose of the general session was to welcome the panelists, provide background information about the assessment system, and introduce the standard setting process. There were two general sessions presented prior to the breakout committee meetings.

Monday, July 22 – ELA and Math Grades 3-8 and Science Grades 5, 8, and 10

Wednesday, July 24 – ELA and Math Grades 9, 10, and 11

The general sessions were led by Eric Moyer, Ph.D.

The overview of the testing program included the following:

- Goals and rationale
- Legislative requirements
- Stakes for the students and teachers
- Uses for state accountability

The facilitator also provided an overview of the standard setting process. Panelists were introduced to the key concepts and materials that would be used during the Yes/No Angoff Angoff procedure. Clear descriptions of the review process for the cut score recommendations were included as part of the process overview to emphasize that the committees were making cut score recommendations for other groups to review. This knowledge can help alleviate anxiety committee members may experience during the standard setting process. The presentation slides for the general session are included in Appendix E.

Breakout Session

After the general session, panelists moved into their assigned subject- and grade-specific breakout sessions for the remainder of the standard setting meeting. Each breakout committee was responsible for providing cut score recommendations for all performance levels associated with their grade or grade-band test(s). An overview of the activities conducted during the breakout session for a grade-band (grades 7 &8 math) standard setting meeting is provided in Table 5.

Table 5. ***Overview of Activities during Breakout Sessions for Grades 7 & 8 Committee***

Day 1 Activities	Day 2 Activities	Day 3 Activities	Day 4 Activities
Begin Grade 8 Activities	Round 1 cut score recommendations	***Begin Grade 7 Activities***	Round 2 cut score recommendations
Introductions and process overview	Discussion of round 1 recommendations and feedback	'Experience the Assessment' activity	Discussion of round 2 recommendations and feedback
'Experience the Assessment' activity	Round 2 cut score recommendations	Review of grade-level PLDs	Round 3 cut score recommendations
Review of grade-level PLDs	Discussion of round 2 recommendations and feedback	Development of borderline descriptions	Discussion of round 3 recommendations and feedback
Development of borderline descriptions	Round 3 cut score recommendations	Round 1 cut score recommendations	Closing remarks and evaluation
Standard setting training	Discussion of round 3 recommendations and feedback	Discussion of round 1 recommendations and feedback	
Practice judgment task and discussion			

The presentation slides used for the Mathematics grades 7 and 8 breakout session are available as an example in Appendix E.

Introductions and Overview. To begin the breakout session, individuals in the room—facilitators, panelists, and observers—introduced themselves by sharing the following:

- Name
- Area of the state
- Experience in current field
- Role and any courses taught
- Experience with SOL test committees

After introductions, the facilitator discussed the security and non-disclosure expectations for the meeting. The panelists then reviewed the Security and Confidentiality Agreement on the standard setting website and completed and signed the agreement for the ISASP standard setting meeting. Their signature acknowledged that they understood the security expectations for the meeting and agreed to follow them as described.

Next, the facilitator distributed folders containing secure and essential materials for the meeting. The facilitator reviewed the materials in the folder, on the standard setting website, and how the resources would be used during the standard setting process. Panelists had the opportunity to ask questions before proceeding.

The overview concluded with a presentation of the ISASP assessment system. The purpose of the ISASP assessment program and alignment with the Iowa Core Standards was explained to the committee. Lastly, panelists were shown the test blueprint for their respective grade, the number of items on the test, and the recommended testing time.

'Experience the Assessment' Activity. Panelists experienced the specific operational test administered to students during the spring 2019 administration. Panelists viewed items in a similar manner as all students who took the assessments. The 'Experience the Assessment' activity allowed panelists to interact with the test items and develop insight regarding the knowledge and skills required to correctly answer the test items. For constructed-response items, the panelists were not asked to provide complete responses, but rather take notes about what would be expected in a successful student response.

Panelists recorded their responses to the 'Experience the Assessment' items on a separate form, which was provided in their folder. After the panelists completed the activity, they were given information about how the assessment for their assigned subject is scored. A test map, or online answer key, on the standard setting website provided information about each item, including the unique item number, correct response for the item, maximum number of points, scoring rules for the item, associated domain or reporting category, and, if applicable, the accompanying passage or scenario. For constructed-response items, the panelists were introduced to rubrics and notes used for scoring as well as student exemplars that demonstrated responses receiving different scores. Panelists were given an opportunity to review the correct responses and score their test using the test map on the website.

Borderline Descriptions. Development of borderline descriptions is an essential component to the standard setting process. The purpose of the borderline descriptions activity was for all panelists to develop a common understanding of student performance at the threshold, or borderline, of each performance level.

To help guide the borderline description development activity, the facilitator reviewed the performance levels and PLDs with the committee. Panelists were informed that the PLDs provide a snapshot of the typical characteristics at each performance level, including the breadth and depth of the knowledge and skills expected to be demonstrated by students within each level.

The panelists were then introduced to the difference between a student with *typical* performance and a student with performance at the *borderline* of a performance level. A student with performance at the borderline was described as one who possessed "just-barely" enough knowledge and skills to be classified into a specific performance level.

The facilitator then led the panelists through a modeling activity. A collaborative and guided approach was used to draft one or two borderline statements that served as examples for the

committee. The facilitator asked probing questions during the modeling to help panelists develop an appropriate understanding of how to create borderline descriptions.

Panelists were then split into small groups to review the PLDs for a specific reporting category within each performance level. Each small group created draft borderline descriptions for their specific reporting category using a borderline descriptions worksheet accessed through the standard setting website. The borderline descriptions from each group were collected into a master document and reviewed/discussed together by the whole committee. Revisions to the master document were made during the whole-group discussion to create a common set of borderline descriptions. The final list of borderline descriptions was printed and provided to each panelist to place in his or her folder as a reference for subsequent activities.

Judgment Process Training. The process facilitator for each committee provided thorough training for panelists on the Yes/No Angoff standard setting method as well as how to use the website to record their individual judgments. Panelists were instructed to review each item from the assessment, consider the knowledge, skills, and abilities necessary to answer the question, consult the borderline descriptions, and, if needed, refer to the rubric and student exemplars during the judgment process. Based on their review of the item and the related materials, panelists answered the following question for two performance levels:

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

Significant time was spent describing the thought process the panelists should go through using parts of the question.

- "Would…" — When envisioning expected student response to an item, the panelists were asked to consider how a student would respond. Where "should" is an aspirational expectation, "would" is a more realistic expectation of a student response to an item.
- "...a student performing at the borderline of the [specific] performance level…" — The panelists were reminded to reference the borderline descriptions to determine how a student performing at the borderline of that performance level would be expected to respond.
- "...likely..." — In this context, likely was defined as 2 out of 3 times, or 67%. To make this concrete for panelists, facilitators asked them to think about three students at the borderline of a performance level. If a panelist believed 2 of 3 students with performance at the borderline would correctly answer the item, they would respond "yes" to the question. If a panelist did not believe 2 of 3 students with performance at the borderline would correctly answer the item, they would respond "no" to the question.
- "...earn if he or she answered the question." — Panelists selected the number of points a student with performance at the borderline would be expected to earn if he or she answered the item.

Panelists were instructed to review each item and make a judgment for two performance levels, starting with *Proficient* and then proceeding to *Advanced*. Panelists were trained to check their judgments for expected patterns across performance levels, which included multiple examples with different judgment patterns. The judgments made by panelists were recorded in the

judgment survey via the standard setting website. Figure 2 shows an example item from the judgment survey on the website.

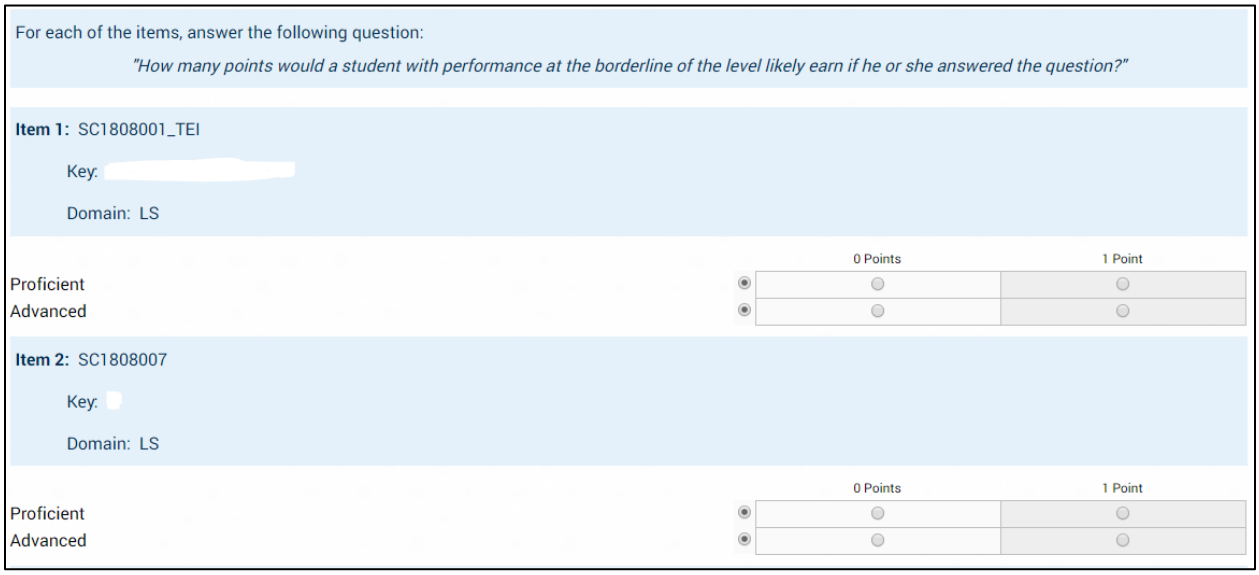


Figure 2. **Example items from the judgment survey in the website**

Panelists also kept a record of their judgments on the paper Judgment Record Sheet, which was provided as part of the materials in their folder. The Judgment Record Sheet included the unique item number, domain or reporting category, associated passage or scenario (if applicable), answer key, maximum score, and judgment for each performance level. Panelists were shown how to use the unique item number to ensure they referenced the correct item on both the paper Judgment Record Sheet and online judgment survey.

Practice Judgment Activity. Panelists completed a practice judgment activity prior to beginning the actual judgment rounds. The goals of this activity were to:

- Give panelists experience reviewing and making judgments about different types of items.
- Familiarize panelists with the judgment survey on the standard setting website.
- Build confidence in panelists' understanding of the task to be completed.

Between seven and ten items were selected for the practice activity, dependent upon the subject area. The practice items were a subset of those panelists ultimately reviewed in the actual judgment rounds and included examples of different item types, difficulty, and score points. After all panelists completed their practice judgments, the facilitator presented item-level judgment results interactively through the standard setting website. Group discussion was initiated to review the judgment process and panelist responses, demonstrate how their judgments are used to determine a cut score recommendation, and answer any questions.

Judgment Rounds. After receiving training on the standard setting process, the panelists worked through three rounds of judgments. Before starting each judgment round, the facilitator reviewed the judgment process, including explicit instructions on which materials were needed for the judgment task. Panelists were required to complete a readiness survey in the website

prior to each round, which indicated they understood the task and process used to complete the judgments. The panelists were required to answer "yes" to all readiness survey questions before continuing with the judgment round. If a panelist responded "no" to any question, he/she was asked to notify the facilitator for additional assistance. The readiness survey included the following questions:

- Do you understand your task for the judgment activity? (Rounds 1, 2, and 3)
- Are you ready to begin the judgment activity? (Rounds 1, 2, and 3)
- Do you understand the feedback data that were presented? (Rounds 2 and 3)

An example of the readiness survey panelists completed before starting the judgment task is presented in Figure 3.

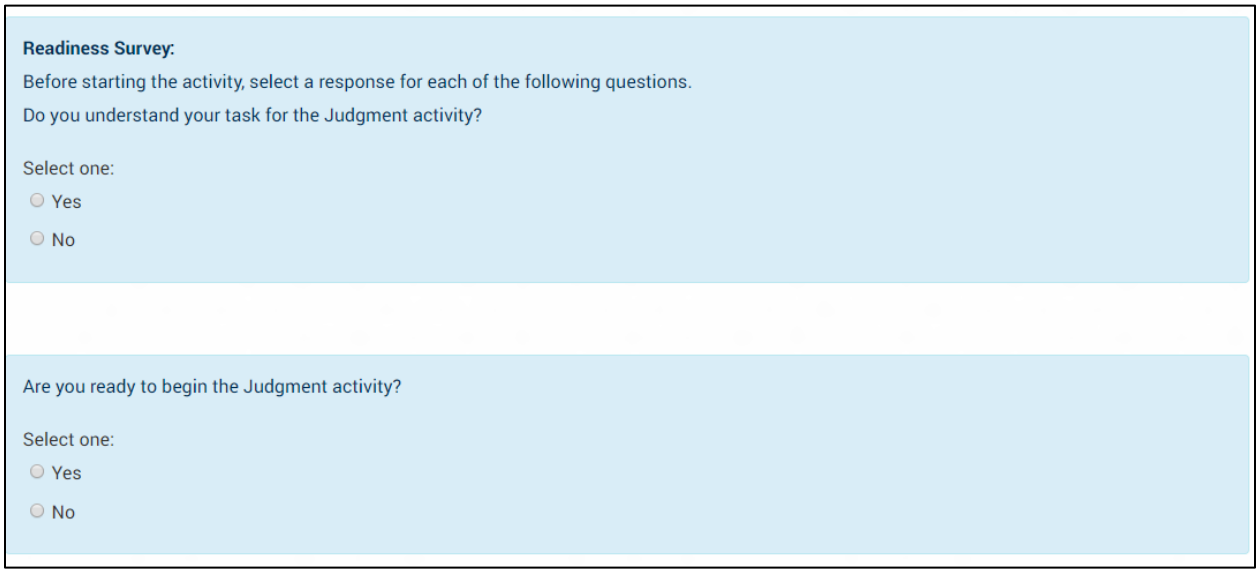


Figure 3. **Example readiness survey prior to judgment task**

After panelists finished the readiness survey, they were provided access to the judgment survey for the respective round.

During the judgment rounds, panelists made individual judgments for each item, based on the borderline descriptions and knowledge and skills required by the item. Panelists answered the question, "How many points would a student performing at the borderline of each performance level likely earn if they answered the question?" Panelists completed judgments on both the paper Judgment Record Sheet and in the judgment survey for all performance levels before moving onto the next item.

Feedback and Discussion. The panelists were given feedback after each judgment round. The feedback was based on each individual's current cut score recommendations, the recommendations of others in their committee, and relevant information from actual student results on the assessment. Feedback data included the following:

- Information about panelists' cut scores for each performance level:
    - Individual cut scores: Judgments were summed across items to obtain a cut score for each level. The panelists were provided individual paper handouts

showing their judgments and recommended cut score for each performance level.
    - Committee cut score recommendations and statistics: Committee-level recommendations were the median cut score across all panelists for each performance level. Panelists were provided the committee-level cut score recommendations and cut score statistics for each performance level.
    - Panelist agreement data: Bar graphs showing the frequency of individual recommended cut scores for each performance level and across adjacent performance levels.
- Item-level judgment agreement across panelists: Distribution of panelist judgments for each item and performance level.
- Item means (p-values) and score-point distributions: The average score earned by students for each item and the distribution of score points, for polytomously scored items, calculated from operational test data.
- Impact data: Percentage of students that would be classified into each performance level, based on the committee's current recommended cut scores and the results of students who took the assessment during the spring 2019 administration.

Specific information was provided only after certain rounds. The feedback information shared with panelists after each judgment round is shown in Table 6. Examples of the feedback data provided to panelists, along with a brief description of the feedback presented, are provided in Appendix F.

Table 6. ***Feedback Data Provided to Panelists after Each Judgment Round***

Feedback Data		Judgment Round		
		Round 1	Round 2	Round 3
Item-Level Feedback	Panelist Agreement Data	✓	✓	
	Item Means	✓		
	Score Point Distributions	✓		
Test-Level Feedback	Individual Cut Score	✓	✓	✓
	Committee Cut Score	✓	✓	✓
	Panelist Item Agreement Data	✓	✓	
	Impact Data		✓	✓

A review of each panelists' item judgment patterns was conducted after each round to identify any inconsistencies. Panelists with inconsistent item judgment patterns were removed from the analysis for that judgment round. Additionally, the lead of the standard setting reviewed the

panelists' cut score recommendations and impact data patterns after each judgment round to identify any issues that would need to be communicated with the committee facilitator. The results from each judgment round were also shared with staff from ITP to discuss the current status of the standard setting process.

Before the discussions of feedback data, panelists were given guidance regarding the independence of their judgments. That is, they were encouraged to listen to other panelists and consider the rationales given for their judgments, but they should not feel pressured to reach consensus. Following Rounds 1 and 2, panelists shared the rationale for their judgments during table-group and whole-group discussions. Items with the highest level of disagreement amongst the committee were revisited for each performance level. Committee members discussed a range of topics, such as item difficulty, student strategies when responding to the items, their individual rationale for a judgment, and, importantly, the borderline descriptions the group crafted. The goal of the discussions was to demonstrate to panelists how their judgments compared to the rest of the committee and to guide them toward a common and shared understanding of the borderline descriptions and judgment task. After Round 2, panelists also participated in a whole-group discussion about the impact data and whether it matched expectations, given the student population.

Process Evaluations. The validity of standard setting outcomes relies on procedural validity. Evidence of procedural validity was gathered through evaluation surveys administered during the standard setting. An evaluation survey was administered in each committee after the practice judgment activity and after Round 3 judgments (which occurred for both the upper and lower grade-level in the grade-band committees). The evaluations focused on the processes and procedures of the standard setting meeting, including the panelists' overall views of the standard setting process, training, materials, meeting facilitation, and ultimately how they felt about the final results. The evaluations were kept anonymous. The results from the evaluations were aggregated and can be found in Appendix G.

Recommended ISASP Cut Scores from Standard Setting Committees

The median cut score recommendation from a committee was used to establish a cut score for each performance level. The cut score recommendations resulting from the Round 3 judgments were considered the committee's final recommendations for the standard setting meeting. The Round 3 recommended cut scores are displayed for each committee for English Language Arts, Mathematics, and Science in Tables 7, 8, and 9, respectively.

Table 7. ***Round 3 Cut Score Recommendations from ELA Committees***

Subject	Grade	ELA Test	Maximum Score	Performance Level Cut Score Recommendation	
				Proficient	Advanced
English Language Arts	3	Reading	29	14	21
		Writing	44	20	33
	4	Reading	30	15	25
		Writing	45	19	34
	5	Reading	31	16	27
		Writing	46	23	35
	6	Reading	32	16	28
		Writing	47	22	36
	7	Reading	33	17	28
		Writing	48	23	39
	8	Reading	33	17	28
		Writing	48	23	38
	9	Reading	29	15	26
		Writing	49	21	37
	10	Reading	29	13	23
		Writing	49	22	39
	11	Reading	29	16	26
		Writing	49	23	36

Table 8. ***Round 3 Cut Score Recommendations from Mathematics Committees***

Subject	Grade	Maximum Score	Performance Level Cut Score Recommendation	
			Proficient	Advanced
Mathematics	3	36	16	29
	4	38	15	30
	5	41	14	28
	6	43	18	33
	7	46	18	40
	8	48	19	41
	9	36	14	28
	10	36	14	32
	11	36	15	29

Table 9. ***Round 3 Cut Score Recommendations from Science Committees***

Subject	Grade	Maximum Score	Performance Level Cut Score Recommendation	
			Proficient	Advanced
Science	5	34	16	28
	8	34	10	21
	10	36	15	28

Cut scores for the ELA composite, which are not shown in Table 7, were calculated using a weighted-average of the Reading and Writing cut scores by performance level. The process used to calculate the weighted average ELA scores was different for grades 3-8 and grades 9-11.

ELA Grades 3-8: ELA score = (Reading score) + 0.60 x (Language/Writing Score)
ELA Grades 9-11: ELA score = (Reading score) + 0.65 x (Language/Writing Score)

The weighted ELA scores for each grade are displayed in Table 10.

Table 10. ***Round 3 Weighted Cut Score Recommendations from ELA Committees***

Subject	Grade	Maximum Score	Performance Level Cut Score Recommendation	
			Proficient	Advanced
ELA	3	55.40	36.00	40.80
	4	57.00	26.40	45.40
	5	58.60	29.80	48.00
	6	60.20	29.20	49.60
	7	61.80	30.80	51.40
	8	61.80	30.80	50.80
	9	60.85	28.65	50.05
	10	60.85	27.30	48.35
	11	60.85	30.95	49.40

The estimated impact data after judgment Round 3 are illustrated for each ELA, mathematics, and science committee in Figures 4, 5, and 6, respectively.

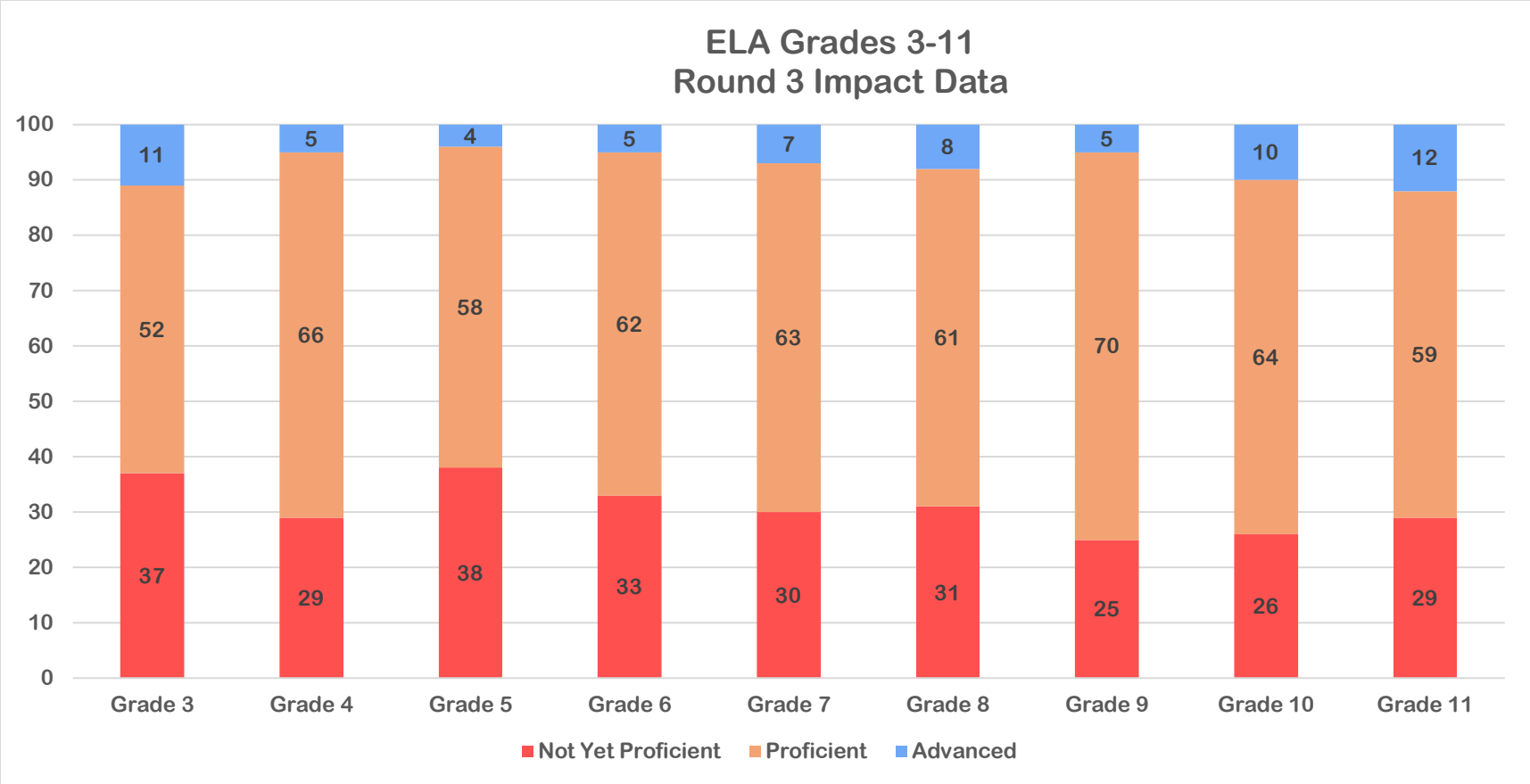


Figure 4. **Impact data from grades 3-11 ELA Round 3 cut score recommendations**

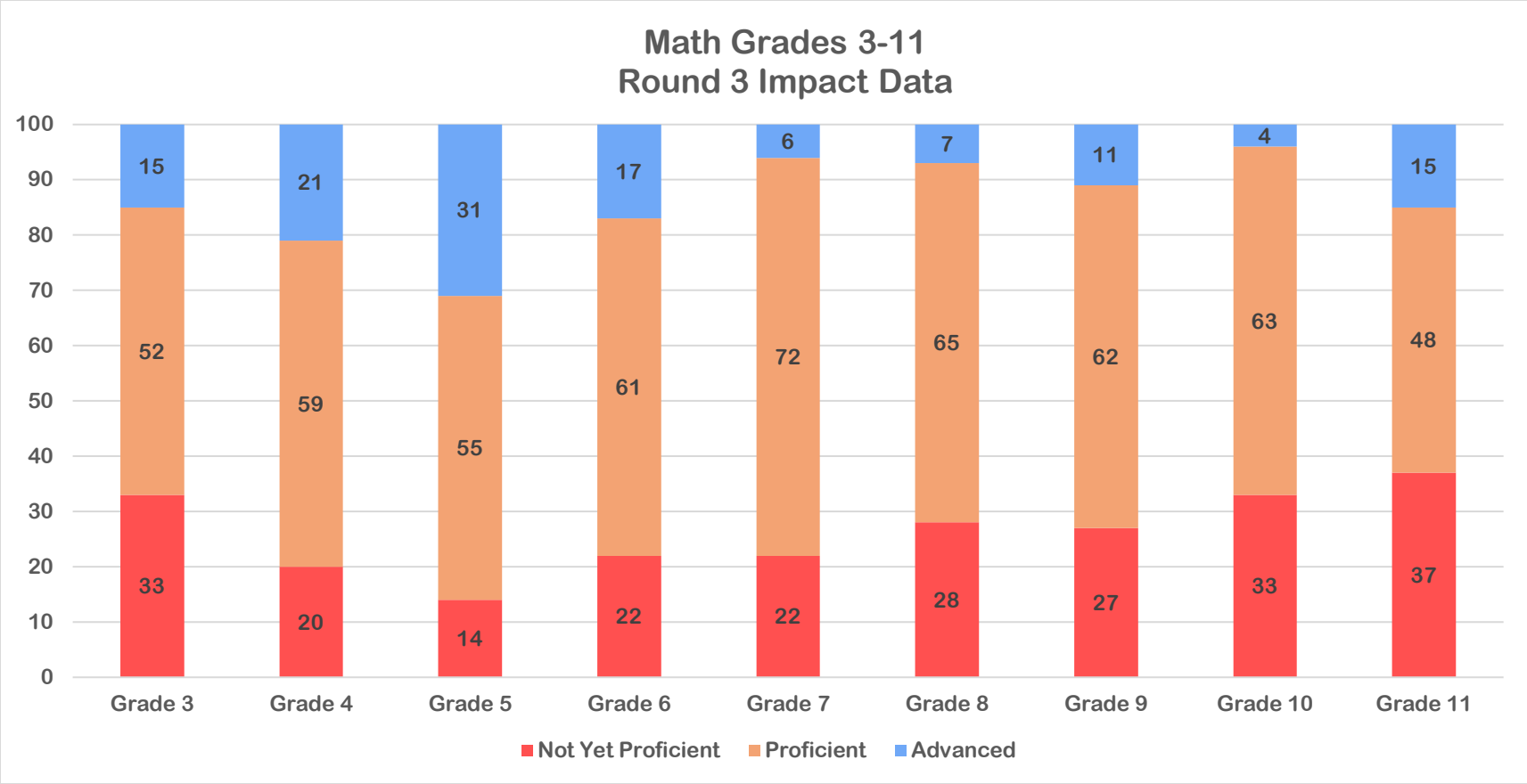


Figure 5. **Impact data from grades 3-11 Mathematics Round 3 cut score recommendations**

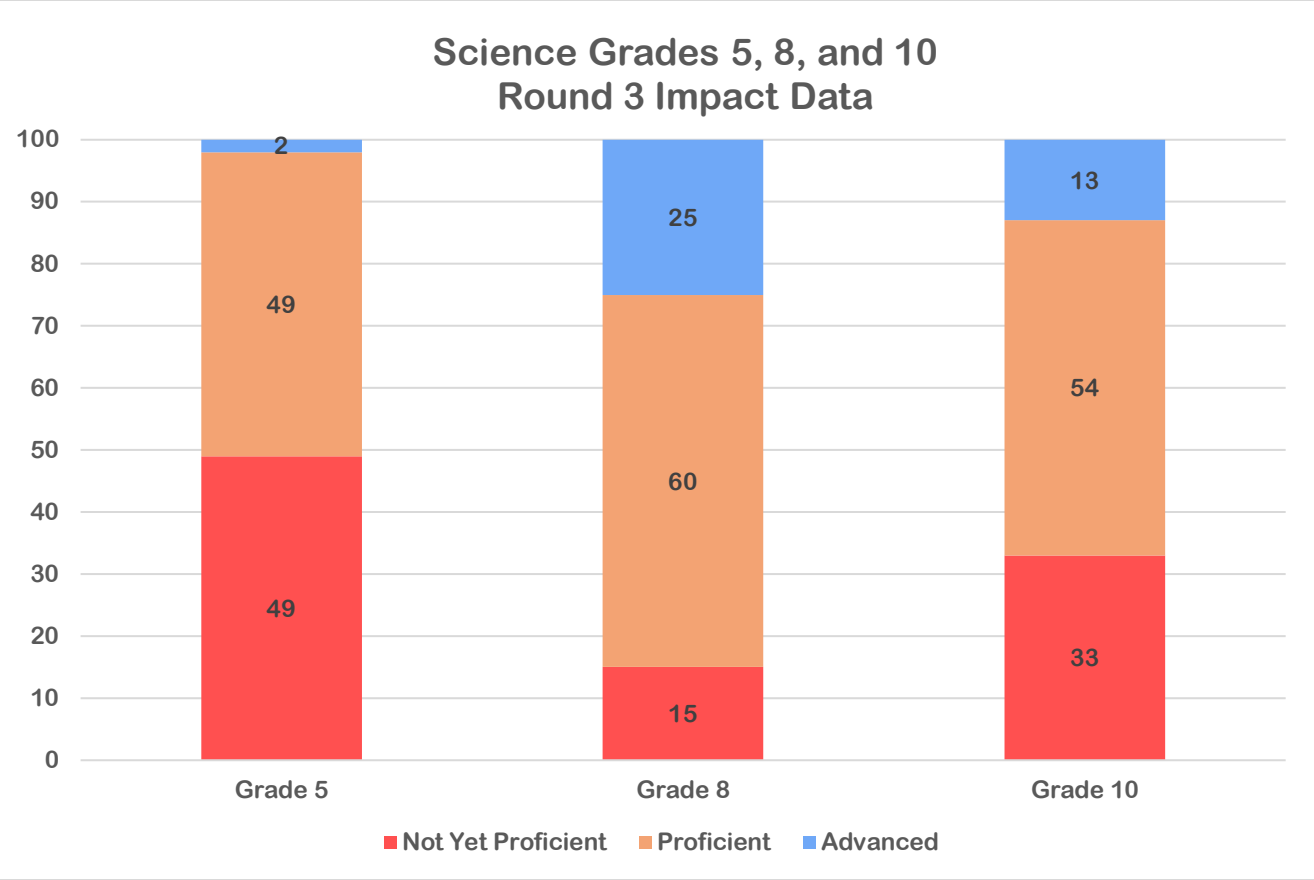


Figure 6. **Impact data from grades 5, 8, and 10 Science Round 3 cut score recommendations**

The recommended cut scores at the end of each judgment round are presented by standard setting committee in Appendix H. Summary statistics for the recommended cut scores at the end of each judgment round are shown in Appendix I. Panelist agreement data after each judgment round is displayed by performance level and committee in Appendix J.

Chapter 4 – Post-Standard Setting

Chapter 4 provides details about the work completed after the standard setting committee meetings. The sections of this chapter include:

- Articulation meetings
- Executive Summary and IDOE Approval

Articulation Meetings

A few panelists (two or three) from each standard setting committee convened in an articulation panel for each subject area. The purpose of the articulation meeting was to review and evaluate the reasonableness of the cut score recommendations from the standard setting committees within each subject.

After an introduction to the purpose of articulation, the panelists were guided through a process where they considered the cut score recommendations from the standard setting committees of their subject area and, if necessary, made changes to the recommendations. Panelists reviewed the PLDs and recommended cut scores for the ISASP assessments within their content area. Panelist then compared the student impact for the different performance levels, based on the committees' Round 3 recommendations. The final result of each articulation committee was a set of recommended cut scores.

Panelists from the science breakout sessions came together on the morning of Wednesday, July 24, 2019 to participate in their articulation meeting. The facilitator for the science articulation was Eric Moyer, Ph.D. Panelists from the ELA and mathematics breakout sessions participated in separate articulation meetings on the morning of Friday, July 26, 2019. The facilitator for the ELA articulation was Jennifer Galindo, Ph.D. and the facilitator for the mathematics articulation was Eric Moyer, Ph.D.

Meeting Process

The process for the articulation meeting involved three steps:

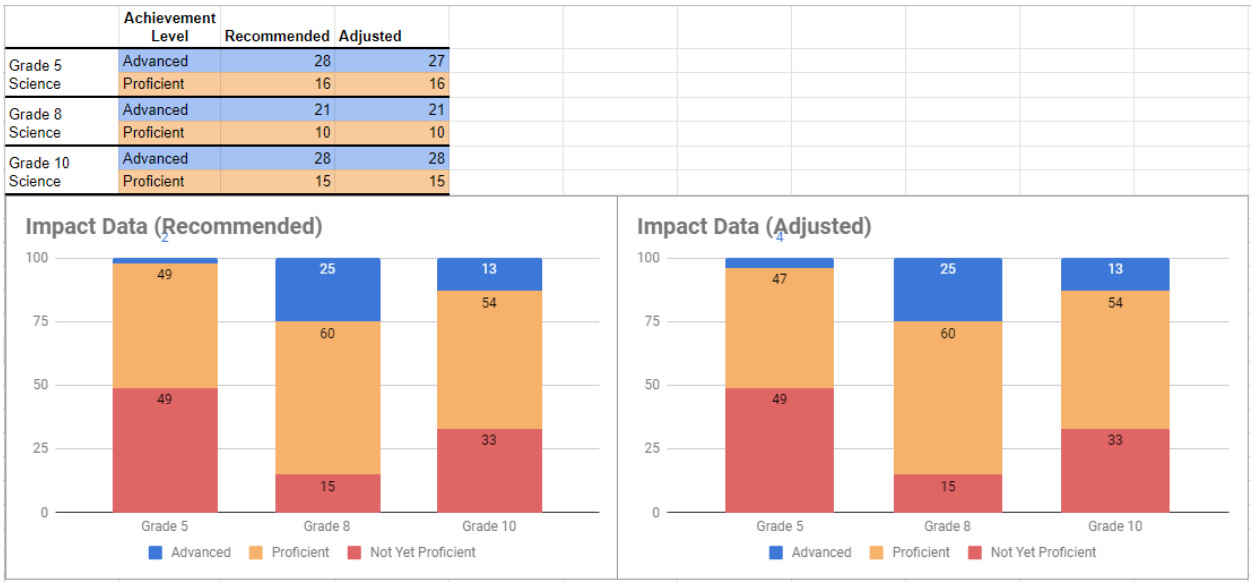
- Review and discuss the PLDs for each subject area.
- Review and discuss the cross-subject impact data.
- Discuss adjustments to recommended cut scores.

At the beginning of the articulation, panelists were told that the purpose of the meeting was to review the cut score recommendations across the grade levels of their respective subject area to determine whether they resulted in a cohesive assessment system. In the standard setting breakout sessions, panelists were focused primarily on the content relevant to their separate committees, whereas in the articulation meeting they reviewed the cut score recommendations from all the standard setting committees of their subject area from an additional policy perspective.

The panelists were initially provided the PLDs for all grades of their subject area. They were given time to review the sets of PLDs, taking note of any differences in expectations for classification into each performance level and discussing with their table group. This activity was completed to provide a content area foundation for panelists' expectations regarding relationships within the impact data across grades. A discussion was led by the facilitator to develop the overall expectation the panelists held about the relationship between the impact data across grades, within the same subject. This established a baseline for the discussion related to the impact data grounded in their content expectations.

The panelists were presented with impact data charts for each grade level that reflected the results of the Round 3 judgments from the standard setting committees (shown above in Figures 4-6). Based on their initial expectations of student impact from their review of the PLDs, the panelists were provided an opportunity to discuss the results and investigate changes to the recommended cut scores from Round 3 using an interactive spreadsheet. Additionally, participants were provided access to the cut score summary statistics from the Round 3 recommendations from each committee.

The interactive spreadsheet for the science articulation meeting, which was accessed through the Pearson website, is presented as an example in Figure 7.



	Achievement Level	Recommended	Adjusted
Grade 5 Science	Advanced	28	27
	Proficient	16	16
Grade 8 Science	Advanced	21	21
	Proficient	10	10
Grade 10 Science	Advanced	28	28
	Proficient	15	15

Figure 7. **Interactive spreadsheet for science articulation meeting**

The interactive spreadsheet allowed panelists to view how possible modifications to the current cut score recommendations resulted in changes to the impact data. In their table groups, the panelists were given the opportunity to recommend changes to cut scores for the performance levels if they noticed a misalignment in the impact data. Panelists were only allowed to adjust the cut scores for the grades associated with their committee. Additionally, the panelists were encouraged to keep any cut score adjustments within the Q1 and Q3 or minimum and maximum ranges from the Round 3 cut score recommendations, to honor the content judgments that the standard setting committees provided.

After the panelists investigated possible cut score changes in their table groups, they had an opportunity to recommend cut score changes for the grade(s) associated with their standard setting committee as a whole group. One recommended change was viewed at a time, then discussed and either accepted or rejected by the articulation committee. When a cut score change was recommended, the meeting facilitator input the recommendation into the interactive spreadsheet for the entire committee to review the resulting impact data. The process was repeated until all recommended changes were discussed and the articulation committee agreed with the entire set of cut score recommendations across all grades.

Changes made to the Round 3 recommended cut scores from the standard setting committees are displayed in Table 11.

Table 11. ***Changes to Round 3 Cut Score Recommendations by Articulation Committees***

Subject	Grade	ELA Test	Performance Level Cut Score Recommendation	
			Proficient	Advanced
ELA	3	Reading	0	0
		Writing	-1	+1
	4	Reading	0	-1
		Writing	0	0
	5	Reading	-1	-1
		Writing	-1	0
	6	Reading	0	0
		Writing	0	-1
	7	Reading	0	0
		Writing	0	0
	8	Reading	0	0
		Writing	0	0
	9	Reading	0	-1
		Writing	0	-1
	10	Reading	0	0
		Writing	0	0

Table 11. ***Changes to Round 3 Cut Score Recommendations by Articulation Committees (cont.)***

Subject	Grade	ELA Test	Performance Level Cut Score Recommendation	
			Proficient	Advanced
ELA	11	Reading	0	0
		Writing	0	0
Math	3		-1	0
	4		+2	+2
	5		+4	+5
	6		+2	+1
	7		+2	-2
	8		0	-2
	9		+1	0
	10		0	-4
	11		-1	+1
Science	5		0	-1
	8		+5	+4
	10		+1	+1

The recommended cut scores after the articulation meetings are displayed for each grade in Table 12.

Table 12. ***Cut Score Recommendations from Articulation Committees***

Subject	Grade	ELA Test	Maximum Score	Performance Level Cut Score Recommendation	
				Proficient	Advanced
ELA	3	Reading	29	14	21
		Writing	44	19	34
	4	Reading	30	15	24
		Writing	45	19	34
	5	Reading	31	15	26
		Writing	46	22	35
	6	Reading	32	16	28
		Writing	47	22	35
	7	Reading	33	17	28
		Writing	48	23	39
	8	Reading	33	17	28
		Writing	48	23	38
	9	Reading	29	15	25
		Writing	49	21	36
	10	Reading	29	13	23
		Writing	49	22	39
	11	Reading	29	16	26
		Writing	49	23	36
Math	3		36	15	29
	4		38	17	32
	5		41	18	33
	6		43	20	34
	7		46	20	38
	8		48	19	39

Table 12. ***Cut Score Recommendations from Articulation Committees (cont.)***

Subject	Grade	ELA Test	Maximum Score	Performance Level Cut Score Recommendation	
				Proficient	Advanced
	9		36	15	28
	10		36	14	28
	11		36	14	30
Science	5		34	16	27
	8		34	15	25
	10		36	16	29

Impact data based on the recommended cut scores after the articulation meetings are shown for ELA, mathematics, and science in Figures 8, 9, and 10, respectively.

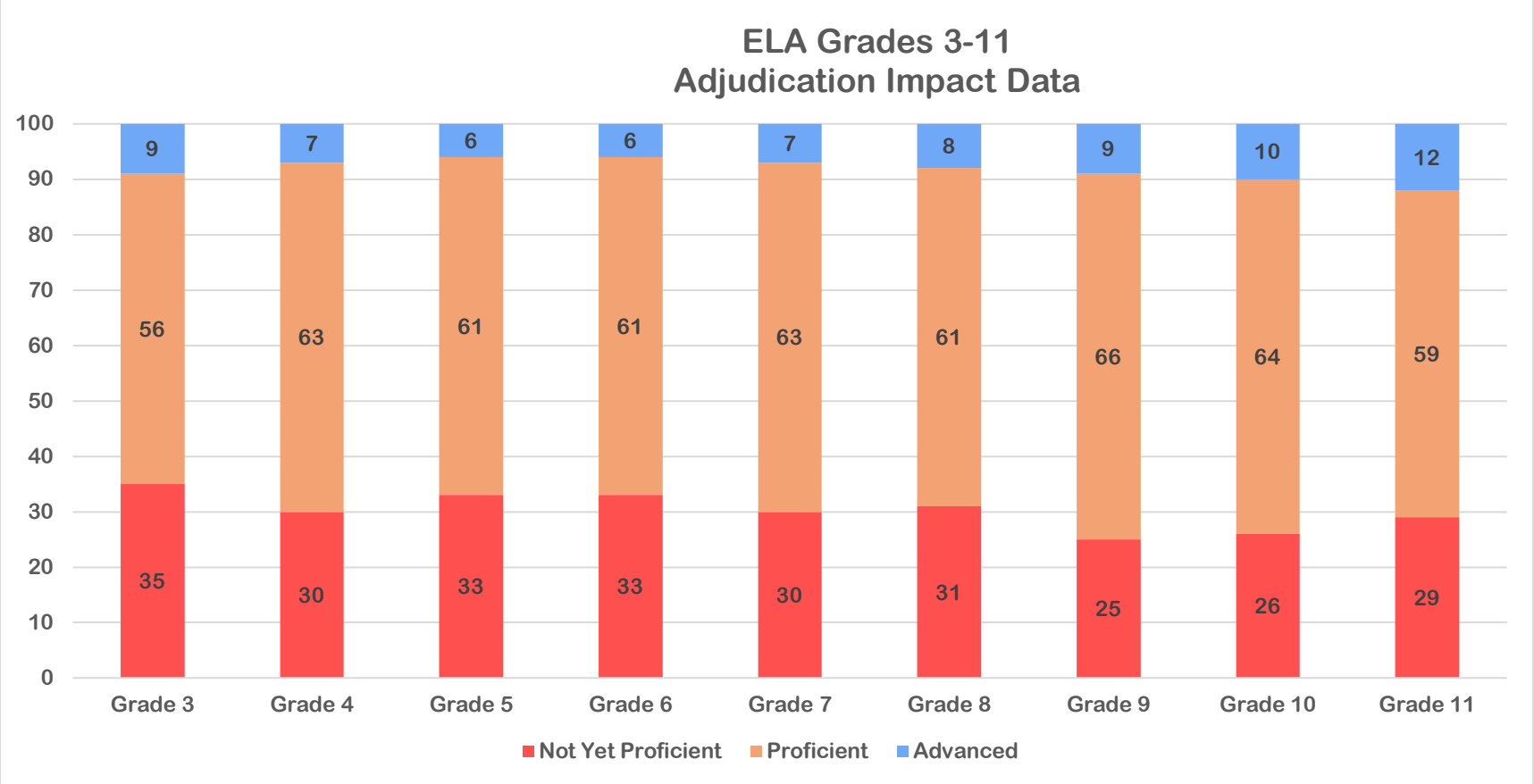


Figure 8. **ELA impact data after articulation meeting**

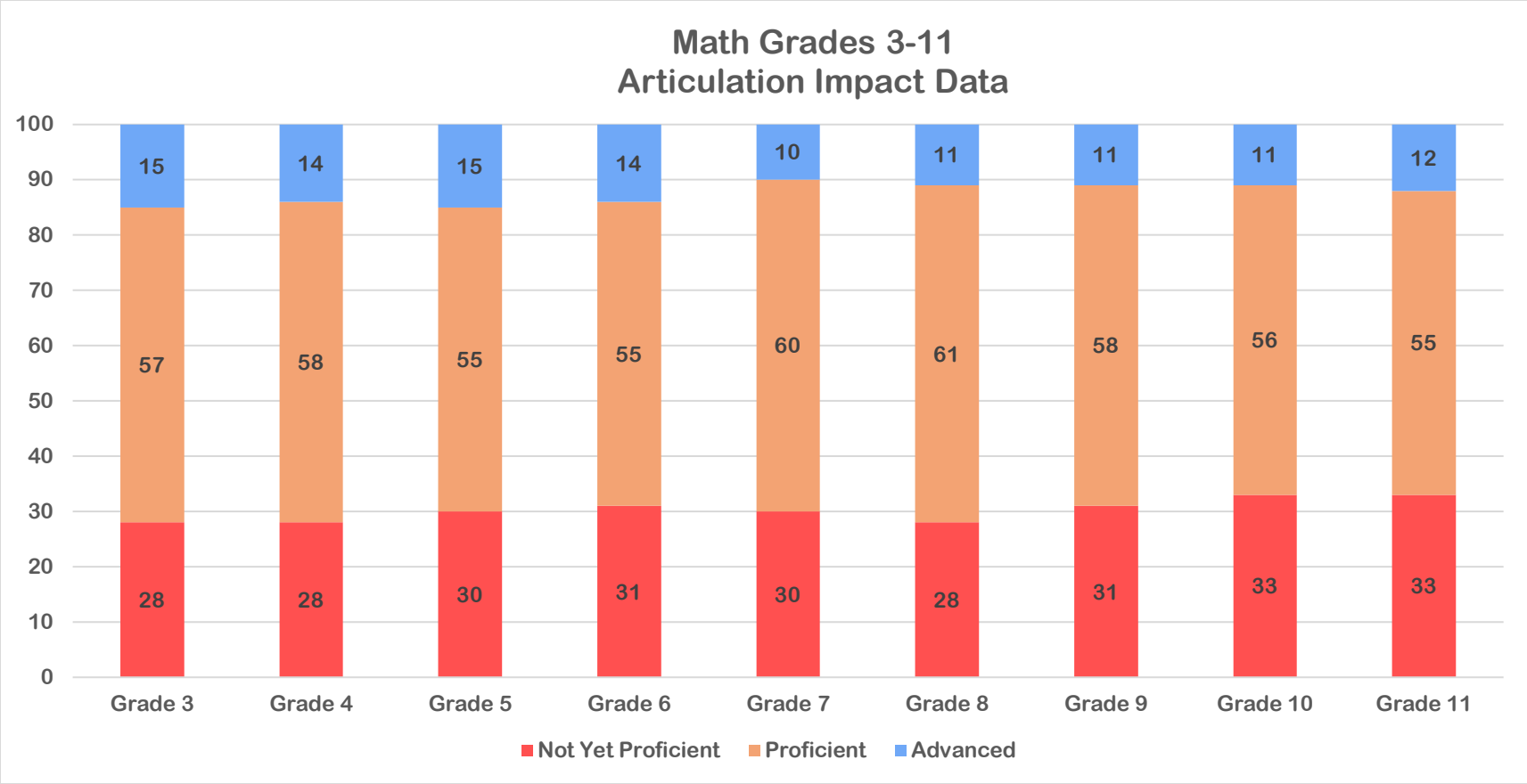


Figure 9. **Mathematics impact data after articulation meeting**

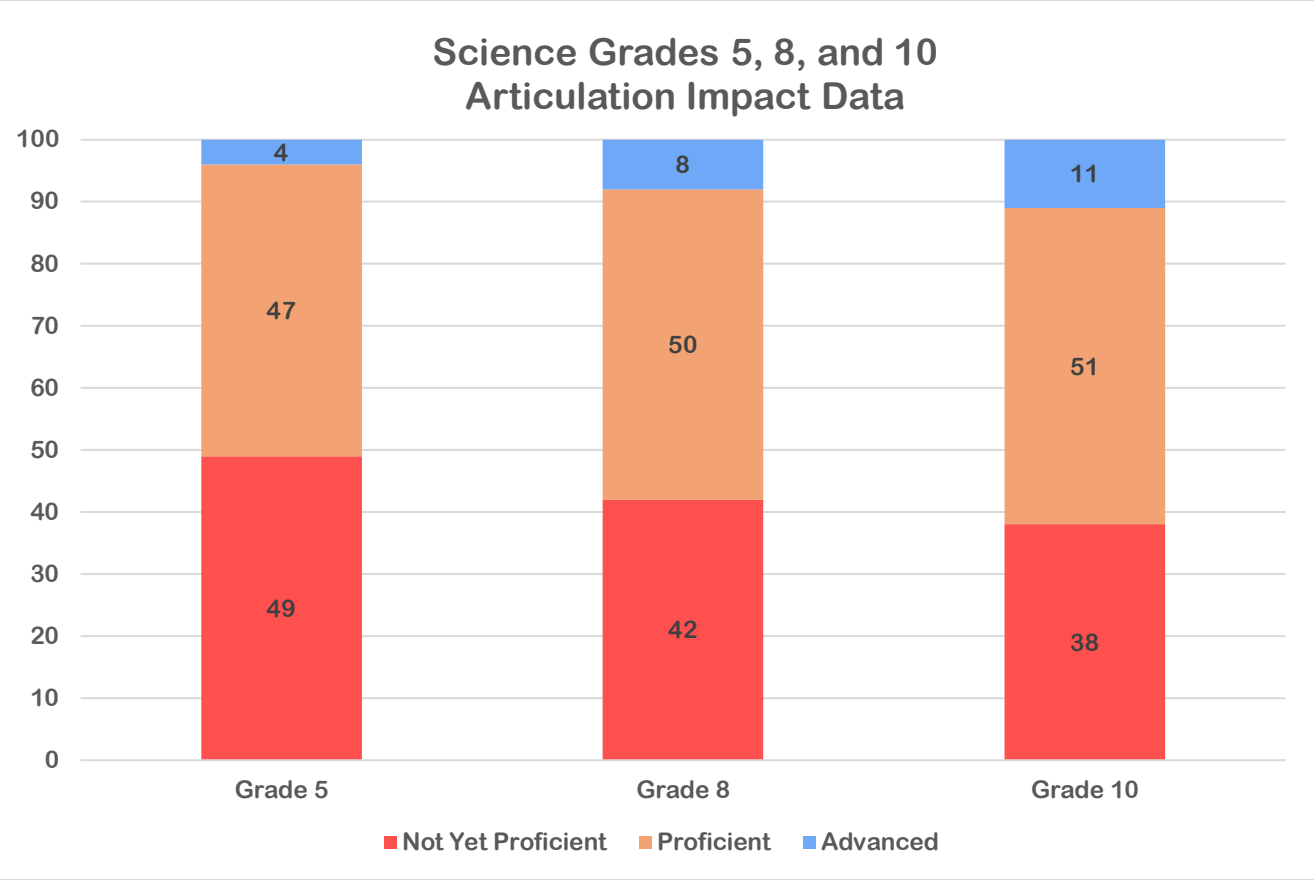


Figure 10. **Science impact data after articulation meeting**

At the end of the articulation meeting, panelists were reminded of the review and approval process before cut score implementation. Panelists also completed an evaluation of the articulation process and meeting on the standard setting website. All materials were submitted by panelists before they were excused from the meeting.

Executive Summary and State Approval

Following the standard setting meeting, an executive summary was provided to ITP to facilitate a review of the cut score recommendations from the standard setting meeting. The executive summary included a brief overview of the methodology and process used to obtain the cut score recommendations, the panelists' cut score recommendations for each performance level by subject, and the impact data associated with the recommended cut scores. The summary was provided to ITP on Monday, July 29, 2019.

The cut score recommendations from the standard setting process were presented to IDOE and the Iowa State Board of Education (ISBE) for consideration and approval. ITP worked with IDOE to provide the ISBE with additional supporting information about the assessment and impact of the cut score recommendations. The ISBE adopted the cut score proficiency recommendations for the ISASP assessments on September 12, 2019.

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

Chapter 5 details evidence supporting the validity of the process used during the standard setting meetings. The sections in Chapter 5 include the following:

- Committee representation
- Committee training
- Perceived validity of the standard setting
- Process standardization

Committee Representation

As part of the standard setting, panelists completed a demographic survey that collected information about their background relevant to educational experience. The results of the self-reported demographic characteristics of the panelists are documented in Appendix C.

As part of the survey, panelists were asked to report their current position (Table C.1), years of teaching experience (Table C.2), and highest level of education (Table C.5). Most panelists were K–12 teachers and had an extensive range of teaching experience. Additionally, all panelists had at least a Bachelor's degree, and many had a Master's or higher.

A large majority of panelists indicated they had experience teaching student populations relevant to their committee (presented in Table C.3), which is a pertinent factor in relation to the cut score recommendations. Many panelists also had experience teaching general education, mainstream special education, and English learners as well as other student populations (Table C.4). A wide range of teaching experience is an important consideration that ideally increases the cohesiveness of cut score recommendations across committees.

Most panelists were currently working in school districts, as shown in Table C.9. The panelists represented various types of districts across the state, including size, type, and socioeconomic status (Tables C.10, C.11, and C.12). The set of panelists for this standard setting was a well-selected sample that represented teachers across the state.

Committee Training

During the standard setting meeting, it was essential that panelists understood how to make judgments as part of the Extended Modified (Yes/No) Angoff standard setting methodology. The panelists were trained on the standard setting methodology during the general session and received extensive preparation in their individual standard setting committees. Training and implementation of the standard setting process was standardized through the presentation training slides, script, and materials used across committees.

Panelists completed a practice judgment round as an opportunity to apply the standard setting methodology without consequence. During the practice judgment round, the panelists reviewed a reduced set of items and provided judgments for two performance levels, *Proficient* and

Advanced. After the practice round, a whole-group discussion was led by the process facilitator to identify and respond to any questions or issues panelists encountered while implementing the standard setting process. Before each judgment round, panelists responded to a readiness survey that confirmed they were prepared to make their judgments. Panelists were not permitted to begin the judgment survey unless they answered "Yes" to all questions on the readiness survey and were encouraged to ask the facilitator for clarification if they responded "No" to any question.

At various points during the standard setting meeting, panelists completed a process evaluation survey to record their impressions of the materials and methods employed. As part of the process evaluation survey, the panelists were asked to provide their thoughts about the effectiveness of a few different components of the training they received for the standard setting. A large majority of panelists believed the training provided on the standard-setting process was either *Adequate* or *More than Adequate*, as shown in Figure 11.

Training provided on the standard-setting process

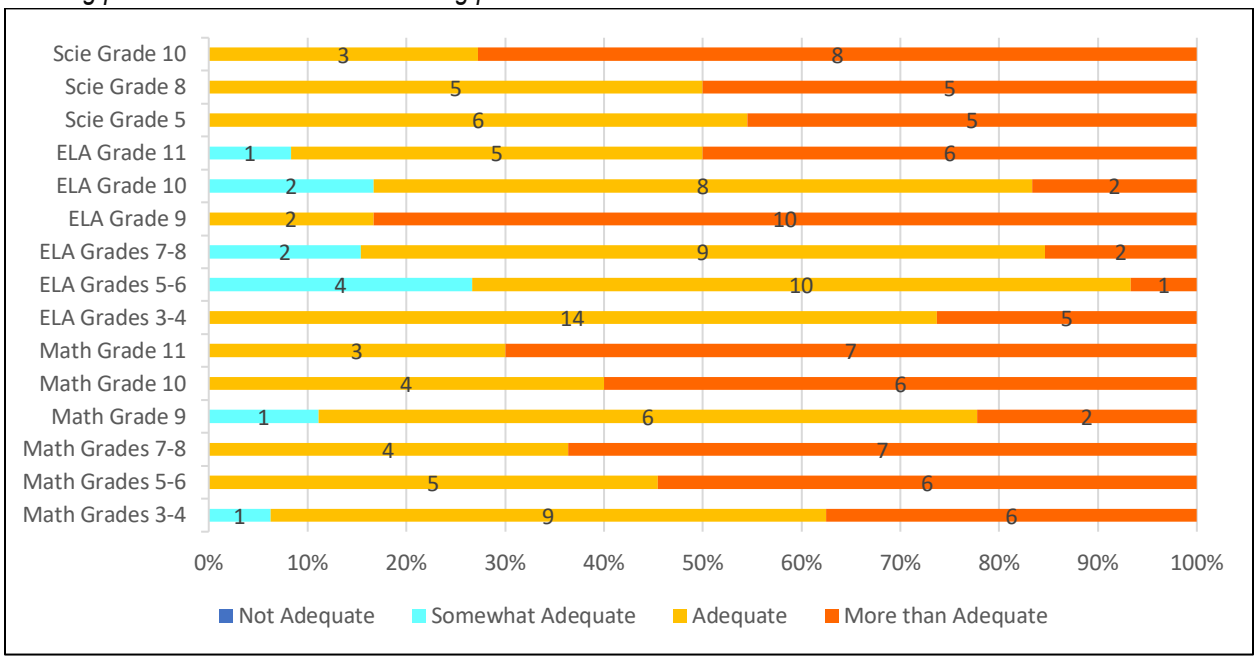


Figure 11. **Process evaluation results regarding training on standard setting process**

Likewise, most panelists felt the amount of time to spent training, creating borderline descriptions, and discussing results of the practice judgment activity was *Adequate* or *More than Adequate*. These results are shown in Figures 12, 13, and 14, respectively.

Amount of time spent training

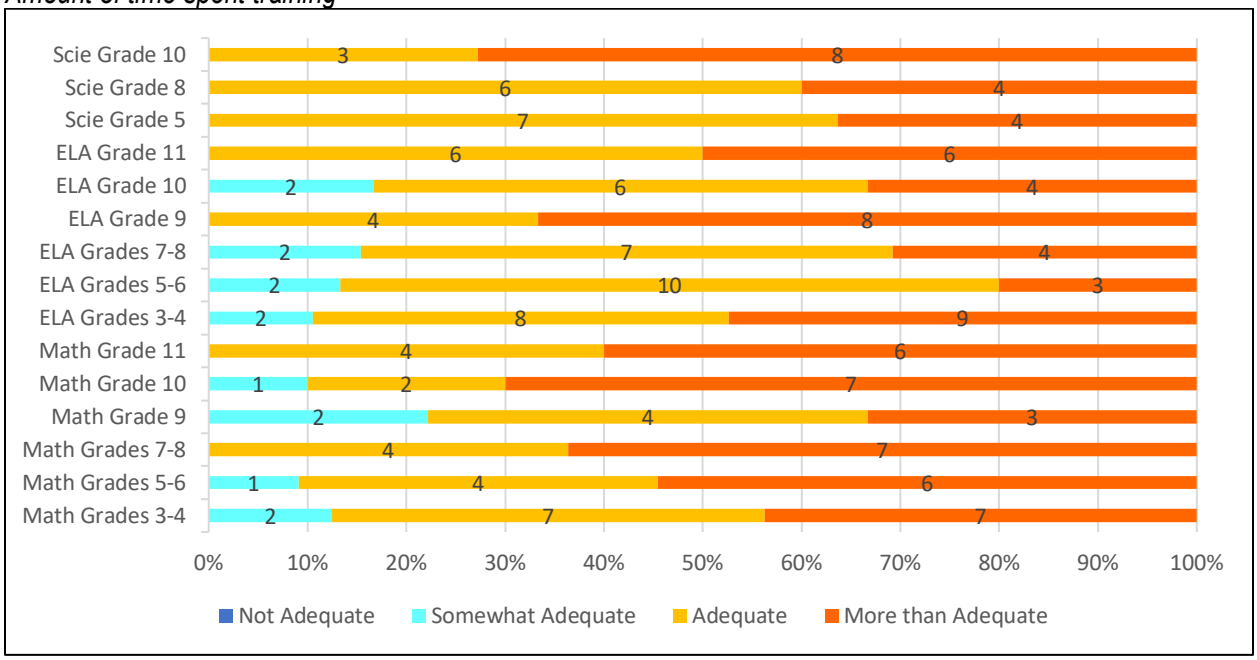


Figure 12. **Process evaluation results regarding amount of time spent training**

Total amount of time to create and discuss borderline descriptions

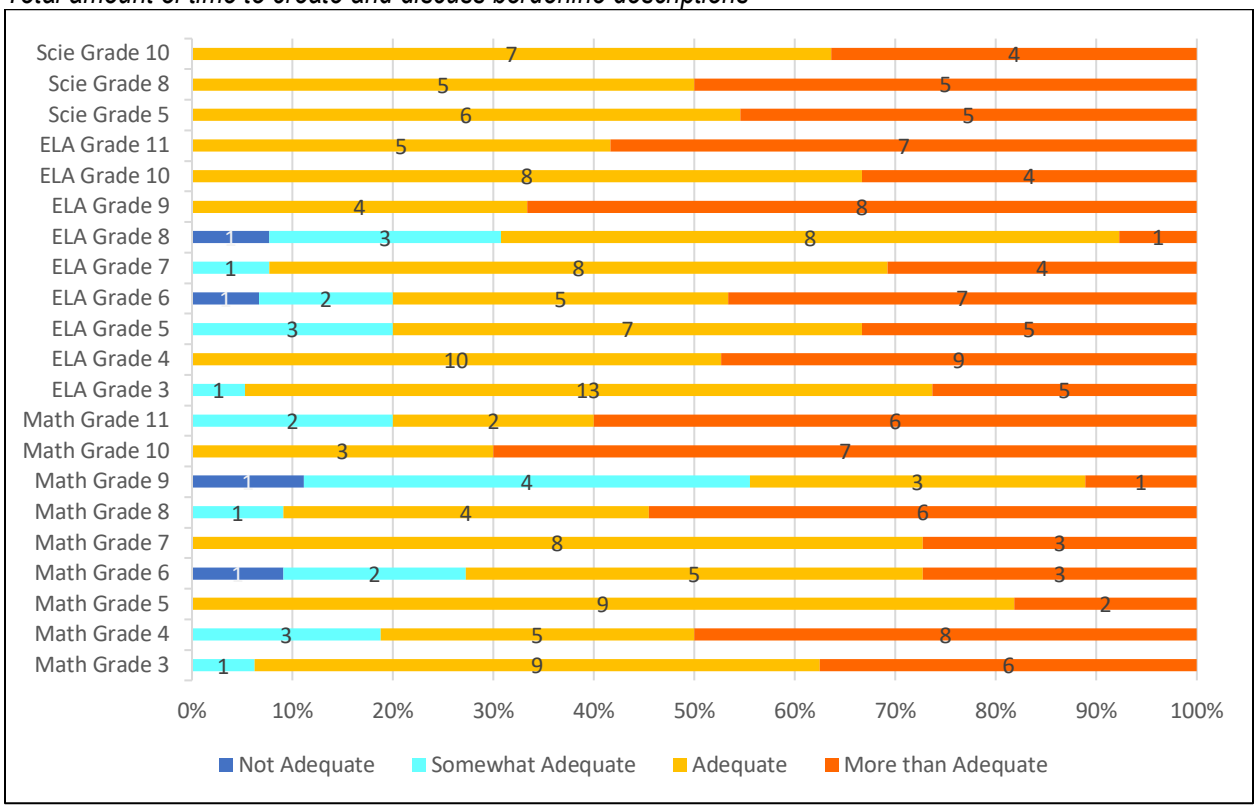


Figure 13. **Process evaluation results regarding amount of time spent on borderline descriptions activity**

Total amount of time to discuss the practice judgments

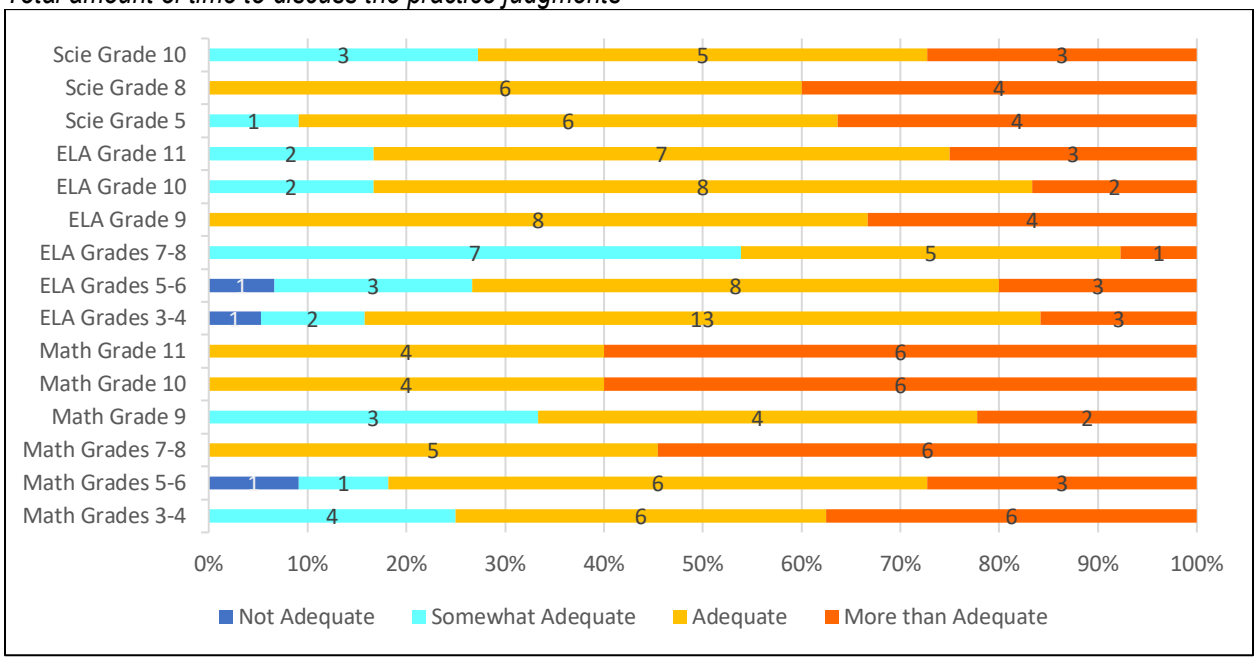


Figure 14. **Process evaluation results regarding amount of time spent on practice judgment activity**

Full results from the process evaluations for each individual committee are presented in Appendix G.

During articulation, panelists were trained on the process and tools to be used during the meeting. At the end of the meeting, panelists completed a process evaluation to record their opinions regarding the training. For each subject-area committee (i.e., ELA, mathematics, and science), all panelists indicated that the introduction to the articulation process was either *Successful* or *Very Successful*, which is illustrated in Figure 15.

Introduction to the articulation process

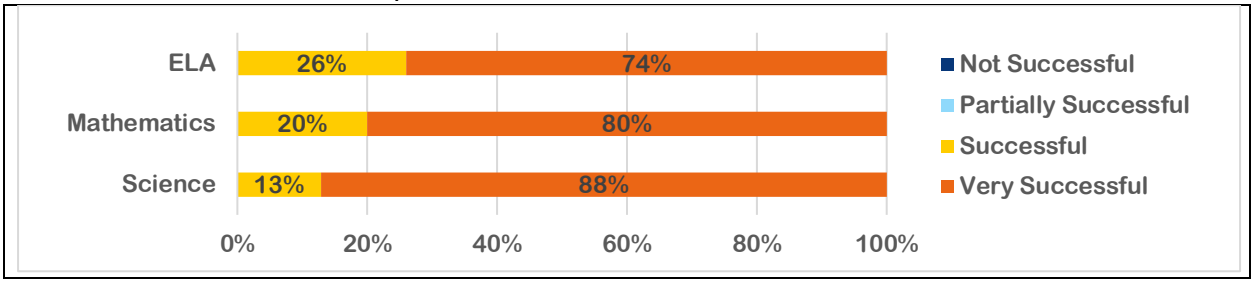


Figure 15. **Articulation evaluation results regarding the introduction to the process**

Perceived Validity of the Standard Setting

Panelists communicated their perceived validity of the standard setting and the recommended cut scores as part of the process evaluation. Generally, the panelists were satisfied with their cut score recommendations and with the standard setting process, as a whole. Results from the

evaluation survey, shown in Figures 16 and 17, indicated panelists had a high level of confidence in the reasonableness of their committee's PLDs.

Proficient

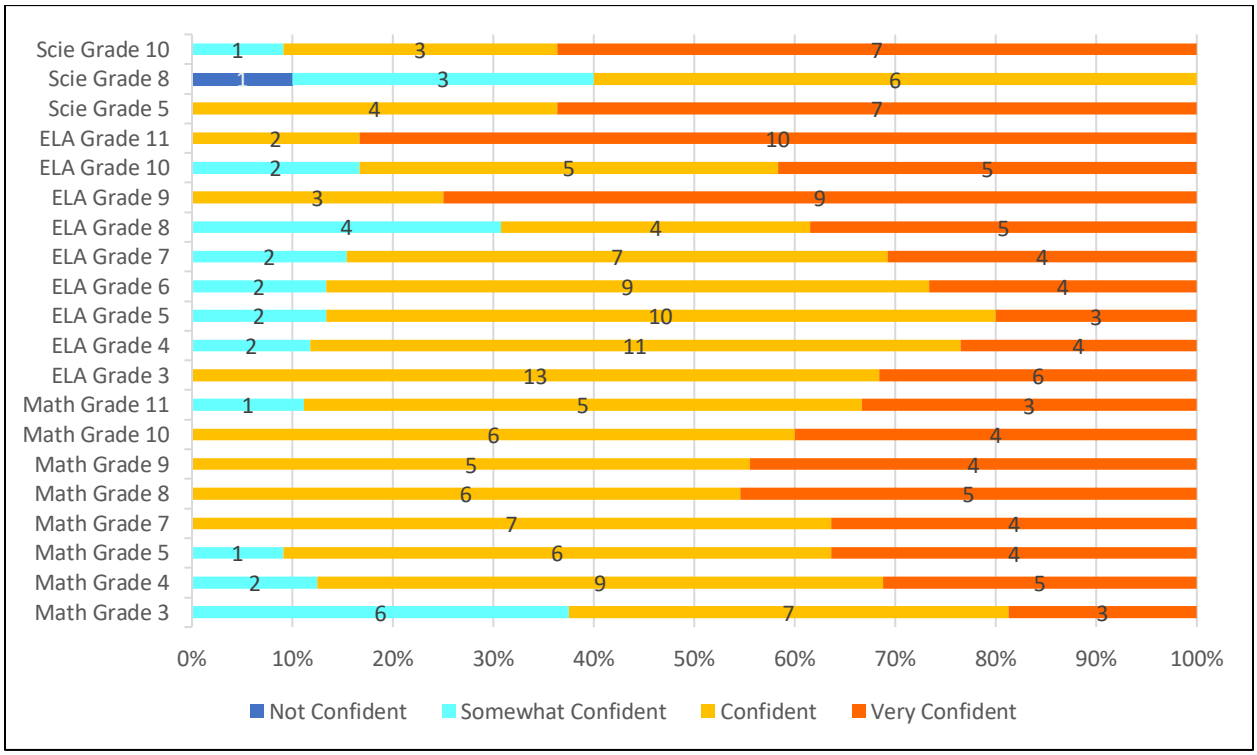


Figure 16. **Process evaluation results regarding reasonableness of the PLDs for the Proficient performance level**

Advanced

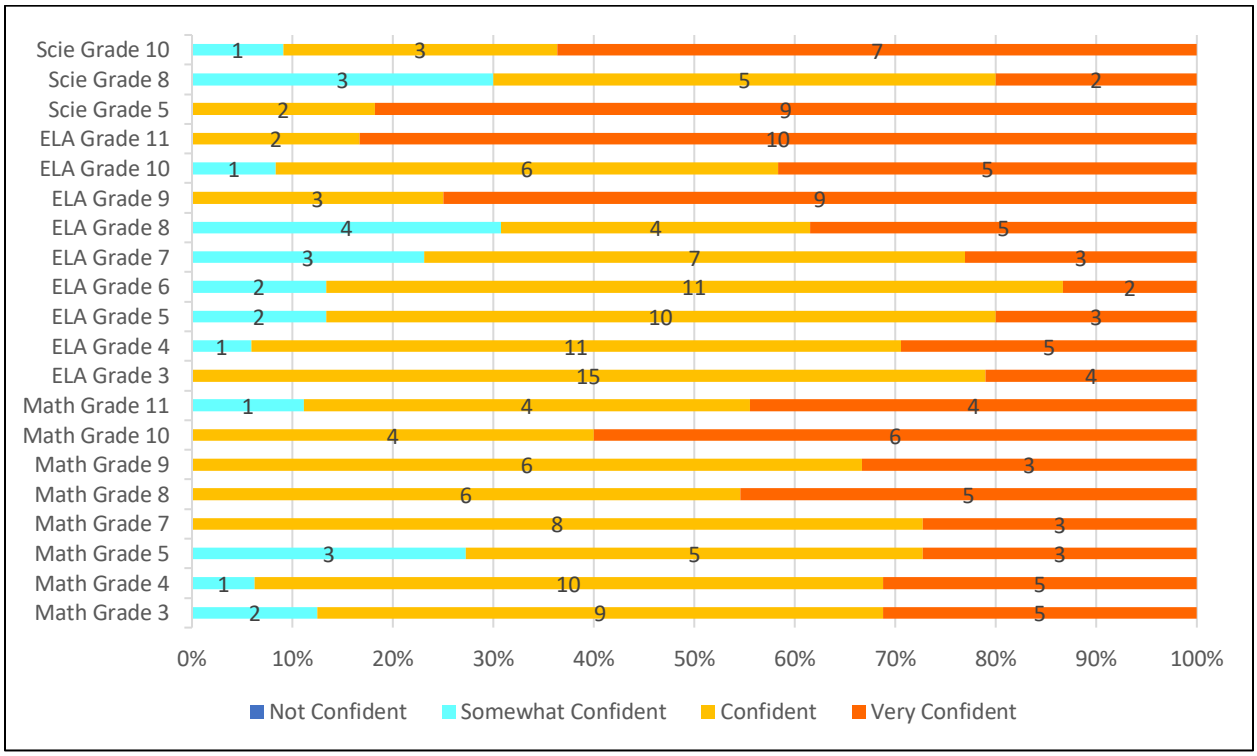


Figure 17. **Process evaluation results regarding reasonableness of the PLDs for the Advanced performance level**

Figures 18 and 19 show the panelists were generally confident that their committee's Round 3 cut score recommendations reflected appropriate levels of student performance on the ISASP assessments.

Proficient

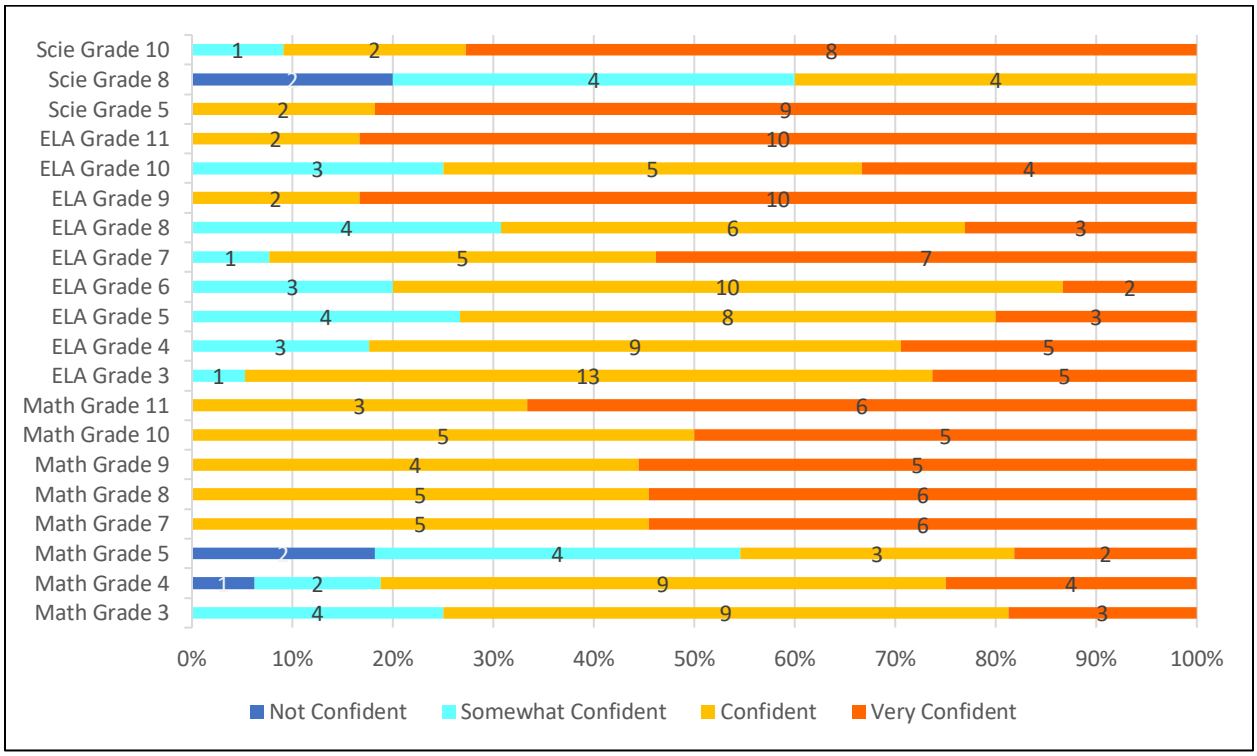


Figure 18. **Process evaluation results regarding confidence in committee's Round 3 cut score recommendations for the Proficient performance level**

Advanced

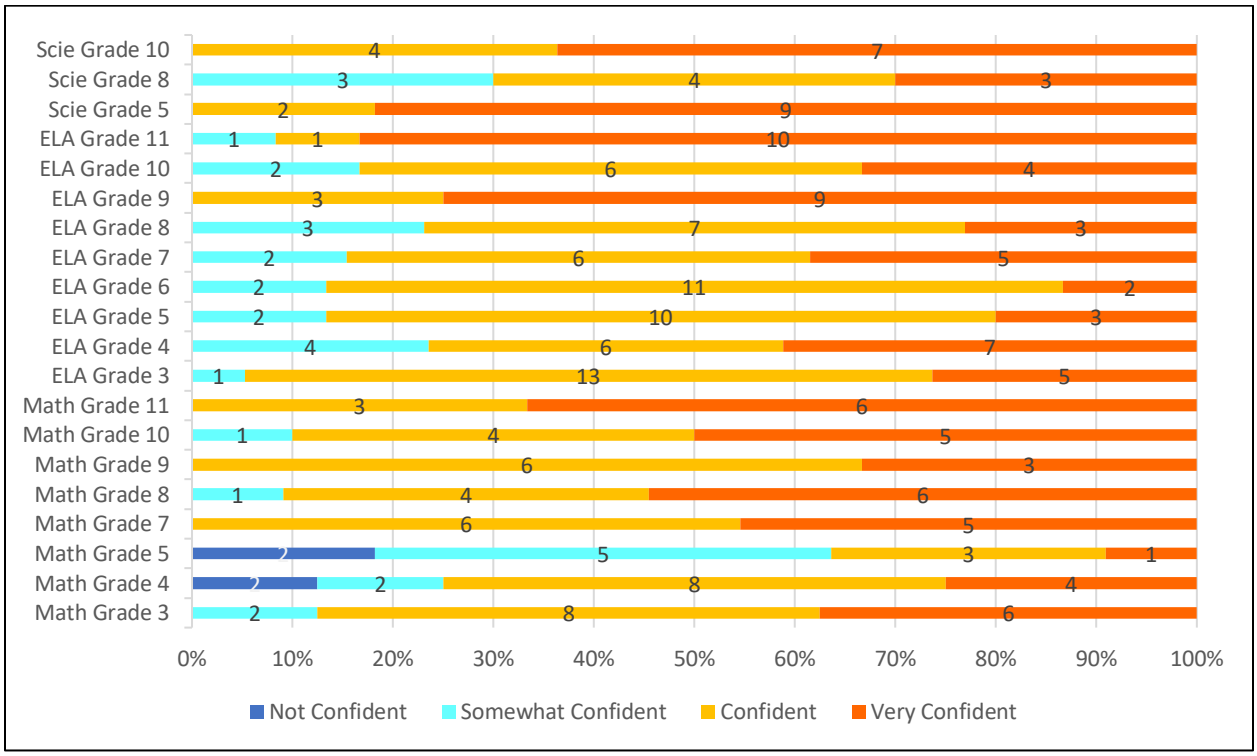


Figure 19. **Process evaluation results regarding confidence in committee's Round 3 cut score recommendations for the Advanced performance level**

The panelists in the articulation meetings also reported their confidence in the cut score recommendations that resulted from the articulation process. A large majority of panelists—at least 80 percent in each articulation committee—indicated they were *Confident* or *Very Confident* in the cut score recommendations that resulted from the vertical articulation process. The results shown in Figures 20 and 21 provide further evidence for the validity of the process used to produce the cut score recommendations for the performance levels of each assessment.

Proficient

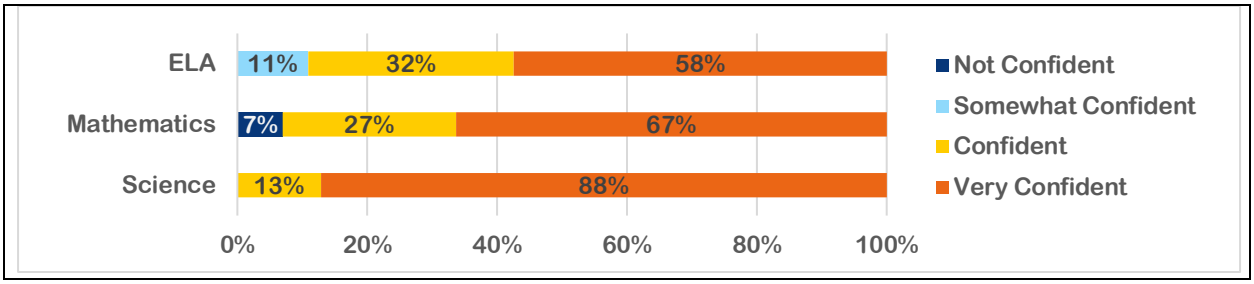


Figure 20. **Articulation evaluation results regarding confidence in articulation cut score recommendations for the Proficient performance level**

Advanced

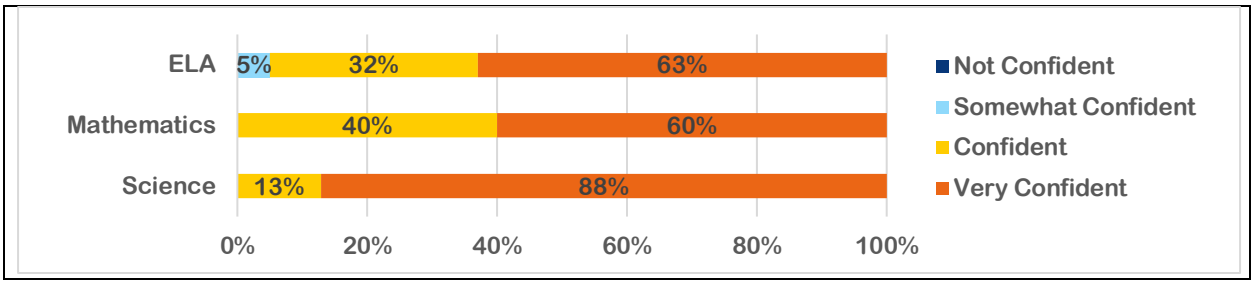


Figure 21. **Articulation evaluation results regarding confidence in articulation cut score recommendations for the Advanced performance level**

Overall, feedback from the panelists about the standard setting was positive. Most indicated it was a valuable experience and that it was facilitated well. Below are select comments from the free-response question in the evaluation survey:

"This has been an extremely valuable experience as an educator that has allowed me to have a better understanding of this whole assessment process. Thank you for valuing teachers and their expertise enough to have them be involved in such an important process for our students."
--Grades 3 and 4 ELA panelist

"The entire event was very well-organized and comfortable. The small groups were perfect for table discussions, and the larger group conversations were interesting with respectful interaction and in-depth, content-specific discussions. The facilitator was very helpful. The entire standard setting process progressed smoothly, and I am glad that I participated in this important work."
--Grades 7 and 8 ELA panelist

"I feel honored to have been a part of this enormously important work. The diversity of our group and the excellent leadership of our facilitator made the process accessible and valuable."
--Grade 9 ELA panelist

"I believe that our leader, Qing Yi, was excellent. She was well-prepared everyday, very knowledgeable, accommodating and accepting to all member's opinions, so encouraging and very optimistic. As a quiet person, I do not like to share in a large group like ours (16 people) but our leader gave us ample time to share and discuss in our small table groups and I felt this to be quite beneficial. Thank you for giving Iowa educators this opportunity to be a part of."
--Grades 3 and 4 mathematics panelist

"It was a great experience. Getting to see how the process works and working behind the scenes was very helpful in understanding the test, the scoring, and it should be really helpful making sense of the data when we get it back later in the year."
--Grades 7 and 8 mathematics panelist

"I enjoyed learning about the process and meeting other teachers from around the state. It is always interesting to listen to other points of view and grow as a person from the interaction. I felt the facilitator did an excellent job of preparing and explaining our role and the importance of it. Thank you for this wonderful learning experience!"
--Grade 9 mathematics panelist

"The entire process was very interesting and well thought out. It was systematic and well explained. The facilitator was excellent and answered all the questions. All opinions were listened to and appreciated. It was an excellent learning experience."
-Grade 8 science panelist

"This was an interesting, enjoyable, and efficient process. I would be more than willing to participate in similar activities in the future. Jennifer Galindo was an excellent facilitator."
--Grade 10 science panelist

Process Standardization

An important part of standard-setting meetings is that standardized procedures are implemented by several facilitators working independently across subject- and grade-specific committees. During the standard-setting meetings, facilitators worked with 15 committees to determine cut scores for two performance levels—*Proficient* and *Advanced*—for the grades 3-11 ELA, grades 3-11 mathematics, and grades 5, 8, and 10 science tests.

The organizers of the meeting paid careful attention to the selection and training of facilitators and the preparation of standard-setting meeting materials to ensure standardization of key aspects of the process. Although it is understood some variation will occur in a dynamic process that involves independent facilitators working for multiple days with panels of educators, the ultimate goal was to achieve an appropriate balance between standardization and flexibility. An appropriate balance of standard protocol and adaptability allows for individual differences in facilitators and panelists while also ensuring critical steps in the process that might impact panelists' ratings are implemented consistently across panels.

Facilitator training provided consistent instruction of the process and procedures used throughout the standard setting. Subject-specific facilitator training meetings were held for 60 minutes each on July 15, 16, and 18, 2019. Additionally, a final preparation meeting was convened one day prior to the standard setting and a debriefing session was held at the conclusion of each day. The training was focused on the consistent use of the materials provided for facilitating the meeting.

Materials used to facilitate each of the meetings were prepared in advance to ensure consistency of the presentation and recording of the information. The materials included presentation slides that facilitators presented to panelists as a guide through the training process. Additionally, a script was included to remind facilitators at various points in the presentation of critical steps in the training process. The Pearson standard setting website was also an important resource used to distribute materials and collect panelist judgments.

The utilization of standardized materials and procedures ensured that critical steps in the process were implemented consistently across the different meetings. There were no reports of any deviations from the procedures that might have impacted the panelist ratings.

The overall standardization of the procedures and materials was successfully implemented with sufficient fidelity by the facilitator. Issues or questions that emerged during the meeting were resolved quickly by the facilitator, standard setting lead and support staff. No deviations occurred from the planned process occurred that would raise concerns about the validity of the achievement level cut score recommendations from this meeting.

References

Davis, L. L. & Moyer, E. L. (2015). PARCC performance level setting technical report. Available from Partnership for Assessment of Readiness for College and Careers (PARCC), Washington, D.C.

Plake, B. S., Ferdous, A. A., Impara, J. C., & Buckendahl, C. W. (2005). *Setting Multiple Performance Standards Using the Yes/No Method: An Alternative Item Mapping Method.* Meeting of the National Council on Measurement in Education. Montreal, Canada.

Appendix A – Performance Level Descriptors

ISASP Policy-Level Performance Level Descriptors

Student results on the ISASP assessments are reported according to three performance levels: *Not Yet Proficient, Proficient,* and *Advanced.* The policy-level performance level descriptors provide descriptions of what students at each performance level *know* and what they *are able to do*. Taken together with grade- and content-specific PLDs and threshold scores, they convey the meaning of the ISASP results. Knowledge and skills are cumulative at each level.

Not-Yet-Proficient	Proficient	Advanced
Students performing at the not-yet-proficient level have not yet demonstrated the knowledge and skills to be classified as Proficient. (*Note: Grade- and Content-Specific Not-Yet-Proficient descriptors will be created after the Grade- and Content-Specific Proficient descriptors are finalized, and so are not included in the draft PLDs that follow in this document.)*	Students performing at the Proficient level demonstrate adequate competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and career in the subject area.	Students performing at the Advanced level demonstrate thorough competency over the knowledge, skills, and abilities that meet the requirements for their grade level associated with academic readiness for college and career in the subject area.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 3

Iowa English Language Arts PLDs – Grade 3		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 3 text. The student can ask and answer questions about a text, retell stories, determine the central message, and describe characters in a story. The student can determine meanings of unknown words and phrases, including nonliteral language, and distinguish point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 3 text. The student can ask and answer complex questions about a text, retell stories, determine and analyze the central message, and describe in depth the characters in a story. The student can determine meanings of advanced words and phrases, including nonliteral language, and distinguish point of view. The student can, in depth, describe and analyze literary elements, text structures, and similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 3 text. The student can ask and answer questions about a text, determine main ideas, and describe relationships between concepts. The student can determine meanings of unknown general academic and domain-specific words and phrases and distinguish point of view. The student can describe text structures, evaluate arguments and claims, and analyze similar topics across multiple texts.	**A student at this level** can read and comprehend grade 3 text. The student can ask and answer complex questions about a text, determine and analyze main ideas, and describe, in depth, the relationships between concepts. The student can determine meanings of advanced academic and domain-specific words and phrases and distinguish point of view. The student can, in depth, describe text structures, evaluate arguments and claims, and analyze in depth similar topics across multiple texts.
Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.

Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 4

Iowa English Language Arts PLDs – Grade 4		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 4 text. The student can refer to details to determine what the text says explicitly, make inferences, summarize stories, determine theme, and describe characters in a story. The student can determine meanings of unknown words and phrases, including nonliteral language, and distinguish point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 4 text. The student can refer to details to determine what the text says explicitly, make complex inferences, summarize stories, determine and analyze theme, and describe, in depth, the characters in a story. The student can determine meanings of advanced words and phrases, including nonliteral language, and distinguish point of view. The student can, in depth, describe and analyze literary elements, text structures, and similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 4 text. The student can refer to details to determine what the text says explicitly, draw inferences, summarize text, determine main ideas, and describe relationships between concepts. The student can determine meanings of unknown general academic and domain-specific words and phrases and distinguish point of view. The student can describe text structures, evaluate arguments and claims, and analyze similar topics across multiple texts.	**A student at this level** can read and comprehend grade 4 text. The student can refer to details to determine what the text says explicitly and draw complex inferences, determine and analyze main ideas, and describe, in depth, relationships between concepts. The student can determine meanings of advanced academic and domain-specific words and phrases and distinguish point of view. The student can, in depth, describe text structures, evaluate arguments and claims, and analyze in depth similar topics across multiple texts.
Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.

Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 5

Iowa English Language Arts PLDs – Grade 5		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 5 text. The student can determine what the text says explicitly, draw inferences, summarize stories, determine theme, and describe characters in a story. The student can determine meanings of unknown words and phrases, including nonliteral language, and distinguish point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 5 text. The student can determine what the text says explicitly, draw complex inferences, summarize stories, determine and analyze theme, and describe, in depth, the characters in a story. The student can determine meanings of advanced words and phrases, including nonliteral language, and distinguish point of view. The student can, in depth, describe and analyze literary elements, text structures, and similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 5 text. The student can determine what the text says explicitly, draw inferences, summarize text, determine main ideas, and describe relationships between concepts. The student can determine meanings of unknown general academic and domain-specific words and phrases and distinguish point of view. The student can describe text structures, evaluate arguments and claims, and analyze similar topics across multiple texts.	**A student at this level** can read and comprehend grade 5 text. The student can determine what the text says explicitly and draw complex inferences, determine and analyze main ideas, and describe in depth the relationships between concepts. The student can determine meanings of advanced academic and domain-specific words and phrases and distinguish point of view. The student can, in depth, describe text structures, evaluate arguments and claims, and analyze in depth similar topics across multiple texts.
Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.

Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 6

Iowa English Language Arts PLDs – Grade 6		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 6 text. The student can determine what the text says explicitly, make inferences, summarize text, determine theme, and analyze how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including figurative language, and analyze the impact of word choice on meaning and tone. The student can explain how an author develops point of view. The student can describe literary elements and text structures, and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 6 text. The student can determine what the text says explicitly, make complex inferences, summarize the text, and analyze, in depth, how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including uncommon figurative language, and analyze thoroughly the impact of word choice on meaning and tone. The student can explain in depth how an author develops point of view. The student can describe, in depth, literary elements and text structures, and analyze, in depth, similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 6 text. The student can determine what the text says explicitly, make inferences, summarize text, and determine main ideas. The student can determine meanings of unknown general words and phrases, including figurative and technical language. The student can determine point of view or purpose, explain how it is conveyed, and analyze how key events or ideas are introduced or developed in text. The student can trace and evaluate arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can analyze text structure and integrate information presented in different formats and across multiple texts.	**A student at this level** can read and comprehend grade 6 text. The student can determine what the text says explicitly, make complex inferences, thoroughly summarize text, and determine main ideas. The student can determine and analyze meanings of advanced words and phrases, including uncommon figurative and technical language. The student can determine point of view or purpose, explain in depth how it is conveyed, and analyze in depth how key events or ideas are introduced or developed in text. The student can trace and evaluate in depth the arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can, in depth, analyze text structures and thoroughly integrate information presented in different formats and across multiple texts.

Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.
Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 7

Iowa English Language Arts PLDs – Grade 7		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 7 text. The student can determine what the text says explicitly, make inferences, objectively summarize text, determine theme, and analyze how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including figurative language, and analyze the impact of word choice on meaning and tone. The student can explain how an author develops point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 7 text. The student can determine what the text says explicitly, make complex inferences, thoroughly and objectively summarize the text, and analyze in depth how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including uncommon figurative language, and analyze thoroughly the impact of word choice on meaning and tone. The student can explain in depth how an author develops point of view. The student can, in depth, describe literary elements and text structures, and analyze in depth similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 7 text. The student can determine what the text says explicitly, make inferences, objectively summarize text, and determine main ideas. The student can determine meanings of unknown general words and phrases, including figurative and technical language. The student can determine point of view or purpose, explain how it is conveyed, and analyze how key events or ideas are introduced or developed in text. The student can trace and evaluate arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can analyze text structure and integrate information presented in different formats and across multiple texts.	**A student at this level** can read and comprehend grade 7 text. The student can determine what the text says explicitly, make complex inferences, thoroughly and objectively summarize text, and determine main ideas. The student can determine and analyze meanings of advanced words and phrases, including uncommon figurative and technical language. The student can determine point of view or purpose, explain in depth how it is conveyed, and analyze in depth how key events or ideas are introduced or developed in text. The student can trace and evaluate in depth the arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can, in depth, analyze text structures and thoroughly integrate information presented in different formats and across multiple texts.

Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.
Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 8

Iowa English Language Arts PLDs – Grade 8		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 8 text. The student can determine what the text says explicitly, make inferences, objectively summarize text, determine theme, and analyze how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including figurative language, and analyze the impact of word choice on meaning and tone. The student can explain how an author develops point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 8 text. The student can determine what the text says explicitly, make complex inferences, thoroughly and objectively summarize the text, and analyze in depth how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including uncommon figurative language, and analyze thoroughly the impact of word choice on meaning and tone. The student can explain in depth how an author develops point of view. The student can, in depth, describe literary elements and text structures, and analyze in depth similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 8 text. The student can read closely to determine what the text says explicitly, make inferences, objectively summarize text, determine main ideas, and determine meanings of words and phrases, including figurative and technical language. The student can determine point of view or purpose, explain how it is conveyed, and analyze how key events or ideas are introduced or developed in text. The student can trace and evaluate arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can analyze text structure and integrate information presented in different formats and across multiple texts.	**A student at this level** can read and comprehend grade 8 text. The student can read closely to determine what the text says explicitly, make insightful inferences, thoroughly and objectively summarize text, determine main ideas, and determine meanings of unknown words and phrases, including uncommon figurative and technical language, by using contextual clues. The student can determine point of view or purpose, explain in depth how it is conveyed, and analyze in depth how key events or ideas are introduced or developed in text. The student can trace and evaluate in depth the arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can, in depth, analyze text structures and thoroughly integrate information presented in different formats and across multiple texts.

Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.
Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grades 9-10

Iowa English Language Arts PLDs – Grades 9–10		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grades 9–10 text. The student can determine what the text says explicitly, make inferences, objectively summarize text, determine theme, and analyze how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including figurative language, and analyze the impact of word choice on meaning and tone. The student can explain how an author develops point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grades 9–10 text. The student can determine what the text says explicitly, make complex inferences, thoroughly and objectively summarize the text, and analyze in depth how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including uncommon figurative language, and analyze thoroughly the impact of word choice on meaning and tone. The student can explain in depth how an author develops point of view. The student can, in depth, describe literary elements and text structures, and analyze in depth similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grades 9–10 text. The student can read closely to determine what the text says explicitly, make inferences, objectively summarize text, determine main ideas, and determine meanings of words and phrases, including figurative and technical language. The student can determine point of view or purpose, explain how it is conveyed, and analyze how key events or ideas are introduced or developed in text. The student can trace and evaluate arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can analyze text structure and integrate information presented in different formats and across multiple texts.	**A student at this level** can read and comprehend grades 9–10 text. The student can read closely to determine what the text says explicitly, make insightful inferences, thoroughly and objectively summarize text, determine main ideas, and determine meanings of unknown words and phrases, including uncommon figurative and technical language, by using contextual clues. The student can determine point of view or purpose, explain in depth how it is conveyed, and analyze in depth how key events or ideas are introduced or developed in text. The student can trace and evaluate in depth the arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can, in depth, analyze text structures and thoroughly integrate information presented in different formats and across multiple texts.

Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.
Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
English Language Arts
Grade 11

Iowa English Language Arts PLDs – Grade 11		
Domain	**Proficient**	**Advanced**
Reading: Literature	**A student at this level** can read and comprehend grade 11 text. The student can determine what the text says explicitly, make inferences, objectively summarize text, determine theme, and analyze how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including figurative language, and analyze the impact of word choice on meaning and tone. The student can explain how an author develops point of view. The student can describe literary elements and text structures and analyze similar themes or ideas across multiple texts.	**A student at this level** can read and comprehend grade 11 text. The student can determine what the text says explicitly, make complex inferences, thoroughly and objectively summarize the text, and analyze in depth how characters develop over the course of a text. The student can determine meanings of unknown words and phrases, including uncommon figurative language, and analyze thoroughly the impact of word choice on meaning and tone. The student can explain in depth how an author develops point of view. The student can, in depth, describe literary elements and text structures, and analyze in depth similar themes or ideas across multiple texts.
Reading: Informational Text	**A student at this level** can read and comprehend grade 11 text. The student can read closely to determine what the text says explicitly, make inferences, objectively summarize text, determine main ideas, and determine meanings of words and phrases, including figurative and technical language. The student can determine point of view or purpose, explain how it is conveyed, and analyze how key events or ideas are introduced or developed in text. The student can trace and evaluate arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can analyze text structure and integrate information presented in different formats and across multiple texts.	**A student at this level** can read and comprehend grade 11 text. The student can read closely to determine what the text says explicitly, make insightful inferences, thoroughly and objectively summarize text, determine main ideas, and determine meanings of unknown words and phrases, including uncommon figurative and technical language, by using contextual clues. The student can determine point of view or purpose, explain in depth how it is conveyed, and analyze in depth how key events or ideas are introduced or developed in text. The student can trace and evaluate in depth the arguments and claims in text, distinguishing claims supported by evidence from those that are not. The student can, in depth, analyze text structures and thoroughly integrate information presented in different formats and across multiple texts.

Writing	**A student at this level** can write clear, coherent opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses effective introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student uses relevant information from multiple sources and develops support for his or her writing.	**A student at this level** can write complex opinion, informative, and narrative pieces that are appropriate and organized for task and purpose, and can provide evidence and details relevant to the topic. The student uses sophisticated introductions, conclusions, and transitions. The student uses grade-appropriate language, conventions, and techniques. The student is adept at using relevant information from multiple sources and develops strong support for his or her writing.
Language	**A student at this level** can demonstrate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make effective choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases.	**A student at this level** can demonstrate a comprehensive command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling when writing. The student can apply knowledge of language to make strong choices for meaning or style. The student can determine or clarify the meaning of unknown and multiple-meaning words and phrases as well as sophisticated figurative language, word relationships, and nuances in meaning. The student uses grade-appropriate conversational, general academic, and domain-specific words and phrases adeptly.

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 3

Grade 3	Proficient	Advanced
3.NBT **Number & Operations in Base Ten**	**A student at this level can:** • identify the place values of digits in the ones, tens, hundreds, and thousands places • round a 2- or 3-digit whole number to the nearest 10, a whole number with up to 4 digits to the nearest 100, or a single whole number to both the nearest 10 and the nearest 100 • apply strategies for rounding in a simple multistep problem • multiply 1-digit whole numbers by 10 or multiples of 10 • add and subtract 2 or more whole numbers with up to 3 digits within 1,000 with or without composing or decomposing tens and hundreds • represent addition and subtraction of whole numbers within 1,000 with models, such as base ten blocks	**A student at this level can:** • determine what numbers satisfy a set of conditions involving concepts of rounding • apply strategies for rounding in a complex multistep problem • multiply 1-digit whole numbers by multiples of 100 • evaluate strategies for solving a given addition or subtraction equation • identify errors in a solution strategy for a given addition or subtraction equation • interpret a context to add, subtract, and multiply by multiples of 10 to solve a multistep problem
3.NF **Number & Operations - Fractions**	**A student at this level can:** • understand a unit fraction as an equal part of a whole • represent unit fractions on a number line • write a fraction to represent a quantity in a simple context • interpret fractions in terms of equal parts of a whole and intervals on a number line • recognize fractional equivalence supported by visual models • compare 2 fractions with the same numerator or the same denominator with words or symbolically using <, >, or = • recognize that comparisons of fractions are valid only when the 2 fractions refer to the same whole	**A student at this level can:** • interpret and apply fractions, unit fractions, and fractional equivalence in terms of equal parts of a whole and intervals on a number line in a context involving more than 1 of the same whole • represent a whole number as a fraction and recognize fractions that are equivalent to whole numbers • create a model to demonstrate fractional equivalence • interpret a context requiring a comparison of 2 fractions of 2 different wholes • compare and order multiple fractions with the same numerator or the same denominator, or by generating equivalent fractions

Grade 3	Proficient	Advanced
3.OA **Operations & Algebraic Thinking**	**A student at this level can:** • find an unknown in a multiplication equation • write or identify a product or quotient of whole numbers that describes equal groups of objects • solve 1-step and simple 2-step word problems • apply a property of operations to multiply or divide, or to find an unknown in a 1-step multiplication or division equation • understand division as an unknown-factor multiplication problem • calculate whole-number products and quotients in a context • multiply and divide within 100 • apply operations to solve simple 2-step problems • extend the terms of a simple arithmetic pattern • identify rules or simple characteristics of arithmetic patterns	**A student at this level can:** • solve 2-step and multistep word problems • apply multiple properties of operations to multiply and divide, or to find an unknown in a 2-step equation • interpret the meaning of whole-number products and quotients as it relates to a context • explain or defend rules for arithmetic patterns • identify a rule for an arithmetic pattern in a context, apply the rule to generate values, and interpret the values in terms of the context • interpret a complex context involving multiplication and division within 100 to solve problems
3.G **Geometry**	**A student at this level can:** • identify shapes with a given unit fraction shaded, when options are or are not partitioned into the same number of equal areas • identify shapes that are partitioned into equal and unequal areas • identify the unit fraction associated with a shape partitioned into equal areas • partition shapes into equal areas, and relate each part to a unit fraction or multiple parts to a fractional part • create examples and non-examples of shapes that fit into different categories • identify a shape, such as a quadrilateral, rectangle, square, or rhombus • identify shapes (quadrilateral, rectangle, square, rhombus) in a figure composed of multiple shapes	**A student at this level can:** • compare sizes of shaded fractions of 2 same-size shapes divided differently, such as different number or orientations of equal parts • relate a unit square to a fraction of the area of a rectangle, given the lengths of the sides • understand a shape as being in a subcategory of another shape due to shared attributes • describe a relationship between a category and subcategory of shapes

Grade 3	Proficient	Advanced
3.MD **Measurement & Data**	**A student at this level can:** • tell and write expressions of time • measure time intervals in minutes • estimate length • measure length, including a 1-step measurement with a ruler with 1 end or neither end of the object at zero • measure liquid volume and mass • solve 1- and 2-step problems with time, length, liquid volume, and mass with whole numbers • solve 1-step problems using unit-scaled pictographs, bar graphs, and line plots • create and interpret pictographs, bar graphs, and line plots, and use them to solve 1- and 2-step problems • find perimeters, given the side lengths of polygons • solve problems related to perimeter, including finding a missing side length, given the perimeter • identify a unit square • find the area of a rectangle by counting unit squares or multiplying whole-number side lengths • find the area of a tiled shape	**A student at this level can:** • solve problems with time, length, liquid volume, and mass with simple fractions • solve multistep problems with time, length, liquid volume, and mass with whole numbers • explain or defend a measurement, calculation, or interpretation • solve multistep problems involving interpreting scaled pictographs, bar graphs, and line plots • recognize patterns involving the relationship between area and perimeter • find areas by decomposing figures • relate multiple ways of finding the area of a rectangle or rectilinear shape that is tiled in unit squares • estimate the area of a non-rectilinear shape that is tiled in unit squares

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 4

Grade 4	Proficient	Advanced
4.NBT **Number & Operations in Base Ten**	**A student at this level can:** • estimate and round numbers to specified place values, including to the nearest 10, 100, or 1,000 • recognize a digit in one place represents 10 times as much as it represents in the place to the right • read, write, and compare numbers in standard form up to 1,000,000 or multi-digit numbers in expanded notation • add and subtract up to 1,000,000 • multiply a 2-, 3-, or 4-digit whole number by a 1-digit whole number or two 2-digit whole numbers • divide a 2-, 3-, or 4-digit whole number by a 1-digit whole number, including identifying remainders	**A student at this level can:** • reason quantitatively about the directional characteristics of place value, recognizing a digit in one place having a value of a multiple or quotient of 10 (100, 1,000, and 10,000) times as much as in a place to the right or left • identify efficient strategies for adding or subtracting multi-digit whole numbers • identify and correct errors in a given strategy for adding or subtracting multi-digit whole numbers • apply concepts of remainders in division problems • illustrate and explain calculations when multiplying and dividing
4.NF **Number & Operations - Fractions**	**A student at this level can:** • compare 2 fractions with like numerators, like denominators, or different denominators • create and represent equivalent fractions • compare 2 fractions symbolically by using <, >, and = • identify tenths and hundredths, both as fractions and as decimals, by using visual models • express and represent equivalence between fractions with denominators of 10 and 100 • represent and decompose fractions as a sum of unit fractions • solve 1- and 2-step problems with addition and subtraction of fractions with like denominators • solve 1- and 2-step problems with multiplication of fractions by whole numbers • compare 2 or 3 decimal numbers that are all to the same place or 2 decimal numbers that are to different places, up to the hundredths	**A student at this level can:** • apply, represent, and explain fraction equivalence • order more than 2 fractions with different denominators • add and subtract fractions and mixed numbers with like denominators • solve multistep problems with addition and subtraction of fractions with like denominators • represent and explain multiplication of fractions by whole numbers • solve multistep problems with multiplication of fractions by whole numbers • compare 3 or more decimal numbers that are to different places, up to the hundredths

Grade 4	Proficient	Advanced
4.OA **Operations & Algebraic Thinking**	**A student at this level can:** • represent verbal statements involving multiplication as equations, such as writing "12 is 3 times as much as 4" as 12 = 3 × 4 • distinguish between additive and multiplicative comparisons • create or use an equation with multiplication or division and a symbol for the unknown to solve problems • solve 1-, 2-, or multistep word problems using the 4 operations with whole numbers, including interpreting remainders or estimating • find factor pairs to 100, and identify multiples up to 100 of a given 1-digit number • identify the next term in a number or shape pattern • generate number and shape patterns that follow a given rule • determine and apply a simple rule for a number or shape pattern • determine whether a whole number up to 100 is prime or composite	**A student at this level can:** • solve multistep word problems using the 4 operations, including interpreting remainders or estimating • find prime factors of a complex number • generate a rule for a given number or shape pattern, including a rule expressed algebraically • explain the application of a rule for a number or shape pattern • identify features of a pattern not explicit in the rule itself • explain the difference between prime and composite numbers
4.G **Geometry**	**A student at this level can:** • identify right triangles • draw or identify points, lines, angles (acute, right, obtuse), line segments, rays, and parallel and perpendicular lines in simple 2-dimensional figures • identify or draw lines of symmetry in simple 2-dimensional figures • complete a drawing of a 2-dimensional figure given a line of symmetry • classify quadrilaterals based on the presence or absence of parallel or perpendicular lines	**A student at this level can:** • draw or identify lines, line segments, rays, angles (acute, right, obtuse), and parallel and perpendicular lines in complex 2- dimensional figures or simple 3-dimensional figures • provide examples of 2-dimensional figures when given multiple, specific characteristics, including parallel and perpendicular lines and angles of a specified size • explain why a triangle is acute, right, or obtuse • explain why a quadrilateral is a parallelogram, rhombus, or rectangle • explain why a given figure has or does not have a line of symmetry • draw lines of symmetry in complex 2-dimensional figures • draw a 2-dimensional figure that has a given number of lines of symmetry

Grade 4	Proficient	Advanced
4.MD **Measurement & Data**	**A student at this level can:** • solve 1- and 2-step problems, including 1- and 2- step conversions, involving time, length, mass, capacity, and money with the 4 operations on whole numbers and simple fractions and decimals • find the areas and perimeters of rectangles in real-world and mathematical problems • find a dimension of a rectangle given the area or perimeter and the other dimension • identify data from line plots in fractional units • draw line plots to represent data in fractions of a unit • solve 1- and 2-step problems involving the interpretation of data on a line plot, including operations on whole numbers and proper fractions • measure angles with a protractor • identify or draw angles with given measures • solve 1- and 2-step addition and subtraction problems involving angles	**A student at this level can:** • solve multistep problems, including measurement conversions, using the 4 operations • solve multistep problems involving the interpretation of data on a line plot, including operations on mixed numbers • solve multistep addition and subtraction problems involving angles in a complex figure • interpret an angle in a circle as a fraction of 360 degrees

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 5

Grade 5	Proficient	Advanced
5.NBT **Number & Operations in Base Ten**	**A student at this level can:** • identify the place value name to the thousandths • recognize a digit in one place represents 10 times or 1/10 as much as it represents in the place to the right or left • reason quantitatively about the directional characteristics of place value • compare decimal numbers that are to the same place or different places, up to the thousandths • round decimal numbers to thousandths • multiply and divide by powers of 10 written as whole numbers (10, 100, 1,000, etc.) • multiply or divide by a single power of 10 written using a whole-number exponent • evaluate powers of 10 using whole-number exponents • represent numbers that are powers of 10 using whole-number exponents • multiply and divide multi-digit whole numbers • add, subtract, multiply, and divide decimals to the hundredths • apply operations on whole numbers and decimal numbers to solve problems	**A student at this level can:** • explain patterns relating to the directional characteristics of place value • compare 3 or more decimals to any place, including in expanded form • multiply and divide by 2 or more powers of 10 written using whole-number exponents • round decimals to any place • illustrate or explain division of multi-digit whole numbers using arrays or models • apply, illustrate, or explain strategies used to perform operations on decimals

Grade 5	Proficient	Advanced
5.NF **Number & Operations - Fractions**	**A student at this level can:** • solve problems with addition and subtraction of whole numbers, proper and improper fractions, and mixed numbers with like and unlike denominators with or without regrouping, and with or without models • multiply a proper fraction by a whole number • solve problems with multiplication of a proper fraction by a proper or improper fraction • use models to represent and solve division problems involving proper fractions • interpret a fraction as a division problem • solve 1- and 2-step problems that involve the division of whole numbers and that lead to answers in the form of fractions or mixed numbers • determine the value of an unknown in a simple equation relating 3 proper fractions	**A student at this level can:** • solve problems with multiple decision points involving addition, subtraction, and multiplication of fractions with unlike denominators • fluently multiply or divide a proper or improper fraction, mixed number, or whole number by a mixed number • represent and solve division problems involving fractions without using models • solve multistep problems that involve the division of whole numbers and that lead to answers in the form of fractions or mixed numbers • determine the value of an unknown in an equation relating proper or improper fractions, whole numbers, or mixed numbers • solve problems by applying general concepts of fractions without specific values

Grade 5	Proficient	Advanced
5.OA **Operations & Algebraic Thinking**	**A student at this level can:** • translate between words and symbols for a 1-, 2-, or multistep numerical expression of a calculation with numbers, including using grouping symbols • interpret a mathematical context to write a 1- or 2-step numerical expression of calculations with numbers, including using grouping symbols • evaluate a 1-, 2-, or multistep numerical expression, including using grouping symbols • identify and correct a mistake in a 1- or 2-step numerical expression or in the steps used to evaluate a multistep numerical expression, including using grouping symbols • identify or generate a rule for a given pattern • generate numerical patterns from rules for 2 patterns	**A student at this level can:** • translate between words and symbols for a complex numerical expression of calculations with numbers, including using multiple levels of grouping symbols • interpret a real-world context to write a numerical expression of calculations with numbers, including using grouping symbols • evaluate a complex numerical expression, including using multiple levels of grouping symbols • explain, defend, or correct a multistep numerical expression or the steps used to evaluate a complex numerical expression • explain the corresponding relationships between 2 patterns • translate numerical patterns into ordered pairs, and explain relationships in resulting data displayed on a coordinate plane
5.G **Geometry**	**A student at this level can:** • identify ordered pairs of points graphed in Quadrant I of a coordinate plane • identify or graph points in Quadrant I of a coordinate plane, including points on axes • describe the meaning of an ordered pair in a context • apply operations on values in a context represented by points graphed in Quadrant 1 • identify and classify 2-dimensional figures with given attributes, including identifying a square as a rectangle	**A student at this level can:** • interpret and describe patterns and relationships between ordered pairs of points in a context • interpret and apply a point or figure graphed in Quadrant I to solve mathematical or real-world problems • understand that a 2-dimensional shape in a subcategory has all the attributes of that category • apply or create a hierarchy to represent relationships among 2-dimensional figures

Grade 5	Proficient	Advanced
5.MD **Measurement & Data**	**A student at this level can:** • calculate 1- and 2-step conversions of time, length, mass, and capacity with whole numbers and simple fractions and decimals • create and interpret line plots with fractions of a unit, and use information from line plots to solve problems • distinguish between perimeter, area, and volume • find the volume of a right rectangular prism, including by counting cubes and by using a formula	**A student at this level can:** • calculate multistep conversions of time, length, mass, and capacity, including multiplying a mixed number by a whole number or mixed number • interpret a context to solve problems involving multistep conversions of time, length, mass, and capacity • interpret multiple characteristics of line plots, and use information from line plots to solve complex problems • find the volume of a 3-dimensional solid composed of right rectangular prisms • given the volume and certain dimensions of a right rectangular prism, determine other dimensions

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 6

Grade 6	Proficient	Advanced
6.NS **The Number System**	**A student at this level can:** • solve problems involving division of fractions • identify common factors and common multiples • find and apply least common multiples and greatest common factors • compute fluently (perform all 4 arithmetic operations) with multi-digit whole numbers and multi-digit decimals • order positive and negative integers on a number line • identify the opposites and absolute values of positive and negative integers • represent absolute values of rational numbers as distance from zero on a number line • identify integer points in all 4 quadrants • solve problems involving plotting integer points in all 4 quadrants • interpret the meaning of points in all 4 quadrants in terms of the context • represent and compare quantities in real-world contexts using rational numbers • interpret and create statements of order, magnitude, and comparison, including inequalities, relating rational numbers • find the distance between 2 points in any quadrants with the same 1st or the same 2nd coordinate	**A student at this level can:** • interpret a context using multiplication and division to divide decimals by decimals and fractions by fractions • solve problems involving rational-number points in all 4 quadrants • interpret and explain statements of order, magnitude, and comparison, including inequalities, relating rational numbers • use definitions, properties, expressions, and equations to defend solutions in problems • understand that ordered pairs differing only in signs are related by reflections across axes

Grade 6	Proficient	Advanced
6.EE **Expressions & Equations**	**A student at this level can:** • evaluate expressions with whole-number exponents • read, write, and evaluate simple numerical and variable expressions • apply order of operations to evaluate multistep numerical and variable expressions • apply properties of operations, including the distributive property with whole numbers, to write equivalent expressions • solve 1-step 1-variable equations with whole numbers and rational numbers • use substitution to determine whether a given number makes a 1- or 2-step equation or inequality true • identify a simple 1-variable expression or 2-variable equation that models a context • create and graph inequalities on a number line • represent and model relationships between 2 variables in mathematical and real-world contexts with tables and graphs	**A student at this level can:** • interpret expressions, equations, and inequalities in real-world contexts • apply properties of operations to write equivalent expressions, including terms with whole-number exponents, using the distributive property with rational numbers, and factoring out the greatest common factor • interpret and analyze relationships between 2 variables in real-world contexts • fluently translate among representations, (graphs, tables, and equations) of relationships between 2 variables

Grade 6	Proficient	Advanced

6.RP
 	
Ratios & Proportional Relationships
	A student at this level can:
	
	• represent ratios as part-to-part and part-over-part relationships
	• describe a ratio relationship between 2 quantities
	• identify a unit rate in a context without calculating
	• apply ratio concepts as numerical comparisons using division
	• determine equivalent rates and ratios
	• use ratio and rate reasoning to solve 1- and 2-step problems, including calculating and applying a unit rate
	• relate whole-number percentages to fractions out of 100
	• find a percentage of a number
	• perform simple unit conversions
		A student at this level can:
		
		• use ratio and rate reasoning to:
		  • solve multistep problems
		  • interpret the ratio relationship between quantities
		  • perform multistep unit conversions
		  • find the whole, given a part and a percentage

6.G **Geometry**	**A student at this level can:** • find the areas of triangles, special quadrilaterals, and polygons composed of triangles and rectangles • solve 1- and 2- step word problems involving the areas of polygons composed of triangles and rectangles • use the formula to identify an expression of the volume of a right rectangular prism with rational numbers • use the formula to calculate the volume of a right rectangular prism with whole-number or up to 2 rational-number edge lengths • draw polygons in the coordinate plane, given coordinates for the vertices • determine the coordinates of the 4th vertex of a rectangle, given 3 vertices • find the length of a side of a polygon in any quadrants with the same 1st or the same 2nd coordinate • identify 3-dimensional objects represented as nets • represent 3-dimensional figures with nets • find the surface area, given a net, of a 3-dimensional object with sides in the shapes of triangles and special quadrilaterals • solve 1- and 2-step real-world problems involving surface areas • apply the volume of a right rectangular prism to solve problems with whole numbers or up to 2 rational numbers	**A student at this level can:** • solve multistep real-world problems involving the areas of polygons composed of triangles and rectangles • use the formula to calculate the volume of a right rectangular prism with rational edge lengths or edge lengths given as variables • solve multistep real-world problems involving surface areas • apply the volume of a right rectangular prism to solve multistep problems with rational numbers

Grade 6	Proficient	Advanced
6.SP **Statistics & Probability**	**A student at this level can:** • identify a statistical question • interpret data presented in a table • determine the mean, median, mode, and range of any data set presented in a list or table • determine the median, range, first quartile, third quartile, and interquartile range of a data set presented in a box plot • report the total number of data points in a set presented in a line plot • describe the distribution of data in terms of shape, center, and spread • display data in line plots, histograms, and box plots • report basic facts about a data set presented in a histogram, such as the number of data points in a given range or in total • understand the difference between measures of center and measures of variation	**A student at this level can:** • analyze the effects to the mean, median, mode, and range when data are added to or taken away from a set • determine and explain the most appropriate measure of center and the most appropriate measure of variation based on the shape of the data and the context of the problem • interpret the mean, median, mode, and range in the context of data presented in a histogram or box plot • determine the mean absolute deviation of a data set • determine the mean, median, and mode of a data set presented in a frequency table

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 7

Grade 7	Proficient	Advanced
7.NS **The Number System**	**A student at this level can:** • convert a fraction to a decimal using long division • use all 4 arithmetic operations with integers • use all 4 arithmetic operations with positive and negative rational numbers, including creating equivalent fractions • recognize additive inverses, rules for signs, absolute values, and properties of operations, and use them to solve mathematical and real-world problems with rational numbers	**A student at this level can:** • use all 4 arithmetic operations with rational numbers to solve multistep real-world problems, using fractions and decimals interchangeably, including translating among multiple representations of rational numbers • interpret the sum, difference, product, and quotient of rational numbers in a real-world context
7.EE **Expressions & Equations**	**A student at this level can:** • use properties of operations to generate equivalent expressions • apply the distributive property to generate an equivalent expression with integers • rewrite a numerical expression in a different form to show how quantities are related • use variables to represent quantities in expressions, equations, and inequalities, and use them to solve problems • solve 1- and 2-step equations and inequalities with integer and rational coefficients and solutions, assess the reasonableness of solutions, and graph the solutions • solve 1- and 2-step problems posed with integers • solve multistep problems posed with positive rational numbers in any form	**A student at this level can:** • use multiple properties of operations to generate equivalent expressions • apply the distributive property to generate an equivalent expression with rational numbers • rewrite an algebraic expression in a different form to show how quantities are related • solve multistep problems posed with rational numbers in any form • use variables to represent quantities in complex expressions, equations, and inequalities to solve problems • interpret solutions in context, including graphs

Grade 7	Proficient	Advanced
7.RP **Ratios & Proportional Relationships**	**A student at this level can:** • identify a unit rate shown in a table or on a graph • calculate with whole numbers and fractions to determine a unit rate from a verbal description • use unit rates to solve problems • solve a given equation of a proportional relationship • identify and analyze proportional relationships by recognizing equivalent ratios • recognize a proportional relationship shown in a graph • identify specified points on the graph of a proportional relationship, and describe the relationship in terms of the context • solve mathematical and real-world problems with percentages	**A student at this level can:** • calculate and apply a unit rate in a complex context with multiple decision points • represent and calculate unit rates with ratios of fractions • set up and solve an equation of a proportional relationship to solve problems • analyze and interpret proportional relationships, and use them to solve complex, multistep problems by comparing rates and ratios, determining and applying rates, and determining rates from graphs and equations • solve complex, multistep mathematical and real-world problems with percentages
7.G **Geometry**	**A student at this level can:** • identify the scale of a drawing • identify complementary, supplementary, vertical, and adjacent angles • define complementary and supplementary angles • solve problems involving lengths in 2-dimensional scale drawings • identify shapes with given conditions • identify 2-dimensional shapes resulting from planes slicing through 3-dimensional figures • solve problems involving angle measures of complementary, supplementary, vertical, and adjacent angles • apply the formulas for circumference and area of a circle in mathematical and real-world contexts, including determining the radius when given the area • find areas of triangles and special quadrilaterals and volumes of cubes and right prisms • find the area of a 2-dimensional objects composed of triangles and special quadrilaterals • find the surface area, given a net, of a 3-dimensional object with sides in the shapes of triangles and special quadrilaterals • determine the dimensions of a cube, given the surface area find the volume of a 3-dimensional object composed of cubes and right prisms	**A student at this level can:** • solve area problems in 2 dimensions involving scale drawings • construct triangles given certain conditions • determine when conditions determine a unique triangle, more than 1 triangle, or no triangle • describe, compare, and contrast 2-dimensional shapes resulting from planes slicing through 3-dimensional figures • use the relationship between circumference and area to solve multistep mathematical and real-world problems • solve complex, multistep problems involving angle measures of complementary, supplementary, vertical, and adjacent angles

		• use definitions, properties, expressions, and equations to defend solutions in problems • find the areas, surface areas, and volumes of 2- and 3-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right rectangular and triangular prisms, and shapes composed of those prisms, and use them to solve complex, multistep mathematical or real-world problems

Grade 7	Proficient	Advanced
7.SP **Statistics & Probability**	**A student at this level can:** • calculate and use measures of center to describe a population • determine the likelihood of an event • use random sampling to make an inference about a population • use measures of center and variability to draw comparative inferences about 2 populations • develop and use a probability model • calculate and apply simple probability in a context • compare theoretical and experimental probabilities • find probabilities of compound events with replacement • approximate the probability of a chance event by collecting data or based on a simulation • predict approximate relative frequency of a chance event given the probability	**A student at this level can:** • draw interpretive and comparative inferences about multiple populations • develop, use, and evaluate multiple probability models • distinguish between uniform and non-uniform probability models • compare theoretical and experimental probabilities of compound events • find probabilities of compound events without replacement

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 8

Grade 8	Proficient	Advanced
8.NS **The Number System**	**A student at this level can:** • categorize fractions and terminating and repeating decimals as rational numbers • categorize non-repeating and non-terminating decimals, square roots of non-perfect squares, cube roots of non-perfect cubes, and π as irrational numbers • determine the decimal expansions of fractions and the fractional equivalents of terminating decimals • order irrational numbers between 2 whole numbers • write, or plot on a number line, approximations of irrational numbers	**A student at this level can:** • determine fractional equivalents of repeating decimals • provide general definitions of rational and irrational numbers
8.EE **Expressions & Equations**	**A student at this level can:** • simplify basic numerical expressions involving integer exponents • use square root and cube root symbols to represent solutions to simple equations • simplify basic expressions with square root and cube root symbols • express quantities in scientific notation • perform given operations on numbers in scientific notation • recognize the unit rate in a context represented by a linear graph as the slope of the line • apply a proportional relationship represented in a table or verbal description to determine the slope of an equation or graph • solve linear equations • identify linear equations with no solutions, 1 solution, and infinitely many solutions • interpret contexts that could be represented by linear equations or simple systems to solve problems • solve systems of linear equations by graphing or solving algebraically	**A student at this level can:** • simplify algebraic expressions or complex numerical expressions involving integer exponents • apply, interpret, and perform operations on numbers in scientific notation in real-world contexts • interpret graphs of proportional relationships • explain the relationship between similar triangles and the slope of a graph • interpret and analyze linear equations in 2 variables • create and solve systems of linear equations from real-world contexts • identify systems with no solutions, 1 solution, and infinitely many solutions

Grade 8	Proficient	Advanced
8.F **Functions**	**A student at this level can:** • determine from a graph or an input-output table whether a relation is a function • evaluate linear functions • determine from a graph or equation whether a function is linear or nonlinear • create a graph of a linear function • identify key features of graphs, such as intercepts and intervals of increase • determine the slope and *y*-intercept of a linear function from a graph, an equation in slope-intercept form, 2 (*x*, *y*) values, or a verbal description • write the equation of a linear function, and use it to solve problems	**A student at this level can:** • define, evaluate, compare, analyze, and use functions that model nonlinear relationships between quantities in multiple representations • compare attributes of linear functions in multiple representations • interpret attributes, such as slope and intercepts, of linear functions in terms of the context • write a linear function requiring multiple decision points to model a relationship between 2 quantities, and use it to solve problems
8.G **Geometry**	**A student at this level can:** • identify dilations, translations, rotations, and reflections from figures or graphs • represent, and describe the effects of, transformations in the plane, given verbal or symbolic descriptions • use transformations to determine congruent or similar triangles or polygons • apply properties of triangles, interior and exterior angles, and angles formed by parallel lines and transversals to solve mathematical and real-world problems • apply the Pythagorean theorem to solve problems in right triangles • calculate volume for cylinders, cones, and spheres	**A student at this level can:** • analyze and justify congruence and similarity through dilations, translations, reflections, and rotations • interpret complex figures to solve multistep problems involving properties of triangles, interior and exterior angles, and angles formed by parallel lines and transversals • apply the Pythagorean theorem to find the distance between points in a 2-dimensional coordinate system and to solve problems in 3 dimensions • justify or complete a proof of the Pythagorean theorem • solve real-world problems involving volumes of cones, cylinders, and spheres

Grade 8	Proficient	Advanced
8.SP **Statistics & Probability**	**A student at this level can:** • identify and interpret data points in scatter plots • construct and interpret a table of bivariate data • identify patterns of association, and apply trends in bivariate data • identify properties of a given linear function fitted to data, and use the graph and function to solve problems in the context of the data • estimate the slope and *y*-intercept of a line that models data in a scatter plot, and use them to write a linear function and solve problems • interpret a 2-way table summarizing data on 2 categorical variables, including describing possible associations between variables indicated by relative frequencies	**A student at this level can:** • interpret the slope and *y*-intercept of a linear function that models data in the context of the data • determine conditional relative frequencies in data summarized in a 2-way table

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 9

Grade 9	Proficient	Advanced
HS.N **Number & Quantity**	**A student at this level can:** • choose units in problems and the scale and origin in graphs and data displays • interpret or apply units to solve problems • interpret the scale and origin in graphs and data displays • select, calculate, or define quantities in a given context • choose a level of accuracy appropriate to a context and limitations on measurement • simplify or perform operations on numerical or variable expressions involving whole-number or rational coefficients and whole number exponents or simple numerical or variable expressions involving rational exponents or radicals • rewrite basic numerical or variable expressions involving rational exponents and radicals • calculate approximate sums and products of 2 irrational numbers given as symbols like π or basic radicals • calculate exact sums and products of 2 rational numbers or 2 irrational numbers given as basic radicals • determine when sums and products are rational or irrational	**A student at this level can:** • solve problems, such as area or volume, requiring multistep unit conversions • interpret contexts to define or calculate appropriate quantities requiring multiple decision points • rewrite complex numerical or variable expressions involving rational exponents and radicals • simplify or perform operations on complex numerical or variable expressions involving rational exponents or radicals • generalize or explain the equivalence of rational exponents and radicals • rewrite, simplify, or perform operations on expressions involving rational exponents where the exponent contains a variable • calculate exact sums and products of 2 irrational numbers or 1 rational number and 1 irrational number when irrational numbers are given as radical expressions or symbols like π • apply properties of rational and irrational numbers • explain why the sum or product of two rational numbers is rational

Grade 9	Proficient	Advanced
HS.A **Algebra**	**A student at this level can:** • identify terms and coefficients of an expression • produce an equivalent form of a linear or quadratic expression • interpret parts of a linear expression in terms of its context • rewrite parts of an expression based on its structure to reveal information about its context • factor a quadratic expression, and use factors to solve problems • add, subtract, and multiply binomials • determine equivalent forms of factorable rational expressions • identify zeros of linear and quadratic polynomials • create linear equations and inequalities, and use them to solve problems • create quadratic equations (with leading coefficient of 1) and exponential equations (with integer exponents) when given a template (such as a gravity equation), and use them to solve problems • rearrange simple formulas • given the same representation (such as a table) of two functions, distinguish between linear and exponential or linear and quadratic • solve linear equations and inequalities in 1 variable • solve quadratic equations in 1 variable by inspection (such as $x^2 = 49$) • solve quadratic equations presented in factored form and quadratic equations with integer solutions by factoring • solve a system of 2 linear equations • identify a linear equation that represents a line passing through given points • graph linear inequalities in 1 variable, linear equations and inequalities 2 variables, and the solution set to a system of linear inequalities in 2 variables • graph simple exponential (with integer exponents) and quadratic equations	**A student at this level can:** • produce an equivalent form of an exponential or polynomial expression • add, subtract, and multiply polynomials • interpret parts of an exponential or quadratic expression in terms of its context • interpret parts of an expression by viewing a part as a single entity • determine an appropriate form of a quadratic function to solve a problem • determine the maximum or minimum of any quadratic function with real roots • determine equivalent forms of rational expressions (including remainders in long division) • create quadratic equations (with leading coefficient greater than 1), exponential equations with rational and real exponents, and rational equations, and use them to solve problems • identify zeros of polynomials with factors provided, and use them to sketch graphs • rearrange complex formulas • provide justification for each step in solving a linear or quadratic equation • represent constraints by equations and inequalities, including systems • create and solve a system of linear equations or inequalities representing a context • solve quadratic equations with real number solutions by factoring or the quadratic formula • recognize when a quadratic equation does not have integer solutions • solve linear equations and inequalities in 1 variable with coefficients that are letters • graph exponential equations with rational

		and real exponents

Grade 9	Proficient	Advanced
HS.F **Functions**	**A student at this level can:** • determine from an input-output table whether a relation is a function • identify key features of graphs, such as intercepts and intervals of increase • identify restrictions on domain and range given a context • identify the domain and range of a function given a table • identify the domain and range of a quadratic or exponential function given a graph • use appropriate function notation, and evaluate a linear, quadratic, or exponential function, or an explicitly-defined sequence, represented with function notation • recognize the rate of change of a linear function as the slope • create or identify graphs of linear functions, quadratic functions with integer roots, and simple exponential functions • identify equivalent forms of linear or quadratic functions • compare attributes of exponential functions to attributes of linear functions • identify a simple function (linear, quadratic, cubic, or exponential) that passes through given points • write a linear, simple quadratic, or simple exponential function to model a relationship between 2 quantities • extend an arithmetic or geometric sequence given as a pattern • write a sequence as an explicit formula • determine when a relationship between 2 quantities can be modeled by a linear, quadratic, or exponential function • apply a graphical representation of a linear function to solve problems • interpret parameters (such as slope and growth factor) in linear and exponential functions in terms of the context	**A student at this level can:** • identify the domain and range of a quadratic or exponential function given an equation • generate an explicit or recursive formula for a sequence, and translate between explicit and recursive formulas • evaluate a recursively-defined sequence represented with function notation • calculate the rate of change of a linear function in a complex context • calculate the average rate of change over an interval of a nonlinear function • apply a graphical representation of a quadratic or exponential function to solve problems • create or identify graphs of quadratic functions with real-number roots and polynomials functions when factorizations are available • identify equivalent forms of polynomial functions • rewrite a function in an equivalent form to interpret properties of the function • combine functions using arithmetic operations • identify the effect on the graph of replacing $f(x)$ with $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ • interpret properties or key features of a function to provide explanation or justification in a context • provide justification that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or as a polynomial function

Grade 9	Proficient	Advanced
HS.G **Geometry**	**A student at this level can:** • represent transformations in the plane given verbal or symbolic descriptions • identify transformations that do and do not preserve distance and angle • draw or identify a transformed figure, given a figure and a transformation • distinguish between a dilation and a translation, reflection, or rotation • identify arcs, angles, and segments in circles • determine the 4th vertex of a special quadrilateral, given coordinates of 3 vertices • determine the area of the base of a cylinder, given the volume • identify geometric figures based on precise definitions • given equations of lines in slope-intercept form, determine whether the lines are parallel, perpendicular, or neither • determine an equation for a line parallel or perpendicular to another line • find the midpoint of a segment and the distance between 2 points in the coordinate plane • calculate perimeters of polygons in the coordinate plane (rational side lengths) • identify a cross-section of a 3-dimensional object • use geometric shapes to describe or model real-world objects • apply rigid motions to determine if 2 figures are congruent • use transformations to determine congruent or similar triangles or polygons • perform or identify a dilation centered at the origin • apply congruence and similarity concepts and the Pythagorean theorem to solve problems • determine the volume of cylinders, cones, and spheres	**A student at this level can:** • provide justification to defend a geometric statement • determine the arc length and area of a sector given any central angle in degrees • explain why parallel lines have the same slope, and perpendicular lines have negative reciprocal slopes • write an equation of a parabola in vertex or standard form given focus and directrix • identify the focus and directrix of a parabola given the graph or equation in standard form • apply theorems about arcs, angles (including central, inscribed, and circumscribed), and segments related to circles • apply formulas (such as slope and distance formula) to classify a figure • find a point on a segment in the coordinate plane that divides the segment in a given ratio • calculate areas of triangles and rectangles and perimeters of polygons in the coordinate plane (irrational side lengths) • determine the volume of a pyramid • apply volume formulas for cylinders, pyramids, cones, and spheres to solve problems • apply concepts of density based on area and volume in modeling contexts • apply geometric methods in modeling or design contexts to solve problems

Grade 9	Proficient	Advanced
HS.S **Statistics & Probability**	**A student at this level can:** • represent or interpret data in plots on a number line, and use the data to solve problems • compare and interpret center (median, mean) of 2 or more data sets • compare spread (computing interquartile range or given standard deviation) of 2 or more data sets • identify outliers • interpret differences in shape, center, and spread in the context of data, including the effects of outliers • summarize categorical data in a 2-way frequency table • identify associations and trends in data presented in a 2-way frequency table • determine joint, marginal, and conditional relative frequencies in the context of the data • identify properties of functions fitted to data, and use the functions to solve problems in the context of the data • determine a line that represents data • fit a linear function to data • interpret the meaning of slope and *y*-intercept of a linear model in the context of the data • determine unions, intersections, and complements of events, including identifying the meaning of a number in a Venn diagram • determine when two events are independent • determine the probability of an independent event	**A student at this level can:** • interpret marginal, joint, and conditional relative frequencies in the context of the data • use residuals to assess the fit of a linear functions • interpret the correlation coefficient of a linear fit • identify examples of relationships that are correlated and causal or correlated but not causal • apply unions, intersections, and complements, including interpreting and applying numbers in a Venn diagram to solve multistep probability problems • calculate conditional probability of A given B as P(A and B) / P(B) • calculate conditional probabilities given a two-way table • apply the Addition Rule: P(A or B) = P(A) + P(B) – P(A and B) • apply the Multiplication Rule: P(A and B) = P(A)P(B given A) = P(B)P(A given B) • use concepts of permutations and combinations in instances where $r = 1$ (such as “12 choose 1”) to solve problems

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 10

Grade 10	Proficient	Advanced
HS.N **Number & Quantity**	**A student at this level can:** • choose units in problems and the scale and origin in graphs and data displays • interpret or apply units to solve problems • interpret the scale and origin in graphs and data displays • select, calculate, or define quantities in a given context • choose a level of accuracy appropriate to a context and limitations on measurement • simplify or perform operations on numerical or variable expressions involving whole number exponents or simple numerical or variable expressions involving rational exponents or radicals • rewrite basic numerical or variable expressions involving rational exponents and radicals • calculate approximate or exact sums and products of 2 rational numbers, 2 irrational numbers, or 1 rational number and 1 irrational number when irrational numbers are given as symbols like π or basic radicals • determine when sums and products are rational or irrational	**A student at this level can:** • solve problems, such as area or volume, requiring multistep unit conversions • interpret contexts to define or calculate appropriate quantities requiring multiple decision points • rewrite complex numerical or variable expressions involving rational exponents and radicals • simplify or perform operations on complex numerical or variable expressions involving rational exponents or radicals • generalize or explain the equivalence of rational exponents and radicals • rewrite, simplify, or perform operations on expressions involving rational exponents where the exponent contains a variable • calculate exact sums and products of 2 irrational numbers or 1 rational number and 1 irrational number when irrational numbers are given as radical expressions • apply properties of rational and irrational numbers • explain why the sum or product of two rational numbers is rational

Grade 10	Proficient	Advanced
HS.A **Algebra**	**A student at this level can:** • identify terms and coefficients of an expression • produce an equivalent form of a linear or quadratic expression • interpret parts of a linear expression in terms of its context • rewrite parts of an expression based on its structure to reveal information about its context • factor a quadratic expression, and use factors to solve problems • add, subtract, and multiply binomials • determine equivalent forms of factorable rational expressions • identify zeros of linear and quadratic polynomials • create linear equations and inequalities, and use them to solve problems • create quadratic equations (with leading coefficient of 1) and exponential equations (with integer exponents) when given a template (such as a gravity equation), and use them to solve problems • rearrange simple formulas • given the same representation (such as a table) of two functions, distinguish between linear and exponential or linear and quadratic • solve linear equations and inequalities in 1 variable • solve quadratic equations in 1 variable by inspection (such as $x^2 = 49$) • solve quadratic equations presented in factored form and quadratic equations with integer solutions by factoring • solve a system of 2 linear equations • identify a linear equation that represents a line passing through given points • graph linear inequalities in 1 variable, linear equations and inequalities 2 variables, and the solution set to a system of linear inequalities in 2 variables • graph simple exponential (with integer exponents) and quadratic equations	**A student at this level can:** • produce an equivalent form of an exponential or polynomial expression • add, subtract, and multiply polynomials • interpret parts of an exponential or quadratic expression in terms of its context • interpret parts of an expression by viewing a part as a single entity • determine an appropriate form of a quadratic function to solve a problem • determine the maximum or minimum of any quadratic function with real roots • determine equivalent forms of rational expressions (including remainders in long division) • create quadratic equations (with leading coefficient greater than 1), exponential equations with rational and real exponents, and rational equations, and use them to solve problems • identify zeros of polynomials with factors provided, and use them to sketch graphs • rearrange complex formulas • provide justification for each step in solving a linear or quadratic equation • represent constraints by equations and inequalities, including systems • create and solve a system of linear equations or inequalities representing a context • solve quadratic equations with real number solutions by factoring or the quadratic formula • recognize when a quadratic equation does not have integer solutions • solve linear equations and inequalities in 1 variable with coefficients that are letters • graph exponential equations with rational

		and real exponents
Grade 10	**Proficient**	**Advanced**
HS.F **Functions**	**A student at this level can:** • determine from an input-output table whether a relation is a function • identify key features of graphs, such as intercepts and intervals of increase • identify restrictions on domain and range given a context • identify the domain and range of a function given a table • identify the domain and range of a quadratic or exponential function given a graph • use appropriate function notation, and evaluate a linear, quadratic, or exponential function, or an explicitly-defined sequence, represented with function notation • recognize the rate of change of a linear function as the slope • create or identify graphs of linear functions, quadratic functions with integer roots, and simple exponential functions • identify equivalent forms of linear or quadratic functions • compare attributes of exponential functions to attributes of linear functions • identify a simple function (linear, quadratic, cubic, or exponential) that passes through given points • write a linear, simple quadratic, or simple exponential function to model a relationship between 2 quantities • extend an arithmetic or geometric sequence given as a pattern • write a sequence as an explicit formula • determine when a relationship between 2 quantities can be modeled by a linear, quadratic, or exponential function • apply a graphical representation of a linear function to solve problems • interpret parameters (such as slope and growth factor) in linear and exponential functions in terms of the context	**A student at this level can:** • identify the domain and range of a quadratic or exponential function given an equation • generate an explicit or recursive formula for a sequence, and translate between explicit and recursive formulas • evaluate a recursively-defined sequence represented with function notation • calculate the rate of change of a linear function in a complex context • calculate the average rate of change over an interval of a nonlinear function • apply a graphical representation of a quadratic or exponential function to solve problems • create or identify graphs of quadratic functions with real-number roots and polynomials functions when factorizations are available • identify equivalent forms of polynomial functions • rewrite a function in an equivalent form to interpret properties of the function • combine functions using arithmetic operations • identify the effect on the graph of replacing $f(x)$ with $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ • interpret properties or key features of a function to provide explanation or justification in a context • provide justification that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or as a polynomial function

Grade 10	Proficient	Advanced
HS.G **Geometry**	**A student at this level can:** • identify geometric figures based on precise definitions • represent transformations in the plane given verbal or symbolic descriptions • identify transformations that do and do not preserve distance and angle • draw or identify a transformed figure, given a figure and a transformation • distinguish between a dilation and a translation, reflection, or rotation • identify arcs, angles, and segments in circles • determine the 4th vertex of a special quadrilateral, given coordinates of 3 vertices • given equations of lines in slope-intercept form, determine whether the lines are parallel, perpendicular, or neither • find the midpoint of a segment in the coordinate plane • calculate perimeters of polygons in the coordinate plane (rational side lengths) • identify a cross-section of a 3-dimensional object • determine the area of the base of a cylinder, given the volume • use geometric shapes to describe or model real-world objects • apply rigid motions to determine if 2 figures are congruent • use congruence criteria (ASA, SAS, and SSS), AA criterion, and transformations to determine congruent or similar triangles or polygons • perform or identify a dilation centered at the origin • make or determine the accuracy of basic geometric constructions • provide justification to defend a geometric statement • apply congruence and similarity concepts and the Pythagorean theorem to solve problems • determine a given trigonometric ratio for an acute angle in a right triangle • apply theorems about arcs, angles (including central, inscribed, and circumscribed), and segments related to circles • determine the arc length and area of a sector given any central angle in degrees • determine an equation for a line parallel or perpendicular to another line • calculate areas of triangles and rectangles and perimeters of polygons in the coordinate plane • apply formulas (such as slope and distance formula) to classify a figure in the coordinate plane • find a point on a segment in the coordinate plane that divides the segment in a given ratio • find the distance between 2 points in the coordinate plane • determine the volume of cylinders, pyramids, cones, and spheres • apply concepts of density based on area and volume in modeling contexts • apply geometric methods in modeling or design contexts to solve problems	**A student at this level can:** • provide a complete argument to prove a geometric theorem • make or determine the accuracy of a geometric construction of an inscribed or circumscribed circle for a triangle or geometric constructions that apply more basic constructions, such as: applying the construction of the midpoint of a segment to construct the median of a triangle • apply basic trigonometric ratios and the relationship between the sine and cosine of complementary angles to solve problems • prove that all circles are similar • given 2 circles, apply similarity to determine missing radius or circumference • explain why parallel lines have the same slope, and perpendicular lines have negative reciprocal slopes • find the center and radius of a circle given by an equation in center-radius or standard form • apply the Pythagorean Theorem to derive the equation of a circle • write an equation of a parabola in vertex or standard form given focus and directrix • identify the focus and directrix of a parabola given a graph or equation in standard form • write an equation and sketch the graph of an ellipse or hyperbola given foci • identify the 3-dimensional object generated by rotating a 2-dimensional figure • apply volume formulas for cylinders, pyramids, cones, and spheres to solve

		problems • apply density or geometric methods in complex contexts to solve problems

Grade 10	Proficient	Advanced
HS.S **Statistics & Probability**	**A student at this level can:** • represent or interpret data in plots on a number line, and use the data to solve problems • compare and interpret center (median, mean) of 2 or more data sets • compare spread (computing interquartile range or given standard deviation) of 2 or more data sets • identify outliers • interpret differences in shape, center, and spread in the context of data, including the effects of outliers • summarize categorical data in a 2-way frequency table • identify associations and trends in data presented in a 2-way frequency table • determine joint, marginal, and conditional relative frequencies in the context of the data • identify properties of functions fitted to data, and use the functions to solve problems in the context of the data • determine a line that represents data • fit a linear function to data • interpret the meaning of slope and *y*-intercept of a linear model in the context of the data • determine unions, intersections, and complements of events, including identifying the meaning of a number in a Venn diagram • determine when two events are independent • determine the probability of an independent event	**A student at this level can:** • interpret marginal, joint, and conditional relative frequencies in the context of the data • use residuals to assess the fit of a linear functions • interpret the correlation coefficient of a linear fit • identify examples of relationships that are correlated and causal or correlated but not causal • apply unions, intersections, and complements, including interpreting and applying numbers in a Venn diagram to solve multistep probability problems • calculate conditional probability of A given B as P(A and B) / P(B) • calculate conditional probabilities given a two-way table • apply the Addition Rule: P(A or B) = P(A) + P(B) – P(A and B) • apply the Multiplication Rule: P(A and B) = P(A)P(B given A) = P(B)P(A given B) • use concepts of permutations and combinations in instances where $r = 1$ (such as “12 choose 1”) to solve problems

ISASP Grade-specific Performance Level Descriptors
Mathematics
Grade 11

Grade 11	Proficient	Advanced
HS.N **Number & Quantity**	**A student at this level can:** • choose units in problems and the scale and origin in graphs and data displays • interpret or apply units to solve problems • interpret the scale and origin in graphs and data displays • select, calculate, or define quantities in a given context • choose a level of accuracy appropriate to a context and limitations on measurement • simplify or perform operations on numerical or variable expressions involving whole-number or rational exponents or radicals • rewrite numerical and variable expressions involving rational exponents and radicals • calculate approximate or exact sums and products of rational and irrational numbers • determine when sums and products are rational or irrational • determine the number of solutions to a polynomial equation • find the components of a vector, given coordinates of initial and terminal points • calculate the sum of 2 vectors, given the initial and terminal points of both • multiply a vector by a scalar • represent data in a matrix, and multiply a matrix by a scalar • add or subtract matrices, and identify when 2 matrices can be added or subtracted • calculate sums of complex numbers • know the definition of, and simplify an expression containing a power of, the imaginary number *i*	**A student at this level can:** • solve problems, such as area or volume, requiring multistep unit conversions • interpret contexts to define or calculate appropriate quantities requiring multiple decision points • generalize or explain the equivalence of rational exponents and radicals • rewrite, simplify, or perform operations on expressions involving rational exponents where the exponent contains a variable • apply properties of rational and irrational numbers • explain why the sum or product of two rational numbers is rational • calculate magnitude and direction of a vector • calculate the sum of 2 vectors, given the magnitude and direction of both • multiply matrices • identify when 2 matrices can be multiplied and which properties can be applied • calculate products of complex numbers • calculate and simplify expressions involving sums and products of complex numbers with a power greater than 2 • factor polynomials involving complex numbers • solve quadratic equations with real coefficients and complex solutions, giving an answer in $a + bi$ form, and relate the type of solution to the graph of the corresponding quadratic function

Grade 11	Proficient	Advanced
HS.A **Algebra**	**A student at this level can:** • identify terms and coefficients of an expression • produce an equivalent form of a linear, quadratic, exponential, or polynomial expression • interpret parts of an expression in terms of its context • interpret parts of an expression by viewing a part as a single entity • rewrite parts of an expression based on its structure to reveal information about its context • rearrange simple formulas • factor a quadratic expression, and use factors to solve problems • determine the maximum or minimum of a quadratic function with a leading coefficient of 1 • transform expressions in exponential functions using properties of exponents • identify zeros of linear, quadratic, and cubic polynomials and polynomials with factors provided • determine equivalent forms of factorable rational expressions • add, subtract, and multiply polynomials • add, subtract, multiply, and divide rational expressions • identify a linear equation that represents a line passing through given points • distinguish between linear, exponential, and quadratic functions • create linear equations and inequalities, quadratic equations and inequalities (with leading coefficient of 1), exponential equations (with integer exponents), and simple rational equations, and use them to solve problems • represent constraints by equations and inequalities, including systems • graph linear equations and inequalities in 1 or 2 variables, exponential equations (with integer exponents), and quadratic equations • solve linear equations and inequalities and quadratic equations with real number solutions by inspection, factoring, or the quadratic formula • solve a system of 1 linear and 1 quadratic equation • solve a system of 2 linear equations • graph the solutions to a linear inequality in 2 variables and the solution set to a system of linear inequalities in 2 variables	**A student at this level can:** • determine an appropriate form of a quadratic function to solve a problem • determine the maximum or minimum of any quadratic function by completing the square • derive the formula for the sum of a finite geometric series, or apply the formula to solve problems • apply the Remainder Theorem to determine the remainder on division by $x - a$ prove polynomial identities • determine equivalent forms of rational expressions (including remainders in long division) • create quadratic equations and inequalities (with leading coefficient greater than 1), exponential equations with rational and real exponents, and complex rational equations, and use them to solve problems • graph exponential equations with rational and real exponents • use zeros to sketch graphs of functions defined by polynomials • rearrange complex formulas • provide justification for each step in solving a linear or quadratic equation • create and solve a system of linear equations or inequalities representing a context • solve radical and rational equations in 1 variable, and identify extraneous solutions • solve linear equations and inequalities in 1 variable with coefficients that are letters • recognize when a quadratic equation has

		complex solutions, and express them in the form $a \pm bi$ • solve quadratic equations in 1 variable by completing the square

Grade 11	Proficient	Advanced
HS.F **Functions**	**A student at this level can:** • determine from an input-output table whether a relation is a function • identify the domain and range of a function given a graph or table • identify key features of graphs, such as intercepts and intervals of increase • determine when a relationship between 2 quantities can be modeled by a linear, quadratic, or exponential function • identify a simple function (linear, quadratic, cubic, or exponential) that passes through given points • distinguish between contexts modeled by linear and exponential functions • apply a graphical representation of a linear, quadratic, or exponential function to solve problems • identify restrictions on domain and range given a context • identify the domain and range of a quadratic or exponential function given an equation • use appropriate function notation, and evaluate a linear, quadratic, or exponential function, or an explicitly- or recursively-defined sequence, represented with function notation • recognize the rate of change of a linear function as the slope • create or identify graphs of linear function, quadratic functions with real number roots, exponential functions, square root functions, and polynomials functions when factorizations are available • show key features of graphs, such as intercepts, intervals of increase or decrease, relative maxima and minima, end behavior, and asymptotes • identify equivalent forms of linear, quadratic, and polynomial functions • write a linear, quadratic, exponential, or polynomial function to model a relationship between 2 quantities • extend an arithmetic or geometric sequence • write a sequence as an explicit formula • identify the effect on the graph of replacing $f(x)$ with $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ • find inverse functions • construct linear and exponential functions, including arithmetic and geometric sequences • interpret parameters in a linear or exponential function in terms of the context	**A student at this level can:** • generate the recursive formula for a sequence, and translate between explicit and recursive formulas • calculate the rate of change of a linear function in a complex context • calculate the average rate of change over an interval of a nonlinear function • create or identify graphs of cube root, piecewise, absolute value, logarithmic, trigonometric and rational functions • identify period, midline, and amplitude of trigonometric functions • rewrite a function in an equivalent form to interpret properties of the function • interpret properties or key features of a function to provide explanation or justification in a context • compare properties of polynomial, exponential, trigonometric, logarithmic, and absolute value functions • compose functions, and verify by composition that 1 function is the inverse of another • provide justification that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or as a polynomial function • solve an exponential equation using logarithms with base 2, 10 or e • determine angle measures in radians, and convert angle or arc measures between degrees and radians • use special right triangles to determine the values of sine, cosine, and tangent, and apply the unit circle or Pythagorean identity

		• choose or construct a trigonometric function to model periodic phenomena by interpreting amplitude, frequency, and midline

Grade 11	Proficient	Advanced
HS.G **Geometry**	**A student at this level can:** • identify geometric figures based on precise definitions • represent transformations in the plane given verbal or symbolic descriptions • identify transformations that do and do not preserve distance and angle • draw or identify a transformed figure, given a figure and a transformation • distinguish between a dilation and a translation, reflection, or rotation • identify arcs, angles, and segments in circles • determine the 4th vertex of a special quadrilateral, given coordinates of 3 vertices • given equations of lines in slope-intercept form, determine whether the lines are parallel, perpendicular, or neither • find the midpoint of a segment in the coordinate plane • calculate perimeters of polygons in the coordinate plane (rational side lengths) • identify a cross-section of a 3-dimensional object • determine the area of the base of a cylinder, given the volume • use geometric shapes to describe or model real-world objects • apply rigid motions to determine if 2 figures are congruent • use congruence criteria (ASA, SAS, and SSS), AA criterion, and transformations to determine congruent or similar triangles or polygons • perform or identify a dilation centered at the origin • make or determine the accuracy of basic geometric constructions • provide justification to defend a geometric statement • apply congruence and similarity concepts and the Pythagorean theorem to solve problems • determine a given trigonometric ratio for an acute angle in a right triangle • apply theorems about arcs, angles (including central, inscribed, and circumscribed), and segments related to circles • determine the arc length and area of a sector given any central angle in degrees • determine an equation for a line parallel or perpendicular to another line • calculate areas of triangles and rectangles and perimeters of polygons in the coordinate plane • apply formulas (such as slope and distance formula) to classify a figure in the coordinate plane • find a point on a segment in the coordinate plane that divides the segment in a given ratio • find the distance between 2 points in the coordinate plane • find center and radius of a circle given by an equation in center-radius form	**A student at this level can:** • provide a complete argument to prove a geometric theorem • make or determine the accuracy of a geometric construction of an inscribed or circumscribed circle for a triangle or advanced constructions that apply more basic constructions, such as: applying the construction of the midpoint of a segment to construct the median of a triangle • apply basic trigonometric ratios, the relationship between the sine and cosine of complementary angles, and the Laws of Sines and Cosines to solve problems • prove that all circles are similar • given 2 circles, apply similarity to determine missing radius or circumference • determine the arc length and area of a sector given any central angle in radians • explain why parallel lines have the same slope, and perpendicular lines have negative reciprocal slopes • find the center and radius of a circle given by an equation in standard form • apply the Pythagorean Theorem to derive the equation of a circle • write an equation of a parabola in standard form given focus and directrix • identify the focus and directrix of a parabola given a graph or equation in standard form • write an equation and sketch the graph of an ellipse or hyperbola given foci • identify the 3-dimensional object generated by rotating a 2-dimensional figure • apply volume formulas for cylinders,

	• write an equation in vertex form of a parabola given focus and directrix • determine the volume of cylinders, pyramids, cones, and spheres • apply concepts of density based on area and volume in modeling contexts • apply geometric methods in modeling or design contexts to solve problems	pyramids, cones, and spheres to solve problems • apply density or geometric methods in complex contexts to solve problems

Grade 11	Proficient	Advanced
HS.S **Statistics & Probability**	**A student at this level can:** • determine when two events are independent • determine the probability of an independent event • represent or interpret data in plots on a number line, and use the data to solve problems • compare and interpret center (median, mean) of 2 or more data sets • compare spread (computing interquartile range or given standard deviation) of 2 or more data sets • identify outliers • interpret differences in shape, center, and spread in the context of data, including the effects of outliers • summarize categorical data in a 2-way frequency table • identify associations and trends in data presented in a 2-way frequency table • determine and interpret joint, marginal, and conditional relative frequencies in the context of the data • determine a line that represents data, and fit a linear function to data • identify properties of functions fitted to data, and use the functions to solve problems in the context of the data • use residuals to assess the fit of a linear functions • interpret the meaning of slope and *y*-intercept of a linear model in the context of the data • interpret the correlation coefficient of a linear fit • identify examples of relationships that are correlated and causal or correlated but not causal • determine and apply unions, intersections, and complements, including identifying, interpreting, and applying numbers in a Venn diagram to solve probability problems • use concepts of permutations and combinations in instances where $r = 1$ (such as "12 choose 1") to solve problems	**A student at this level can:** • calculate standard deviation • given mean and standard deviation of a data set fit to a normal distribution, estimate population percentages • fit a quadratic, exponential, or trigonometric function to data • use residuals to assess the fit of a quadratic, exponential, or trigonometric function • calculate conditional probability of A given B as P(A and B) / P(B) • calculate conditional probabilities given a two-way table • apply the Addition Rule: P(A or B) = P(A) + P(B) – P(A and B) • apply the Multiplication Rule: P(A and B) = P(A)P(B given A) = P(B)P(A given B) • use permutations and combinations to compute probabilities of compound events • interpret the results of simulations • identify the purposes of and differences among sample surveys, experiments, and observational studies • estimate a population mean or proportion, and develop a margin of error based on sample data • identify statistical evidence needed to evaluate a claim

ISASP Grade-specific Performance Level Descriptors
Science
Grade 5

Grade 5	Proficient	Advanced
	• A student performing at the Proficient performance level for grade 5 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate a descriptive understanding as reflected in the grades 3, 4, and 5 Iowa Core Science Standards. The student communicates core ideas and concepts within a phenomenon (an observable and/or measurable feature of the natural world) using essential practices of science.	• A student performing at the Advanced performance level for grade 5 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate an analytical understanding as reflected in the grades 3, 4, and 5 Iowa Core Science Standards. The student communicates core ideas and concepts across phenomena (observable and/or measurable features of the natural world) using complex practices of science.

ISASP Grade-specific Performance Level Descriptors
Science
Grade 8

Grade 8	Proficient	Advanced
	• A student performing at the Proficient performance level for grade 8 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate a descriptive understanding as reflected in the grades 6, 7, and 8 Iowa Core Science Standards. The student communicates core ideas and concepts within a phenomenon (an observable and/or measurable feature of the natural world) using essential practices of science.	• A student performing at the Advanced performance level for grade 8 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate an analytical understanding as reflected in the grades 6, 7, and 8 Iowa Core Science Standards. The student communicates core ideas and concepts across phenomena (observable and/or measurable features of the natural world) using complex practices of science.

ISASP Grade-specific Performance Level Descriptors
Science
Grade 10

Grade 10	Proficient	Advanced
	• A student performing at the Proficient performance level for grade 10 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate a descriptive understanding as reflected in the grades 9 and 10 Iowa Core Science Standards. The student communicates core ideas and concepts within a phenomenon (an observable and/or measurable feature of the natural world) using essential practices of science.	• A student performing at the Advanced performance level for grade 10 science uses the grade appropriate Science and Engineering Practices and Cross Cutting Concepts within life, physical, and earth and space science to demonstrate an analytical understanding as reflected in the grades 9 and 10 Iowa Core Science Standards. The student communicates core ideas and concepts across phenomena (observable and/or measurable features of the natural world) using complex practices of science.

Appendix B – Participant Meeting Materials

The materials developed for the grades 7 and 8 mathematics standard setting committee are provided as an example of what was shared with the panelists. Because the materials provided to panelists contained secure information, only select documents will be presented in Appendix B. Specifically, the following materials will not be not available in the appendix:

- Test form – This was presented to panelists through the online testing platform used during the spring 2019 administration.
- Open-ended item rubrics – These documents presented the scoring rubrics and scoring notes for each open-ended item presented to panelists.
- Student exemplars – These documents presented student-produced responses for each open-ended item presented to panelists.
- Practice judgment items – This was presented to participants through the online testing platform used during the spring 2019 administration.

Iowa Statewide Assessment of Student Progress (ISASP)
Standard Setting Meeting

Nondisclosure Agreement Form

In order to preserve and ensure the security, validity, and integrity of the Iowa Statewide Assessment of Student Progress (ISASP) tests, all individuals who participate in the standard setting meeting are required to accept the terms of the following non-disclosure agreement.

- With the exception of test items released for informational purposes, all test items are deemed secure instruments. As a result, I agree not to reproduce, discuss, or in any way release or distribute test items and associated materials to unauthorized persons during or after the standard setting process (i.e., persons not specifically authorized to have access to secure materials and information).
- All information about the ISASP English language arts passages and English language arts, mathematics, and science under consideration for inclusion in current or future ISASP tests is confidential. Therefore, I agree not to share this information in any way with unauthorized persons during or after the standard setting process.
- Discussion and materials related to all technical aspects of the ISASP program, including possible new models and future directions, are confidential. Therefore, I agree not to reveal information regarding discussion and deliberations that take place in committee meetings to unauthorized persons during or after the standard setting process.
- I further understand and agree that all test items, ideas for items, related test items, and item and student data, and committee recommendations and discussion are and will forever remain confidential.

By signing below, I, as a member of the standard setting committee, acknowledge and accept that I am a member or person otherwise authorized to view material associated with the standard setting process and agree to be bound by the terms of this agreement prohibiting the disclosure of information regarding secure materials and discussions. I also understand that The University of Iowa and its employees are subject to the Iowa Open Records Law, Chapter 22 of the Iowa Code, which establishes that documents or records held by government agencies are public and subject to disclosure.

Name:_____

Committee (subject & grade): _____

Signature: _____ **Date:** _____

Iowa Statewide Assessment of Student Progress
Standard Setting Meeting

Participant Information Survey

Math - 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

How many years of professional experience do you have teaching math grade 7?

- None
- 1 to 5 years
- 6 to 10 years
- 11 to 15 years
- 16 to 20 years
- More than 20 years

How many years of professional experience do you have teaching math grade 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.)

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

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

Iowa Statewide Assessment of Student Progress
Standard Setting Meetings
July 2019

Experience the Assessment Record Sheet
Math Grade 8

Sequence	Item ID	Domain	Maximum Points	Response	Notes
1	MA1808040	F	1		
2	MA1808048	G	1		
3	MA1808036_TEI	F	1		
4	MA1808014	EE	1		
5	MA1808056	G	1		
6	MA1808030	F	1		
7	MA1808062	NS	1		
8	MA1808026	EE	1		
9	MA1808043	G	1		
10	MA1808001	SP	1		

Note: Only the first ten items of this document are presented as an example.

ISASP Mathematics Grade 8 Test Map

#	Item ID	Domain	Item Key	Maximum Points
1	MA1808040	F		1
2	MA1808048	G		1
3	MA1808036_TEI	F		1
4	MA1808014	EE		1
5	MA1808056	G		1
6	MA1808030	F		1
7	MA1808062	NS		1
8	MA1808026	EE		1
9	MA1808043	G		1
10	MA1808001	SP		1

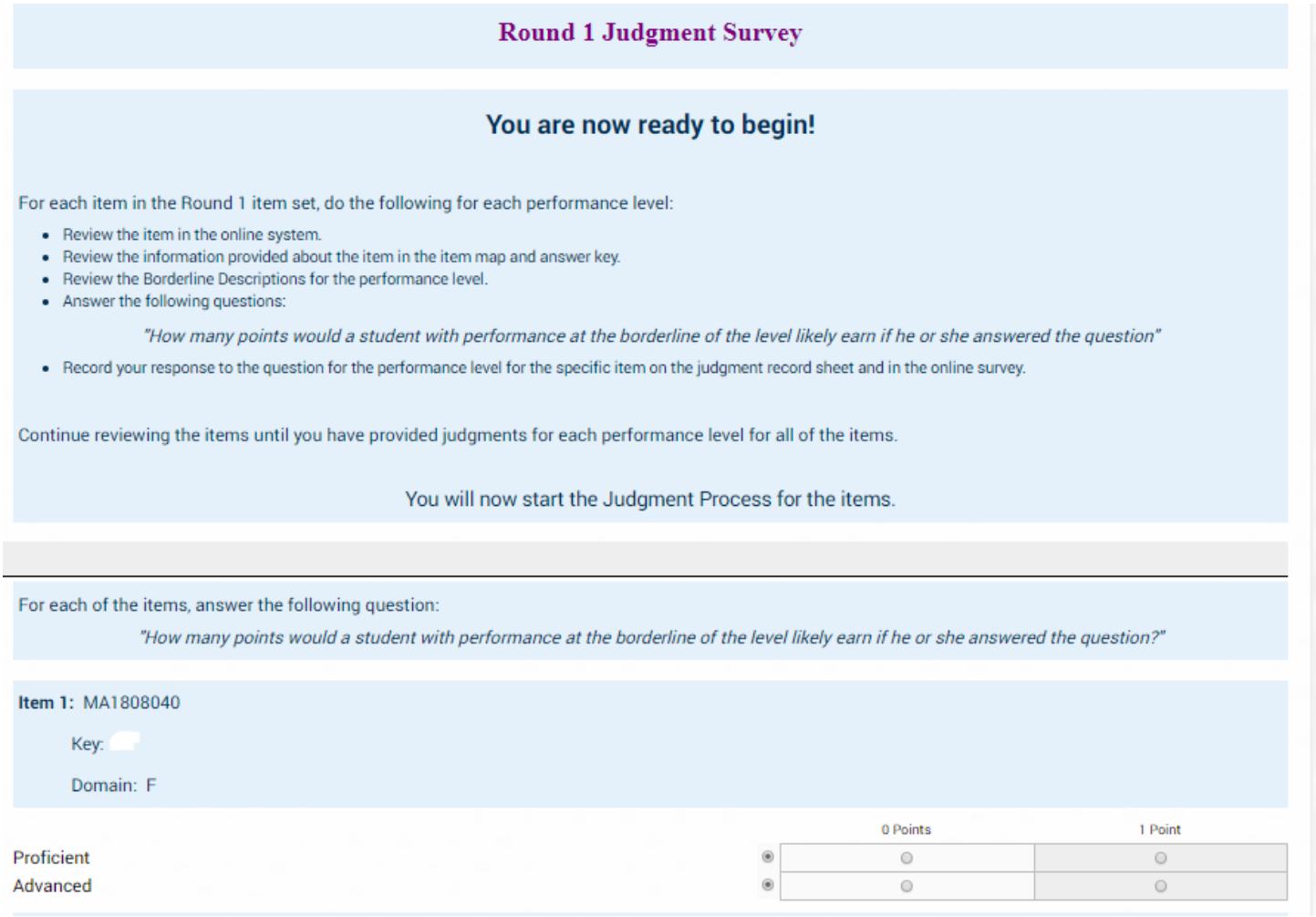
Note: Only a portion of this document is presented as an example. The answer keys, which were part of the original document, were removed.

Iowa Statewide Assessment of Student Progress
Standard Setting Meetings
July 2019

Judgment Record Sheet
Math Grade 8

Seq	Item ID	Domain	Item Key	Maximum Points	Judgment Round					
					1		2		3	
					P	A	P	A	P	A
1	MA1808040	F		1						
2	MA1808048	G		1						
3	MA1808036_TEI	F		1						
4	MA1808014	EE		1						
5	MA1808056	G		1						
6	MA1808030	F		1						
7	MA1808062	NS		1						
8	MA1808026	EE		1						
9	MA1808043	G		1						
10	MA1808001	SP		1						

Note: Only the first ten items of this document are presented as an example. Also, the item keys have been removed.



Note: Only the first page of the judgment survey is presented as an example.

Iowa Statewide Assessment of Student Progress
Standard Setting Meetings
July 2019

Item Comment Form
Math Grade 8

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

Item	Comment

Iowa Statewide Assessment of Student Progress
Standard Setting Meetings
July 2019

Performance Level Descriptor (PLD) Comment Form
Math Grade 8

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

Performance Level	Comment
Advanced	
Proficient	

Process Evaluation Survey #1

Math - Grades 7 and 8

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the performance levels for the ISASP 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 ISASP assessments	○	○	○	○
Introduction to the standard setting process	○	○	○	○
Experiencing the actual assessment	○	○	○	○
Discussion of the scoring of items on the assessment	○	○	○	○
Discussion of performance level descriptors (PLDs)	○	○	○	○
Development and discussion of the borderline descriptions	○	○	○	○
Overview of the standard-setting procedure	○	○	○	○
Practice exercise for the standard-setting procedure	○	○	○	○

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
Performance Level Descriptors (PLDs)	○	○	○	○
Borderline descriptions	○	○	○	○

How adequate were the following elements of the session?

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
Training provided on the standard-setting process	○	○	○	○
Amount of time spent training	○	○	○	○
Total amount of time to create and discuss borderline descriptions	○	○	○	○
Total amount of time to discuss the practice judgments	○	○	○	○

Process Evaluation Survey #2

Math Grades 7 and 8

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the performance levels for the grade 8 math. 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 for math grade 8.

	Not Successful	Partially Successful	Successful	Very Successful
Individual judgment round activity	○	○	○	○
Judgment round feedback - committee-level statistics	○	○	○	○
Judgment round feedback - panelist agreement data	○	○	○	○
Judgment round feedback - impact data	○	○	○	○
Discussions after each round	○	○	○	○

How useful do you feel the following activities or information were in assisting you to make your recommendations for math grade 8?

	Very Useful	Useful	Somewhat Useful	Not Useful
Committee-level statistics after Rounds 1 and 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	○	○	○	○

How adequate were the following elements of the session for math grade 8?

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
Amount of time to make judgments	○	○	○	○
Presentation of the feedback provided	○	○	○	○
Number of judgment rounds	○	○	○	○

In applying the standard-setting method, you were asked to recommend cut scores (separating three performance levels) for student performance on the ISASP Grade 8 Math assessments.

How confident do you feel that the Performance Level Descriptors (PLDs) for Math Grade 8 are reasonable for each performance level?

	Not Confident	Somewhat Confident	Confident	Very Confident
Proficient	○	○	○	○
Advanced	○	○	○	○

How confident do you feel that the final cut score recommendations for Math Grade 8 represent appropriate levels of student performance?

	Not Confident	Somewhat Confident	Confident	Very Confident
Proficient	○	○	○	○
Advanced	○	○	○	○

Process Evaluation Survey #3

Math Grades 7 and 8

The purpose of this evaluation is to collect information about your experience in recommending cut scores associated with the performance levels for the grade 7 math. 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 for math grade 7.

	Not Successful	Partially Successful	Successful	Very Successful
Experiencing the actual assessment	○	○	○	○
Discussion of the scoring of items on the assessment	○	○	○	○
Discussion of performance level descriptors (PLDs)	○	○	○	○
Development and discussion of the borderline descriptions	○	○	○	○
Individual judgment round activity	○	○	○	○
Judgment round feedback - committee-level statistics	○	○	○	○
Judgment round feedback - panelist agreement data	○	○	○	○
Judgment round feedback - impact data	○	○	○	○
Discussions after each round	○	○	○	○

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
Performance level descriptors (PLDs)	○	○	○	○
Borderline descriptions	○	○	○	○
Committee-level statistics after Rounds 1 and 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	○	○	○	○

How adequate were the following elements of the session?

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
Total amount of time to create and discuss borderline descriptions	○	○	○	○
Amount of time to make judgments	○	○	○	○
Presentation of the feedback provided	○	○	○	○
Number of judgment rounds	○	○	○	○

In applying the standard-setting method, you were asked to recommend cut scores (separating three performance levels) for student performance on the ISASP Grade 7 Math assessments.

How confident do you feel that the Performance Level Descriptors (PLDs) for math grade 7 are reasonable for each performance level?

	Not Confident	Somewhat Confident	Confident	Very Confident
Proficient	○	○	○	○
Advanced	○	○	○	○

How confident do you feel that the Round 3 recommendations for math grade 7 represent appropriate levels of student performance?

	Not Confident	Somewhat Confident	Confident	Very Confident
Proficient	○	○	○	○
Advanced	○	○	○	○

How adequate were the following elements of the meeting?

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
Facilities used for the meeting	○	○	○	○
Computers used during the meeting	○	○	○	○
Pearson standard setting website for accessing materials and making judgments	○	○	○	○
Materials provided in the folder	○	○	○	○
Work space in table groups during the meeting	○	○	○	○

Did you have adequate opportunities during the session to:

	Not Adequate	Somewhat Adequate	Adequate	More Than Adequate
Express your opinions about student performance levels	○	○	○	○
Ask questions about the cut score and how they will be used	○	○	○	○
Ask questions about the process of making cut score recommendations	○	○	○	○
Interact with your fellow panelists	○	○	○	○

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

	Yes	Sometimes	No
Fellow panelists	○	○	○
Facilitators	○	○	○

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

Paragraph B I

Appendix C – Committee Panelist Composition

Table C.1: Participant Current Position

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Teacher (K–12)	15	7	7	8	7	10	17	12	9	5	11	7	7	9	9
Teacher (Higher Ed.)	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
Administrator (School)	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Administrator (District)	0	1	0	0	0	0	0	0	0	2	0	0	0	0	1
Other	1	3	4	0	2	0	2	3	3	5	2	4	4	0	1

Table C.2: Years of Teaching Experience

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
None	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 to 5 years	2	1	1	0	0	0	0	2	3	0	1	1	0	0	2
6 to 10 years	3	1	1	1	1	0	2	4	1	2	6	0	2	1	1
11 to 15 years	3	3	2	2	3	1	5	1	3	0	1	3	0	2	0
16 to 20 years	3	1	2	1	0	1	5	3	3	2	2	3	2	1	5
More than 20 years	5	5	5	4	6	8	7	5	3	8	3	5	7	6	3

Table C.3: Years of Teaching Experience Subject Within Grades

	Mathematics									ELA									Science		
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
None	3	5	5	7	1	2	0	2	1	5	4	2	3	3	5	0	1	1	2	2	1
1 to 5 years	9	3	4	2	3	3	0	0	1	8	10	7	6	8	6	4	7	3	2	4	3
6 to 10 years	3	4	1	2	5	6	2	2	1	3	2	3	0	1	1	5	3	3	4	0	2
11 to 15 years	0	4	1	0	1	0	2	2	1	1	3	1	3	1	0	1	1	3	1	2	3
16 to 20 years	1	0	0	0	1	0	2	0	4	0	0	1	2	0	1	0	1	1	2	1	0
More than 20 years	0	0	0	0	0	0	2	4	2	2	0	1	1	0	0	2	0	1	0	1	2

Table C.4: Experience Teaching Student Populations

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Students receiving mainstream special education services	14	10	10	7	9	10	15	13	13	11	13	9	7	9	6
Students receiving self-contained special education	8	5	4	2	3	1	4	5	8	8	4	3	1	3	2
Students who are English language learners	12	7	7	7	6	8	9	9	11	6	9	6	5	8	5
Students who are receiving general education instruction	16	11	11	8	10	10	19	15	13	11	12	12	11	10	11
Students who are receiving vocational technical instruction	0	0	2	2	3	1	0	1	5	5	1	3	0	2	3

Table C.5: Highest Education Degree

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
High School Diploma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Associate's degree (A.A, A.S.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bachelor's degree (B.A., B.S.)	4	4	2	1	4	2	7	5	7	2	6	1	1	2	4
Master's degree (M.A., M.S.)	12	7	9	7	5	8	12	10	6	8	6	9	10	8	7
Doctoral degree (Ph.D., Ed.D.)	0	0	0	0	1	0	0	0	0	2	1	2	0	0	0

Table C.6: Demographic: Gender

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Male	1	0	2	3	4	2	1	1	1	2	5	3	3	4	6
Female	15	11	9	5	6	7	18	14	11	10	8	9	8	4	5
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.7: Demographic: Ethnicity

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Hispanic or Latino	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Not Hispanic or Latino	12	10	10	8	9	10	19	15	11	11	13	11	9	8	10
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.8: Demographic: Race

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
American Indian or Alaskan Native	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Asian	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Black or African American	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0
Native Hawaiian or Pacific Islander	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White	14	10	10	8	9	9	16	13	11	11	13	12	11	8	10
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.9: Currently Work in a School District

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Yes	15	9	8	8	8	10	16	15	10	11	12	9	9	9	11
No	1	2	3	0	2	0	3	0	3	1	1	3	2	1	0

Table C.10: Size of School District

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Small	2	1	1	5	5	2	4	1	2	2	5	4	1	4	5
Medium	6	2	3	2	1	3	7	5	4	6	2	3	4	2	3
Large	7	6	4	1	2	5	5	9	4	3	5	2	4	3	3

Table C.11: Type of School District

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Rural	4	1	2	6	6	3	8	3	2	5	7	6	3	4	5
Metropolitan/Urban	4	5	3	1	2	5	3	10	6	2	0	0	3	1	3
Suburban	7	3	3	1	0	2	5	2	2	4	5	3	3	4	3

Table C.12: Socioeconomic Status of School District

	Mathematics						ELA						Science		
	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grades 3-4	Grades 5-6	Grades 7-8	Grade 9	Grade 10	Grade 11	Grade 5	Grade 8	Grade 10
Low	2	4	3	3	4	3	1	5	4	5	2	2	2	3	5
Moderate	10	4	5	4	4	6	14	8	6	6	9	6	6	5	3
High	3	1	0	1	0	1	1	2	0	0	1	1	1	1	3

Appendix D – Standard Setting Meeting Agenda

Agenda
Grades 7 and 8 Mathematics

Day 1 – Monday, July 22

General Session

Introductions and Meeting Orientation

Experience the Assessment – Math Grade 8

Performance Level Descriptors – Math Grade 8

Lunch

Borderline Descriptions – Math Grade 8

Standard Setting Training

Practice Judgment Activity

Day 2 – Tuesday, July 23

Round 1 Judgments – Math Grade 8

Round 1 Judgment Feedback and Discussion – Math Grade 8

Round 2 Judgments – Math Grade 8

Lunch

Round 2 Judgment Feedback and Discussion – Math Grade 8

Round 3 Judgments – Math Grade 8

Round 3 Judgment Feedback and Discussion – Math Grade 8

Day 3 – Wednesday, July 24

Experience the Assessment – Math Grade 7

Performance Level Descriptors – Math Grade 7

Borderline Descriptions – Math Grade 7

Lunch

Borderline Descriptions – Math Grade 7

Round 1 Judgments – Math Grade 7

Round 1 Judgment Feedback and Discussion – Math Grade 7

Day 4 – Thursday, July 25

Round 2 Judgments – Math Grade 7

Round 2 Judgment Feedback and Discussion – Math Grade 7

Round 3 Judgments – Math Grade 7

Lunch

Round 3 Judgment Feedback and Discussion – Math Grade 7

Next Steps Discussion

Evaluations and Closing

Appendix E – Presentation Slides

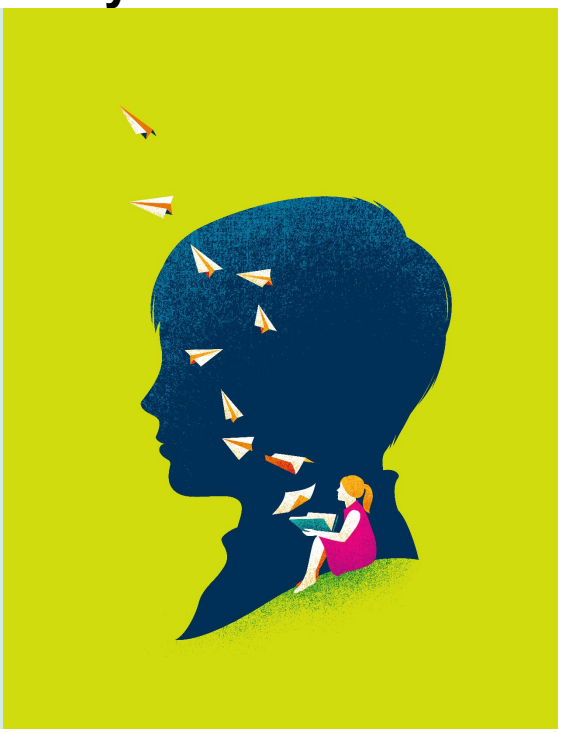
The presentations for each day of the standard setting are embedded in Appendix E. Double-click the cover slide to view the full presentation for a given day.

General Session

Mathematics Breakout Session – Day 1

Pearson

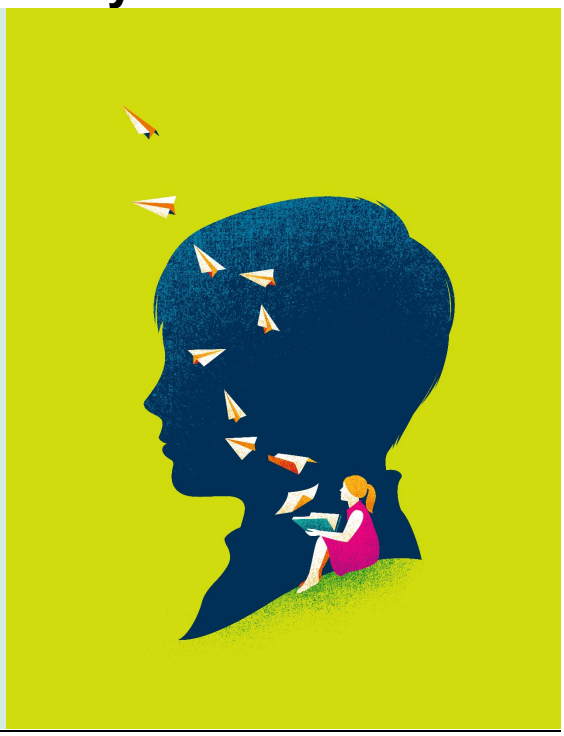
Iowa Statewide Assessment of Student Progress (ISASP)



Mathematics Breakout Session – Day 2

Pearson

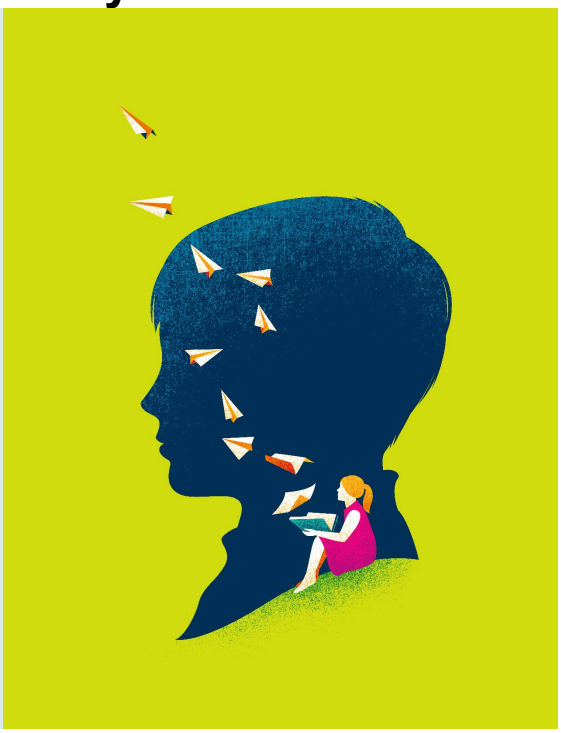
Iowa Statewide Assessment of Student Progress (ISASP)



Mathematics Breakout Session – Day 3

Pearson

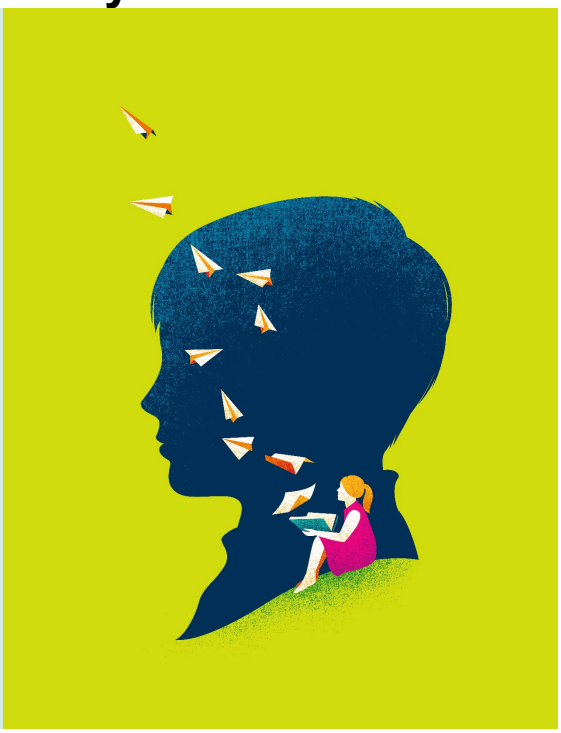
Iowa Statewide Assessment of Student Progress (ISASP)



Mathematics Breakout Session – Day 4

Pearson

Iowa Statewide Assessment of Student Progress (ISASP)



Appendix F – Examples of Feedback Data

Feedback data were provided to panelists after each judgment round. The following are examples of feedback data provided to panelists.

Individual Item-Level Judgments

The graphic below shows an example of the item-level judgments recorded in the judgment survey during Rounds 1 and 2. The individual item-level judgments were provided to panelists so they could verify the system accurately recorded their judgments for each performance level -- Proficient (P) and Advanced (A).

Item UIN	P	A
MA1808040	1	1
MA1808048	1	1
MA1808036_TEI	0	0
MA1808014	1	1
MA1808056	1	1
MA1808030	1	1

Individual Test-Level Cut Score Recommendation

Each panelist was provided their test-level cut score recommendations, which was the sum of their item judgments for the Proficient (P) and Advanced (A) performance levels.

P Raw Score	A Raw Score
24	34

Committee Test-Level Cut Score Recommendations

Panelists were provided with the committee's aggregate test-level cut score recommendations, including the number of participants, the mean, median, minimum, and maximum cut score recommendations, and the first and third quartiles for each performance level.

	N	Mean	Median	Min	Max	Q1	Q3
P Raw Score	10	21.30	20.00	16.00	31.00	18.00	24.00
A Raw Score	10	43.00	45.00	34.00	47.00	41.00	46.00

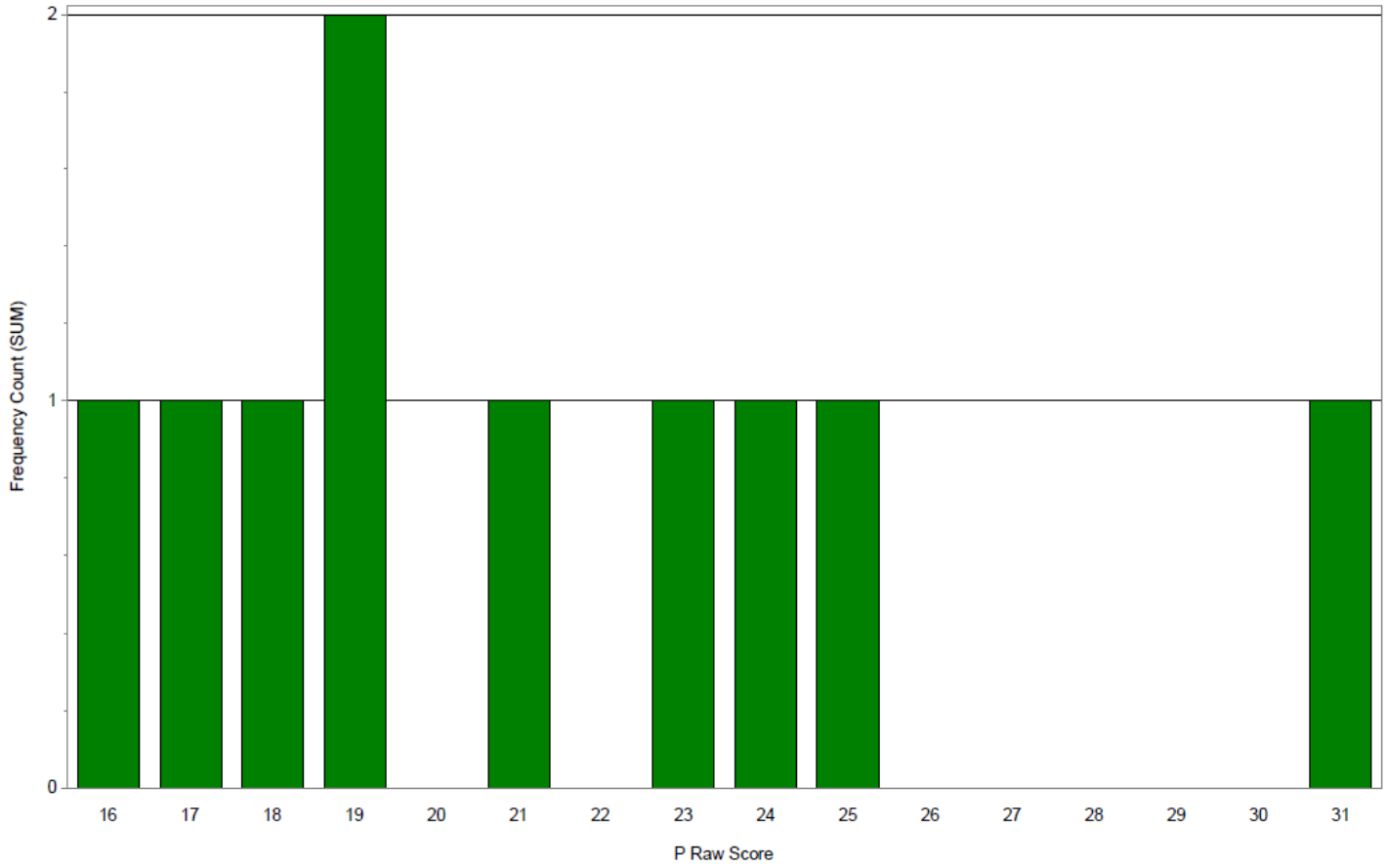
Item-level Judgment Agreement

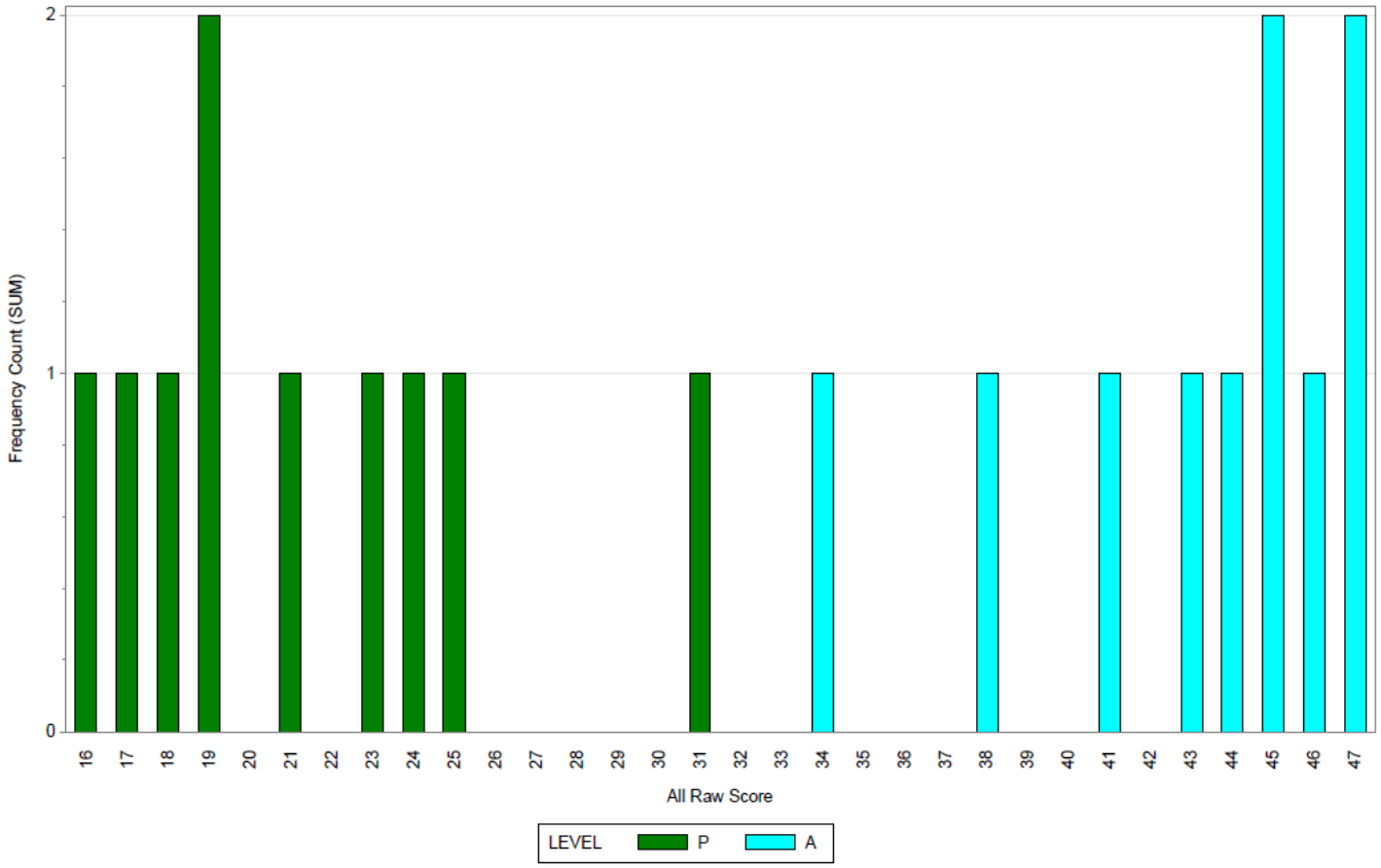
Item-level judgment distributions for the committee were provided to panelists for each item and performance level judgment. Additionally, for each performance level, the items with the greatest level of judgment disagreement were identified and discussed as a committee.

UIN	Max Points	0	1	2
MA1808068	1	60%	40%	.
MA1808050	1	60%	40%	.
MA1808002	1	40%	60%	.
MA1808030	1	40%	60%	.
MA1808040	1	40%	60%	.
MA1808074	2	20%	70%	10%
MA1808064	1	70%	30%	.
MA1808057	1	70%	30%	.

Test-level Cut Score Recommendations Agreement

The facilitator presented bar graphs to the panelists that displayed the distribution of cut score recommendations, by raw score, for each performance level: Proficient (P) and Advanced (A). A graph with all performance levels on the scale was also presented.





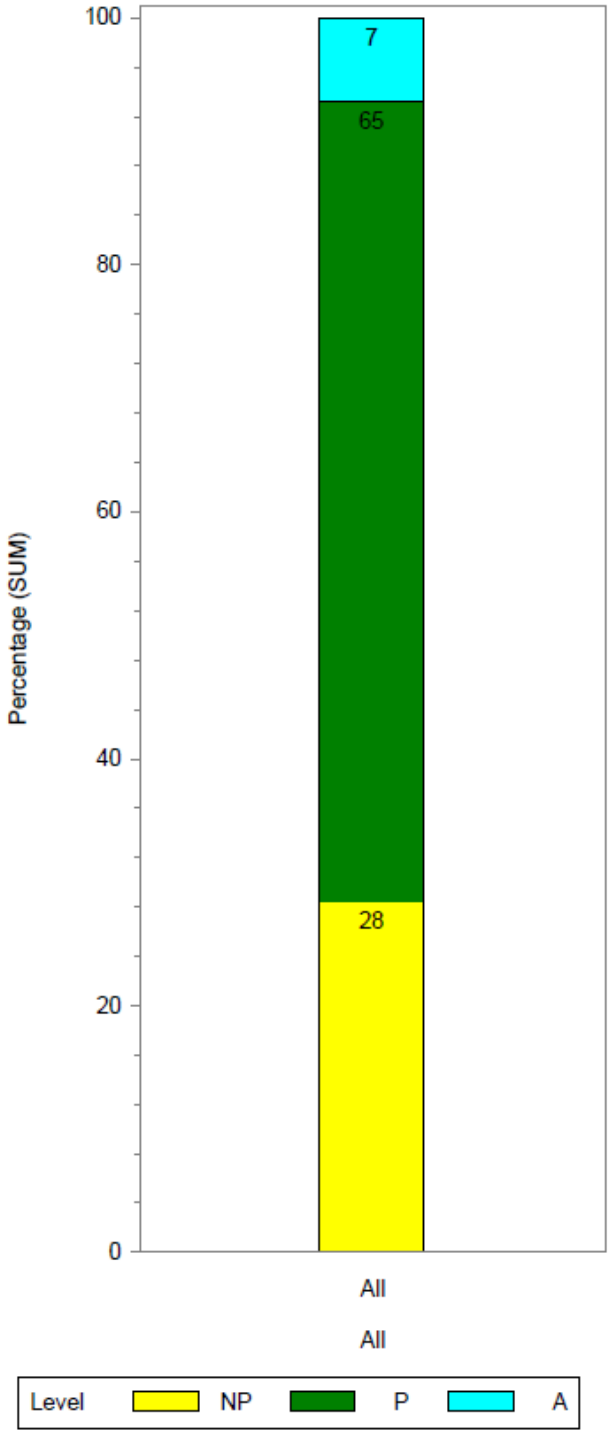
Item Score Mean and Score Distribution

The mean and distribution of scores received by students during the Spring 2019 administration was provided to panelists for each item. Score distributions were only provided on items with greater than one point possible.

Sequence	Item	Maximum Points	Score Mean	Score Distribution		
				0 pts	1 pt	2 pts
1	MA1808040	1	0.606			
2	MA1808048	1	0.718			
3	MA1808036_TEI	1	0.708			
4	MA1808014	1	0.577			
5	MA1808056	1	0.707			

Impact Data

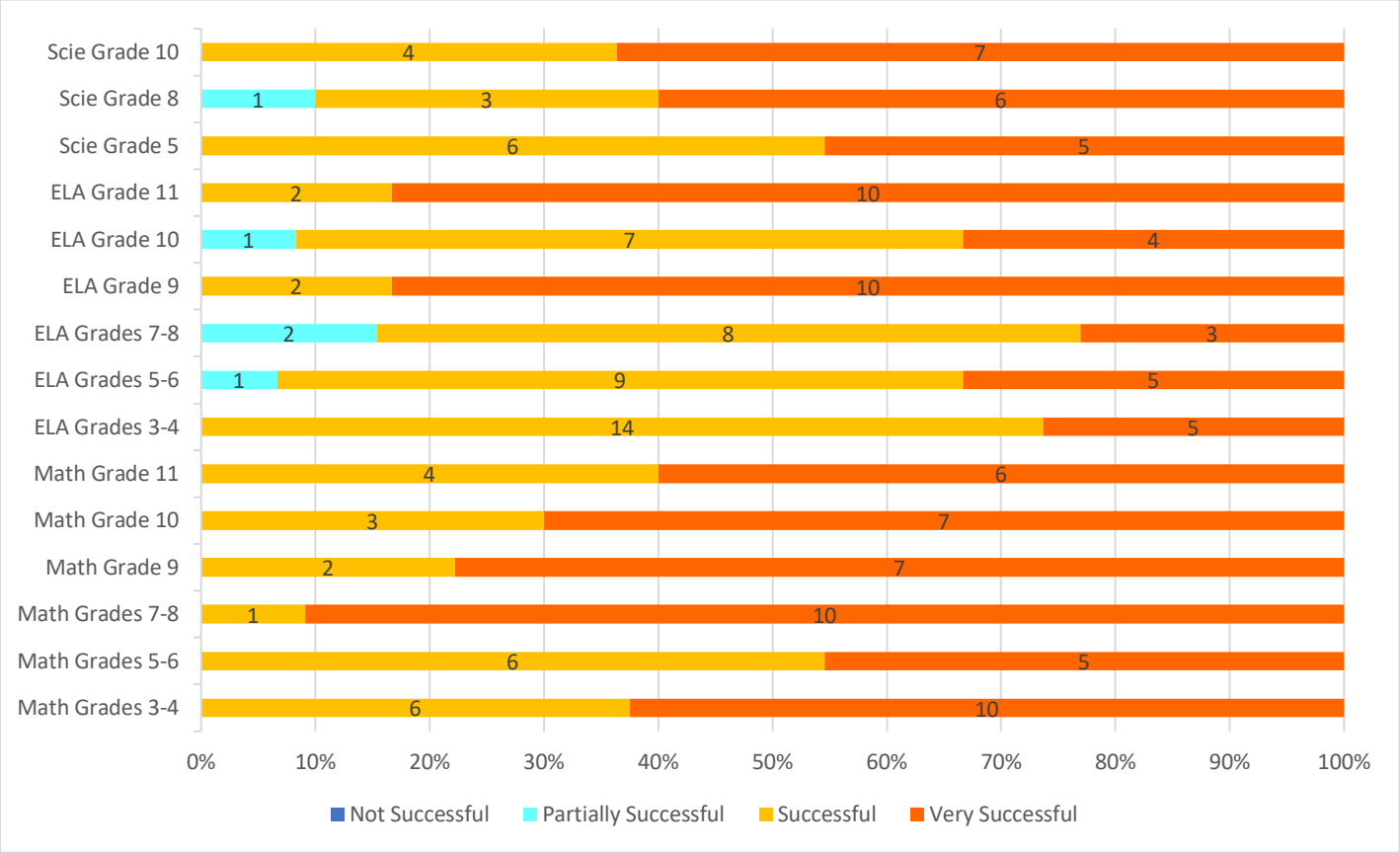
After Rounds 2 and 3, panelists were shown the percentage of students expected to be classified into each performance level—Not-Yet-Proficient (NP), Proficient (P), and Advanced (A)—based on the committee's test-level cut score recommendations for that round. The impact data results were based on the sample of student data from the spring 2019 administration of the respective ISASP assessment.



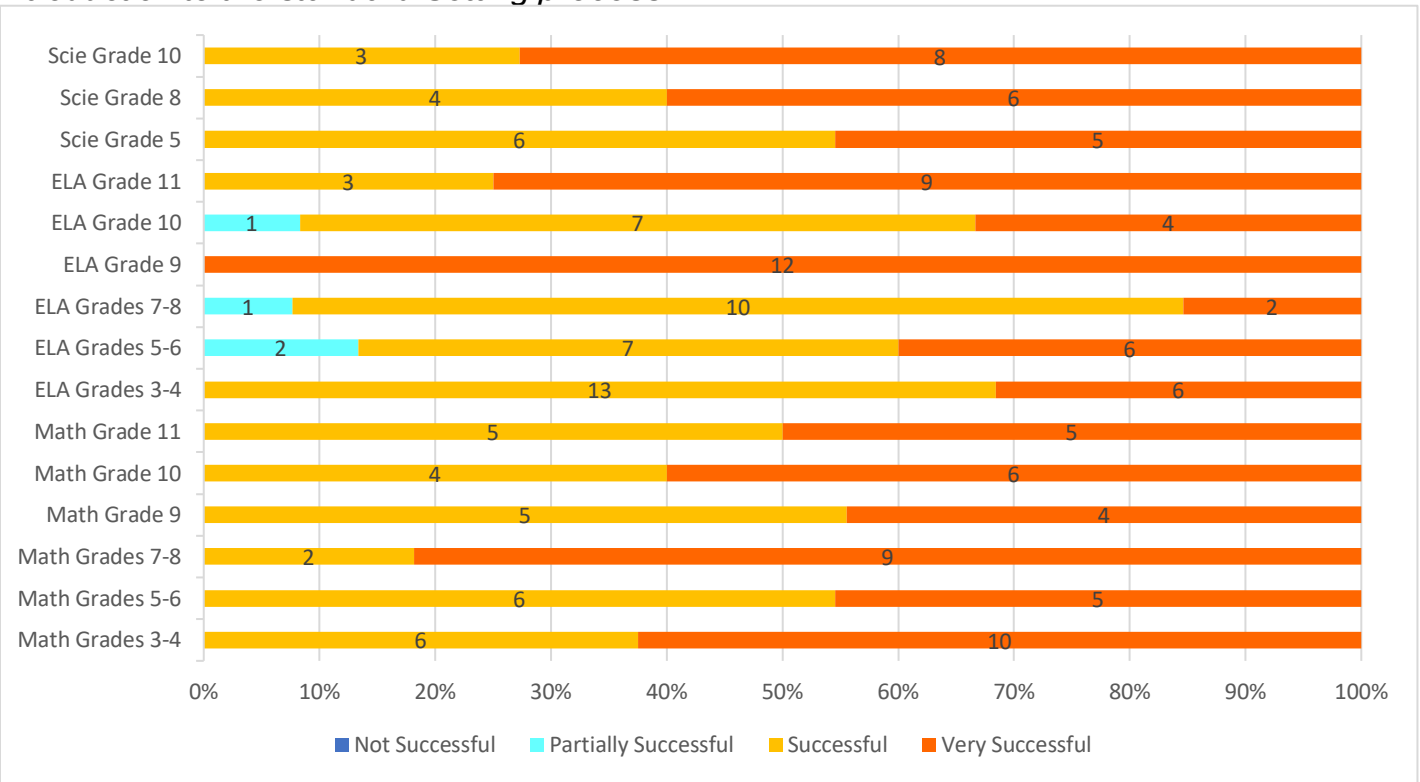
Appendix G – Panelist Evaluation Results

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.

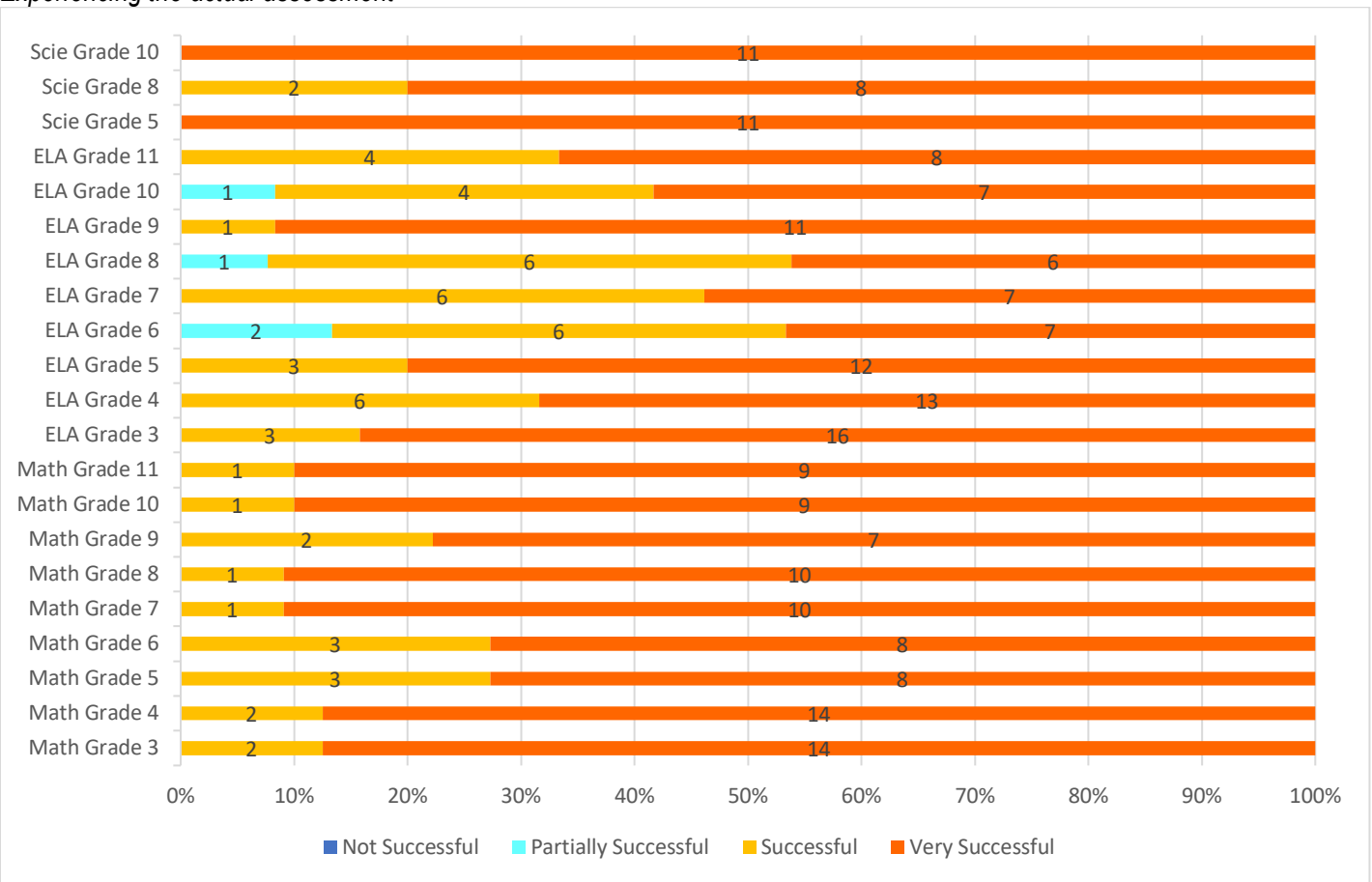
Overview of the ISASP assessments



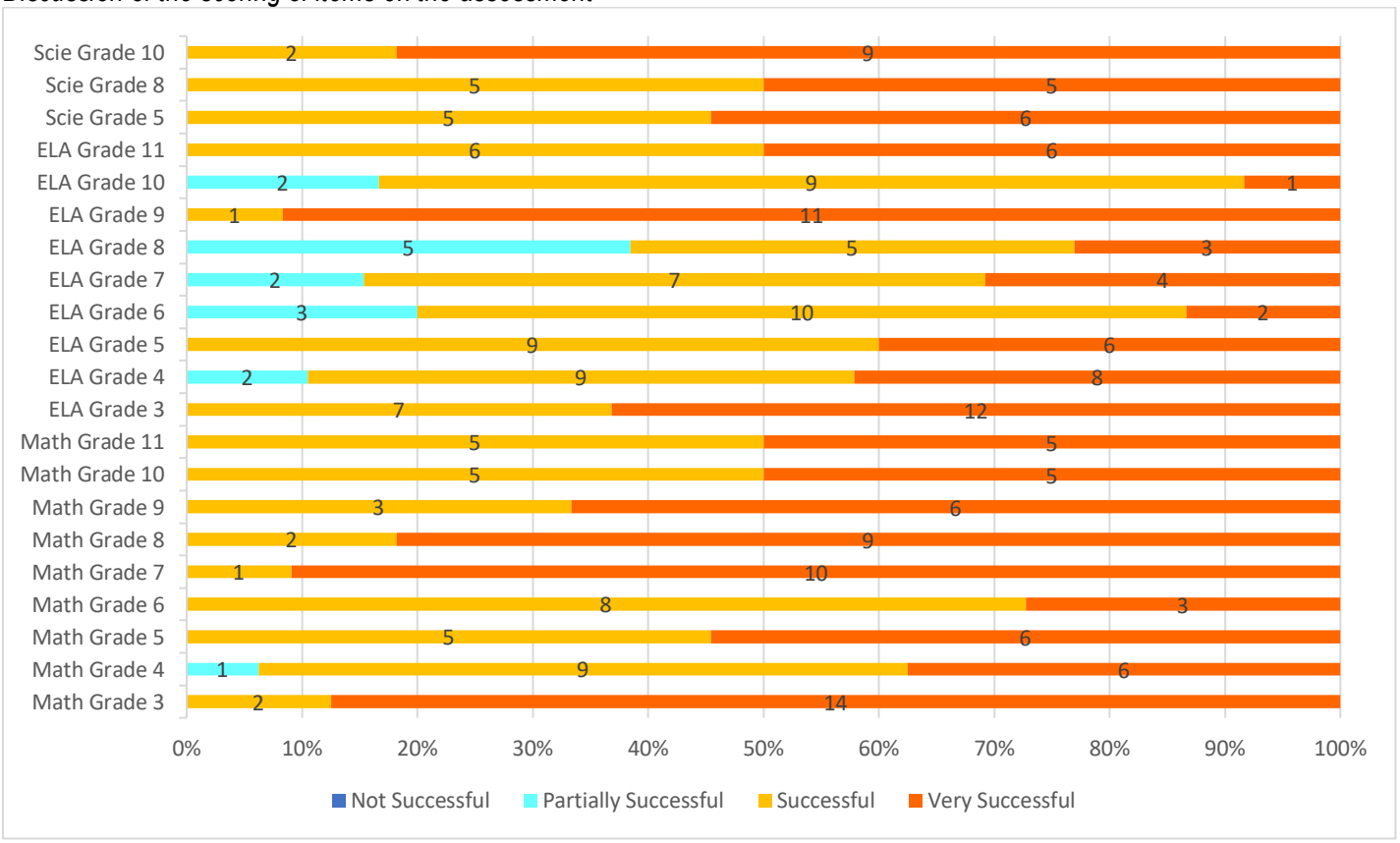
Introduction to the standard setting process



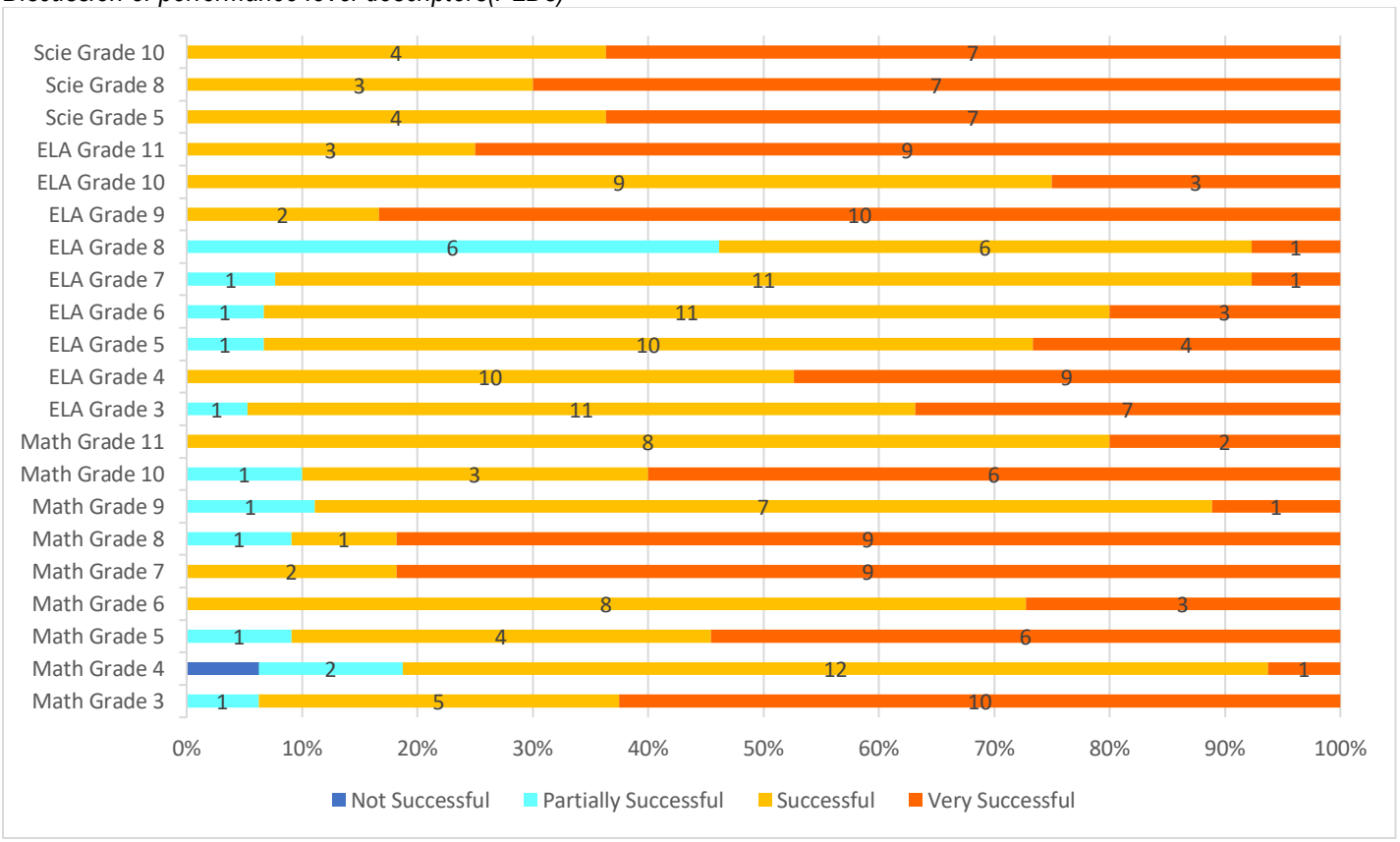
Experiencing the actual assessment



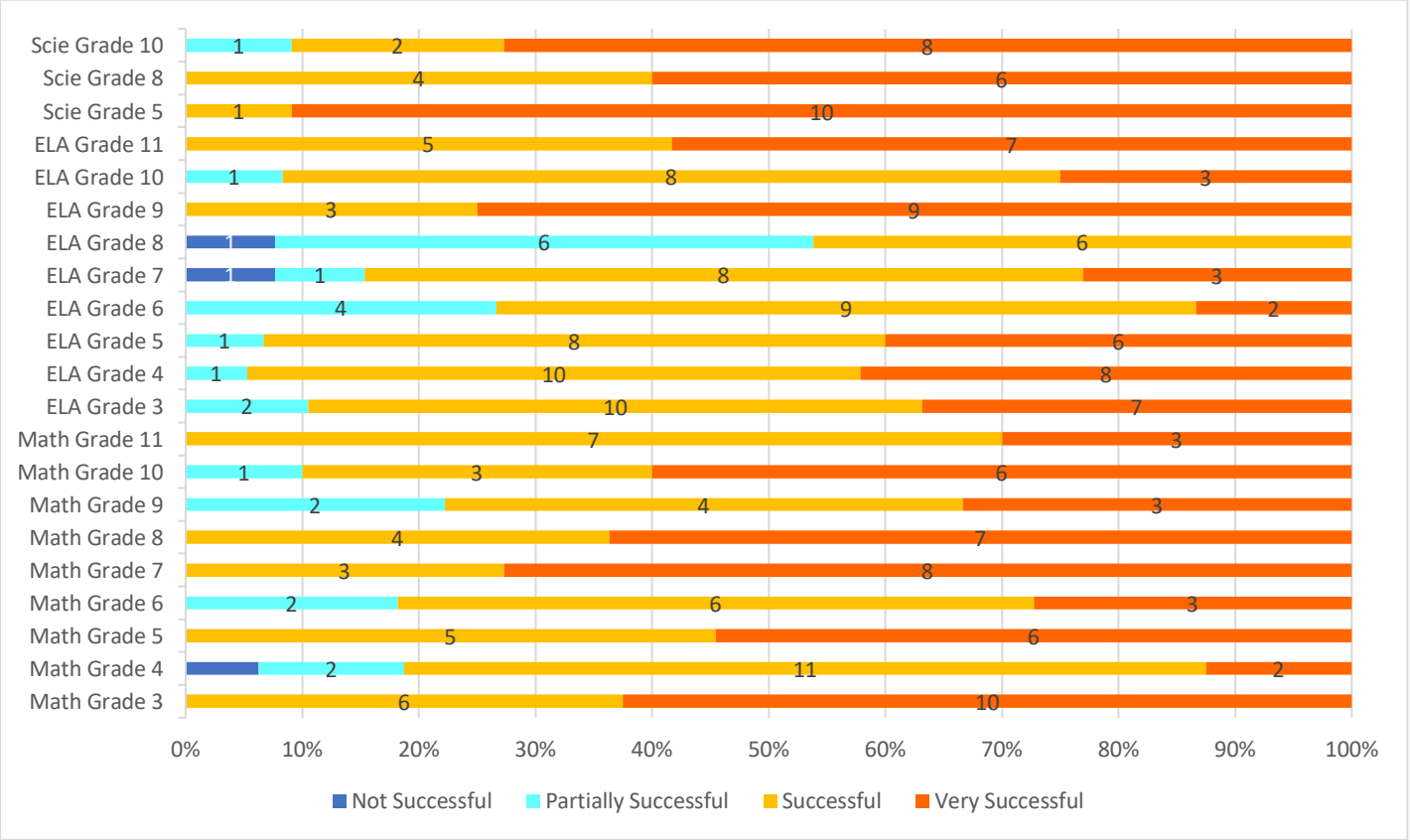
Discussion of the scoring of items on the assessment



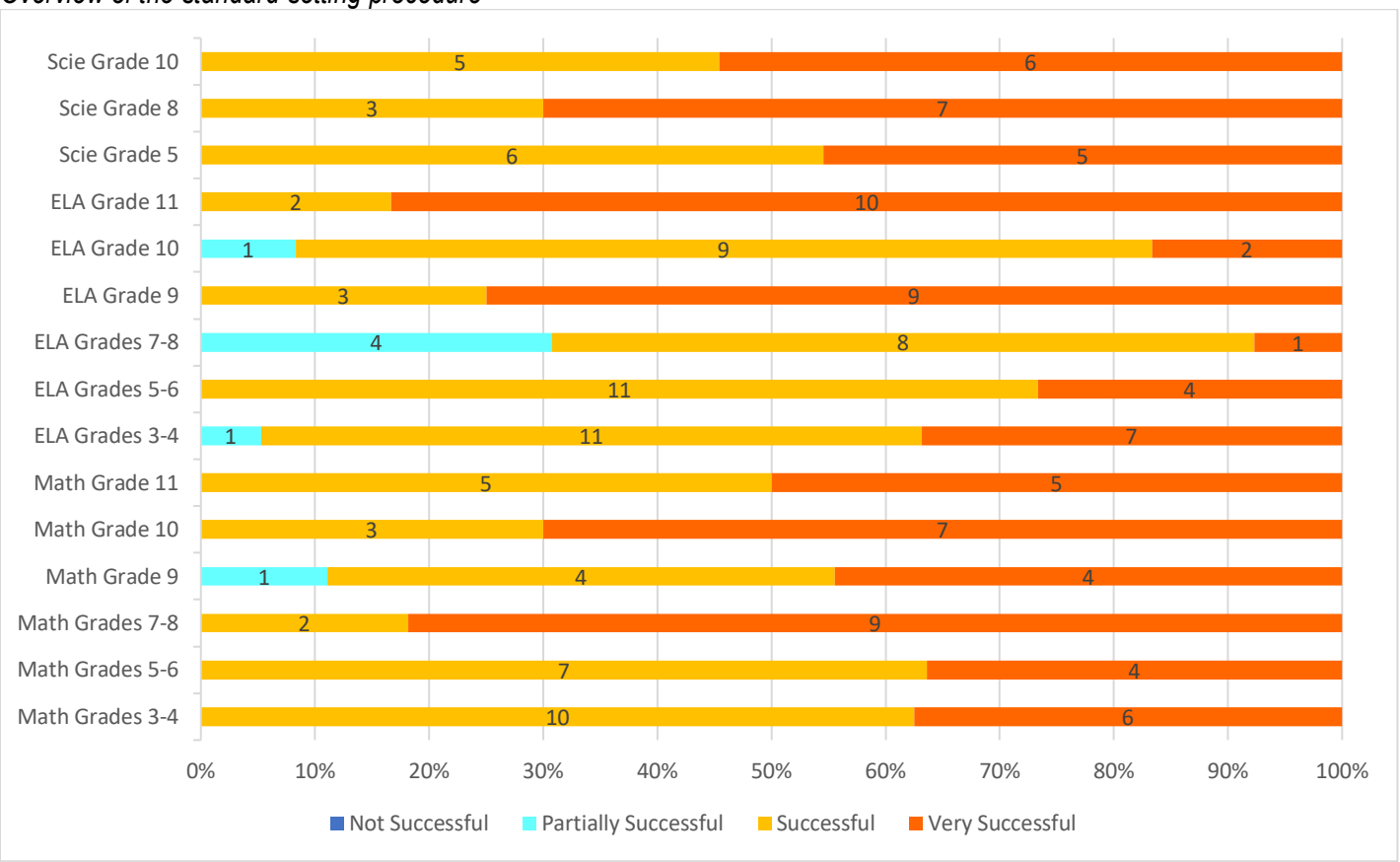
Discussion of performance level descriptors(PLDs)



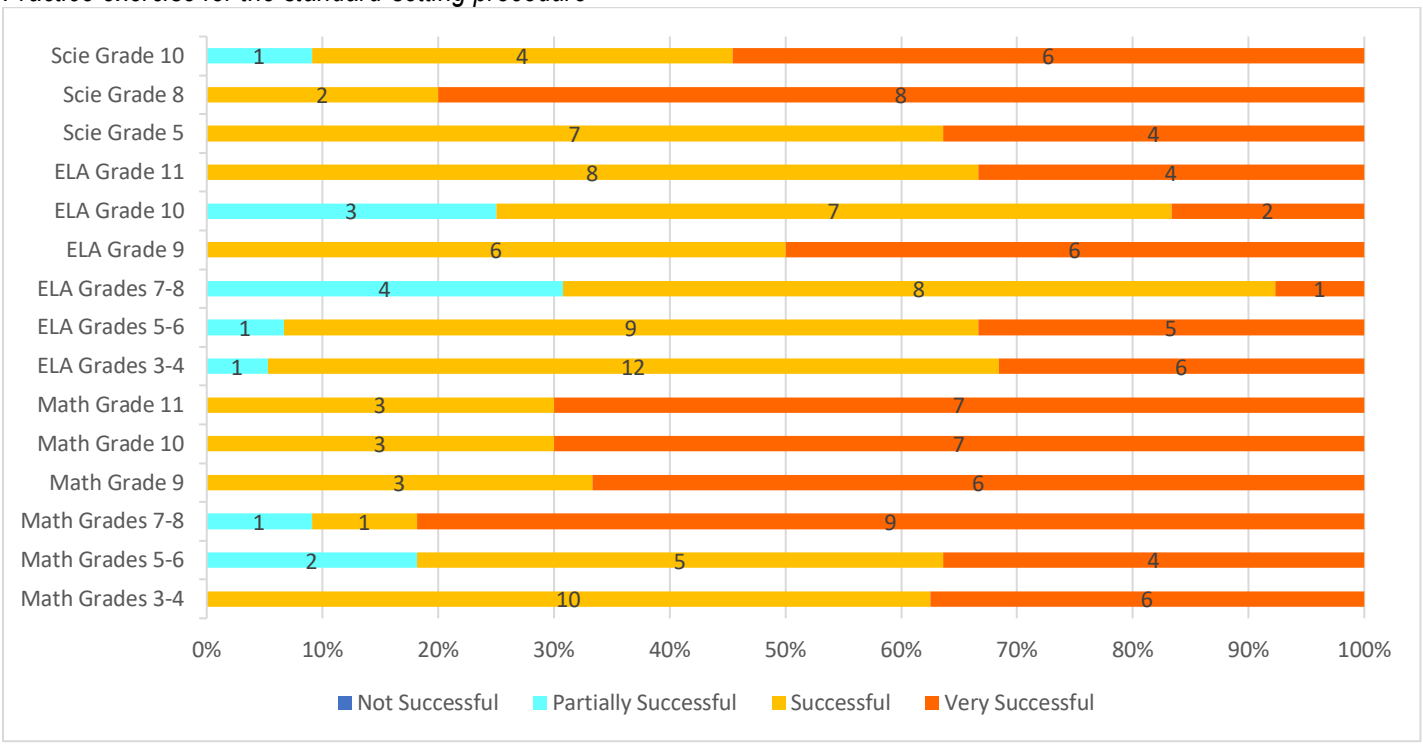
Development and discussion of the borderline descriptions



Overview of the standard-setting procedure

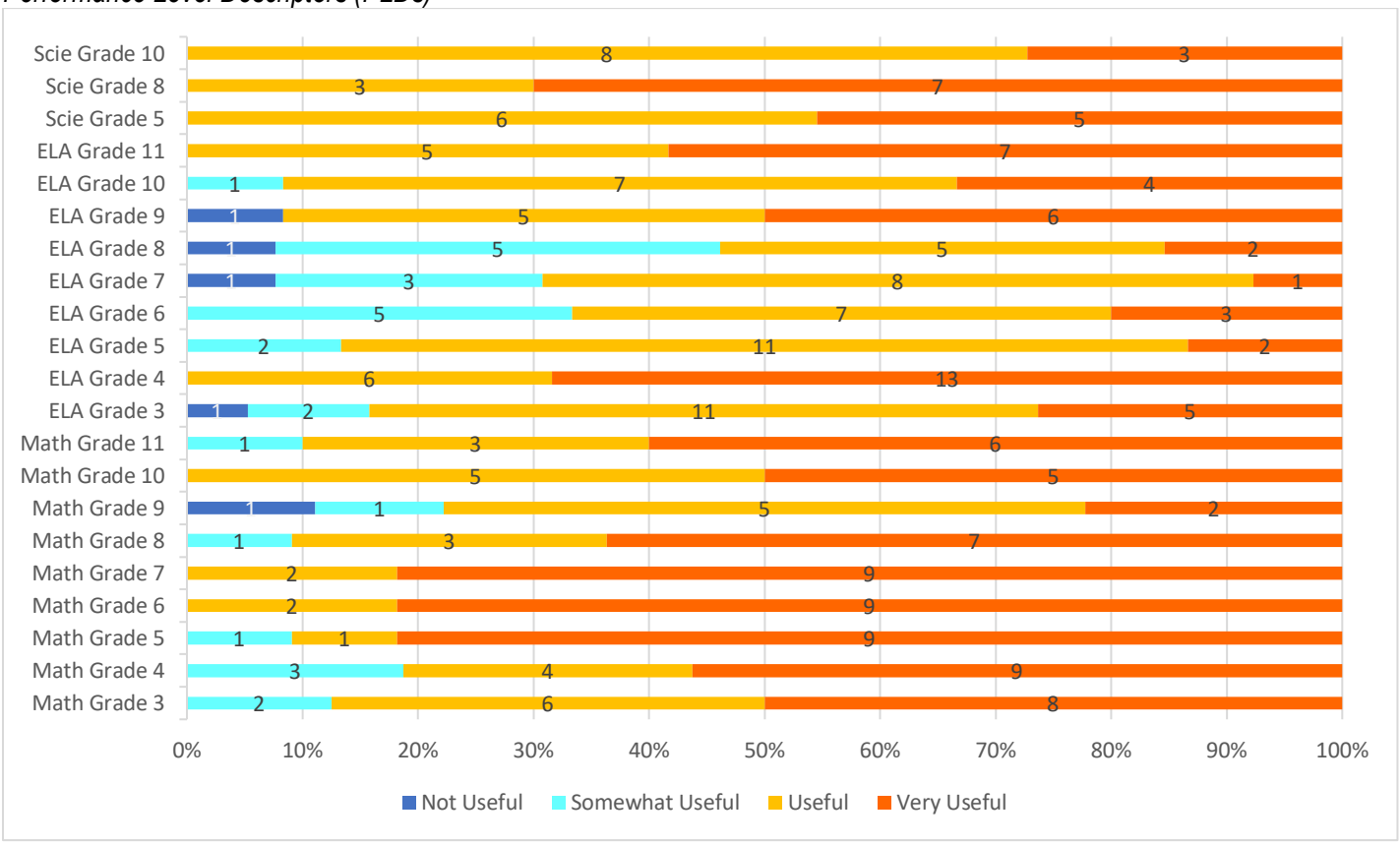


Practice exercise for the standard-setting procedure

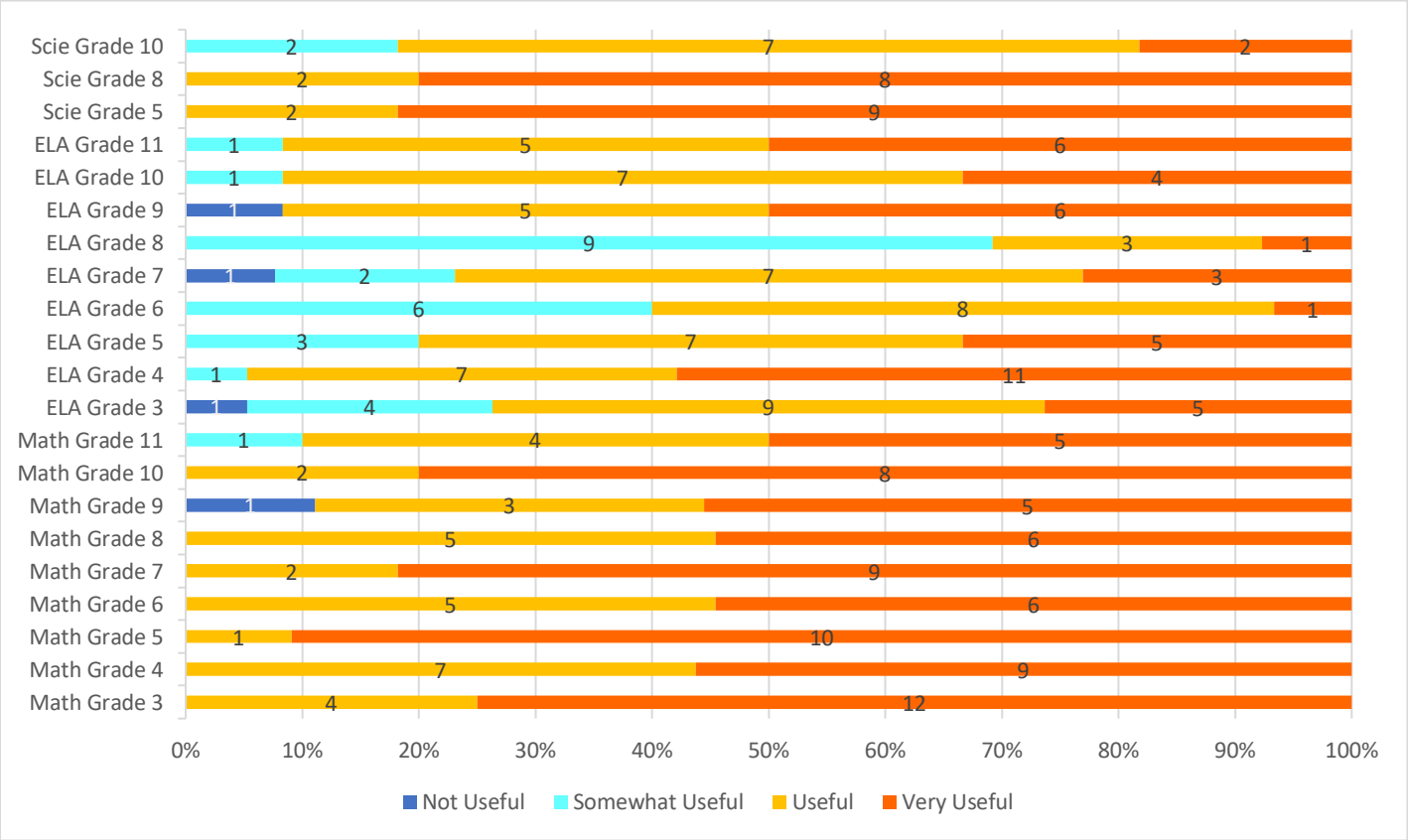


Question 2: How useful do you feel the following activities or information were in assisting you to make your recommendations?

Performance Level Descriptors (PLDs)

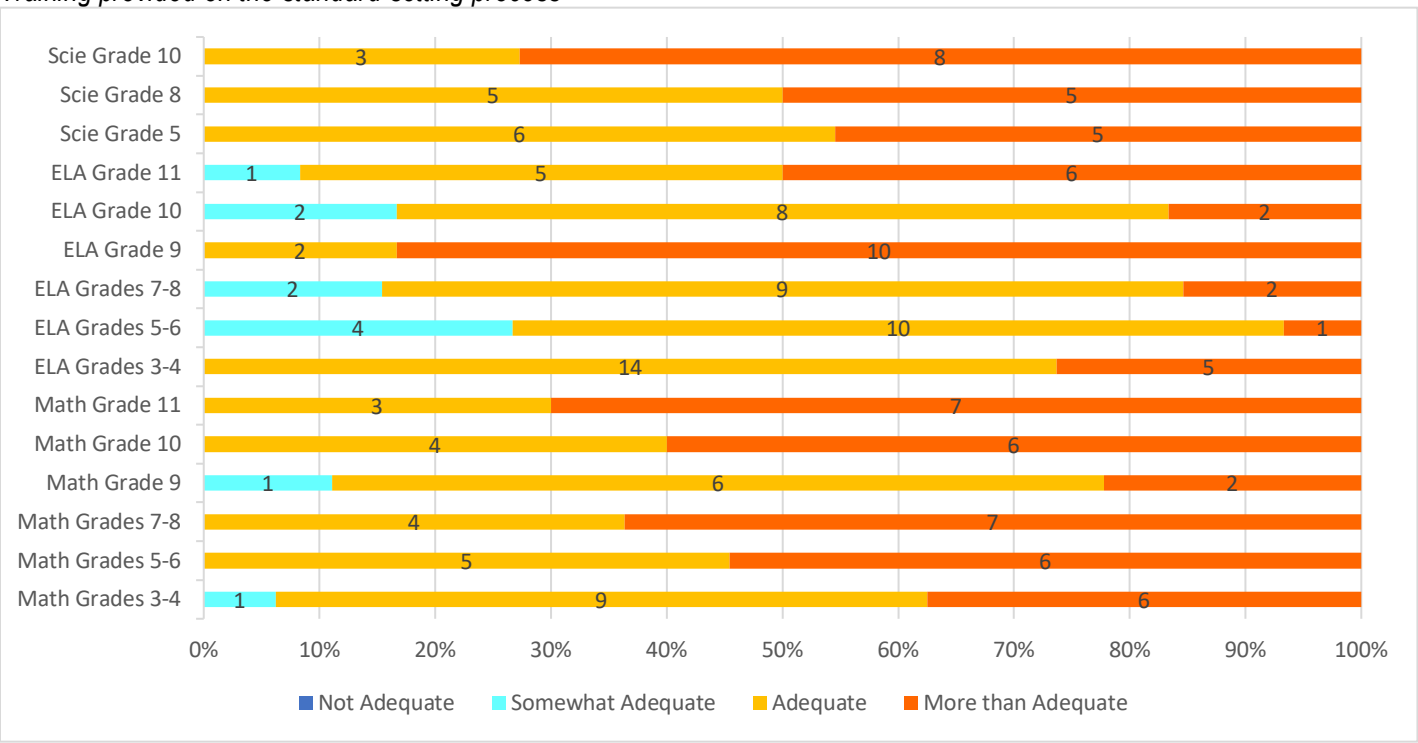


Borderline descriptions

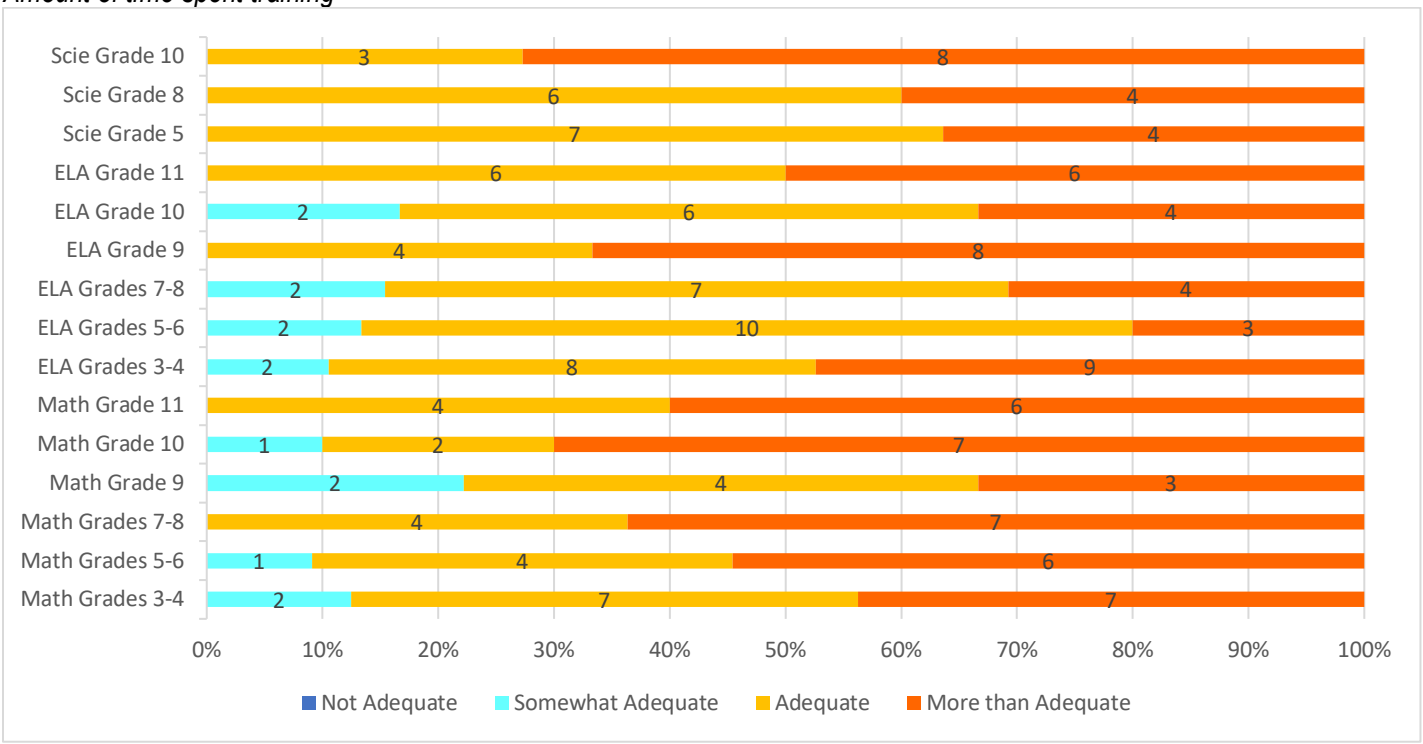


Question 3: How adequate were the following elements of the session?

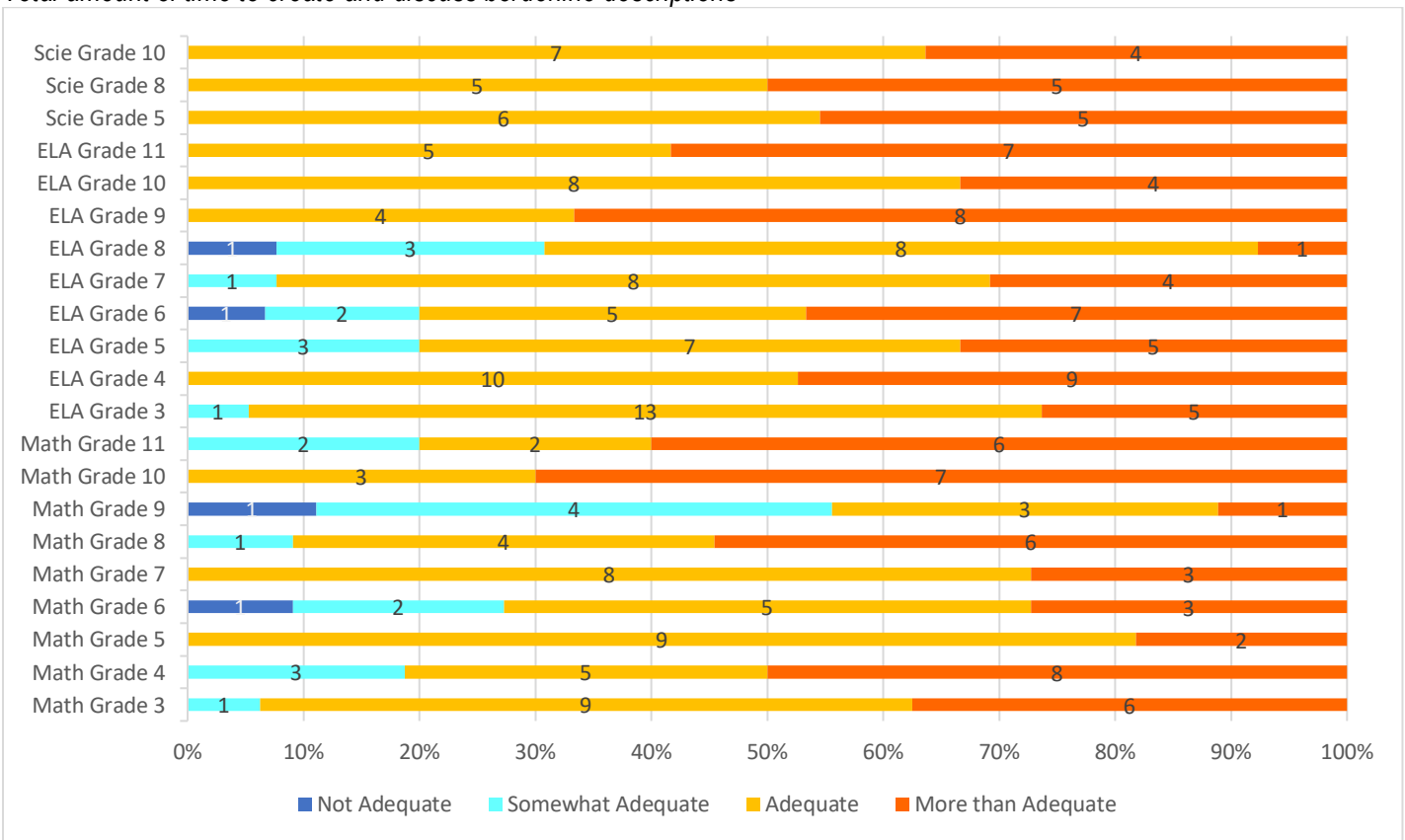
Training provided on the standard-setting process



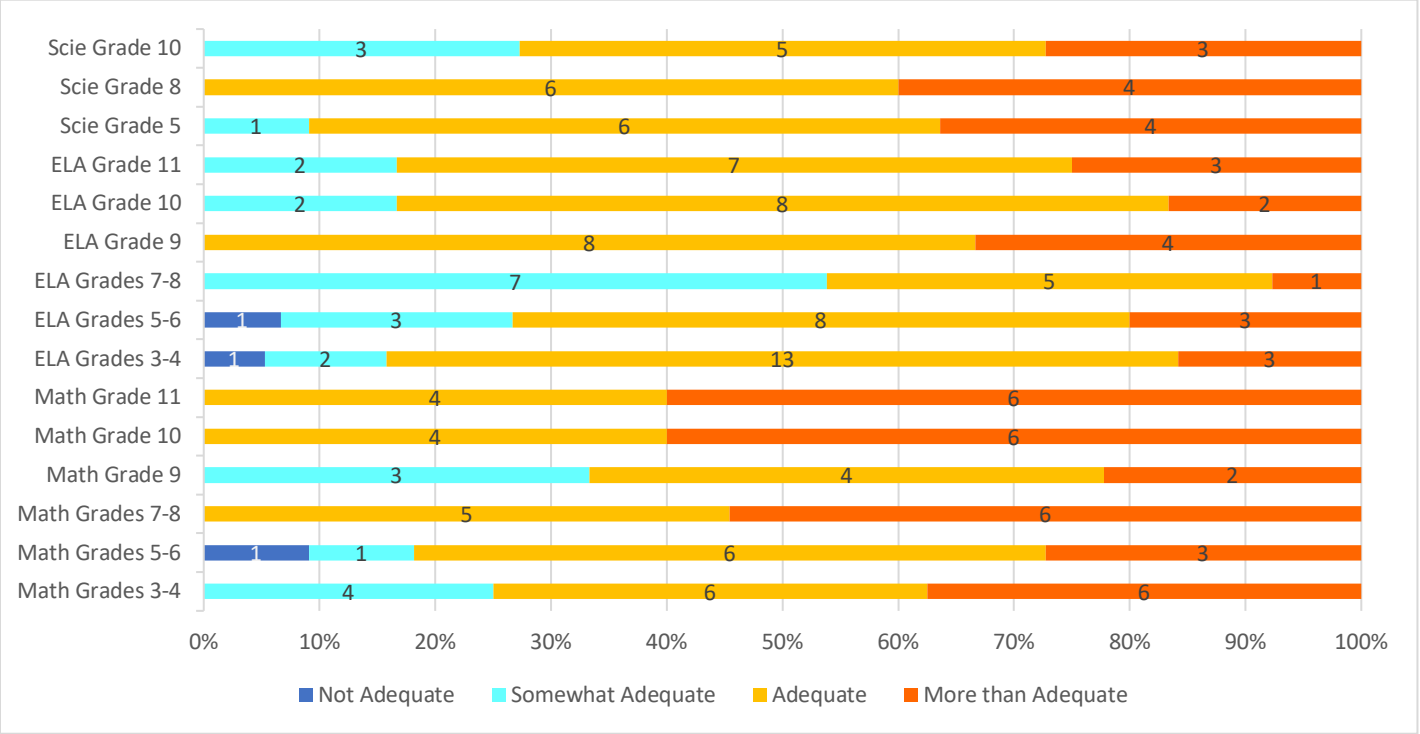
Amount of time spent training



Total amount of time to create and discuss borderline descriptions

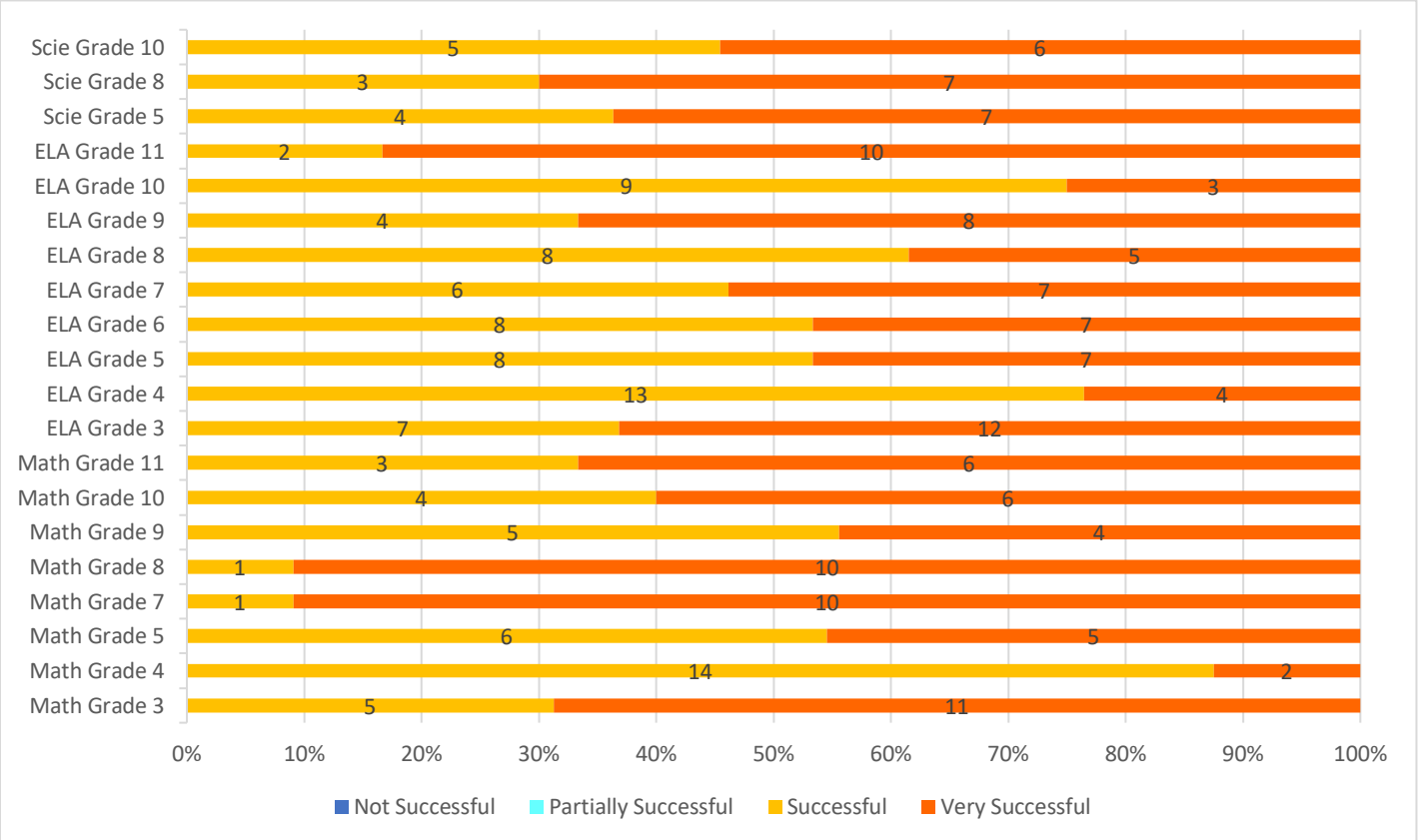


Total amount of time to discuss the practice judgments

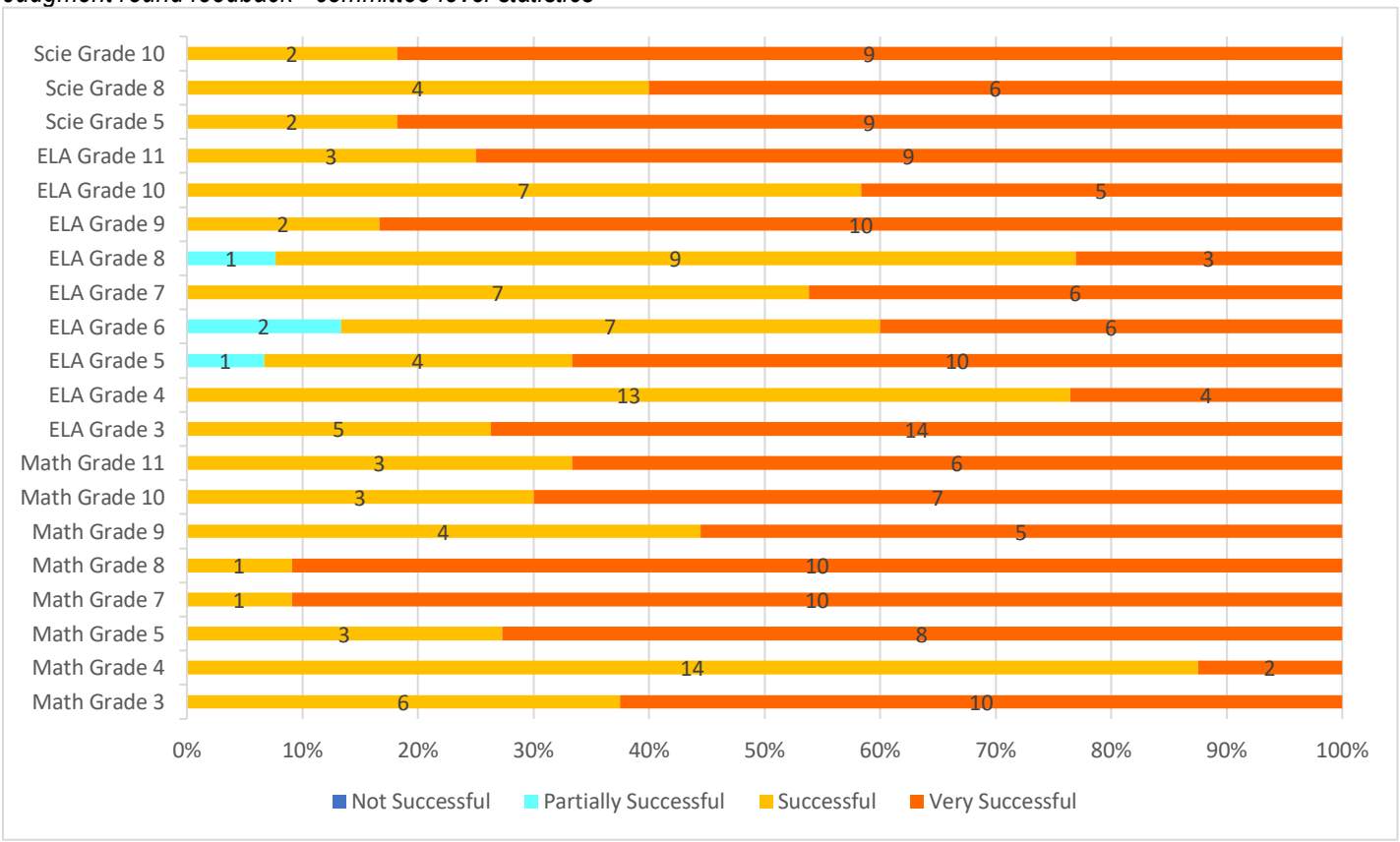


Question 4: Select the option that best reflects your opinion about the level of success of the various components of the meeting in which you participated. The activities were designed to help you both understand the process and be supportive of the recommendations made by the committee.

Individual judgment round activity

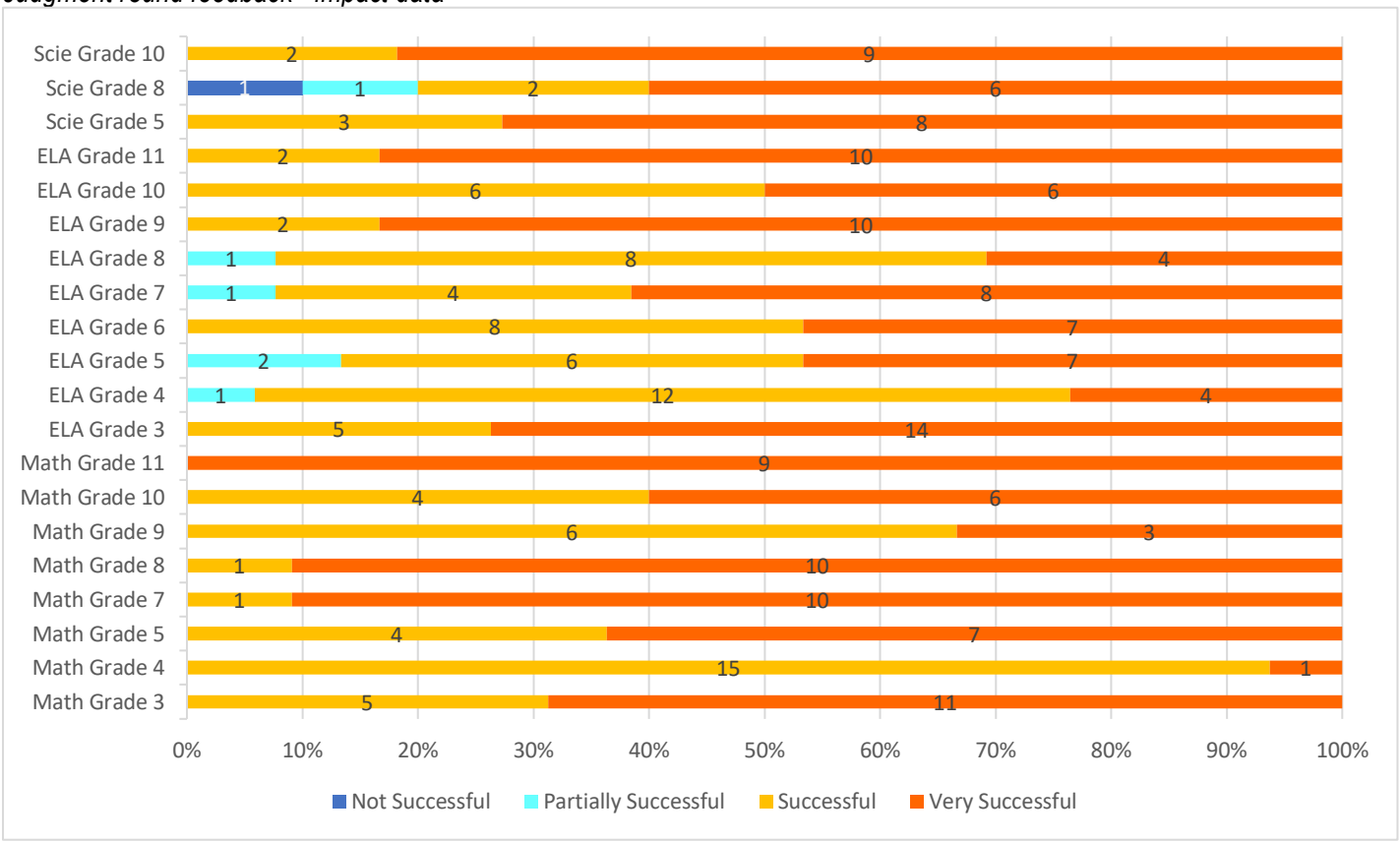


Judgment round feedback - committee-level statistics

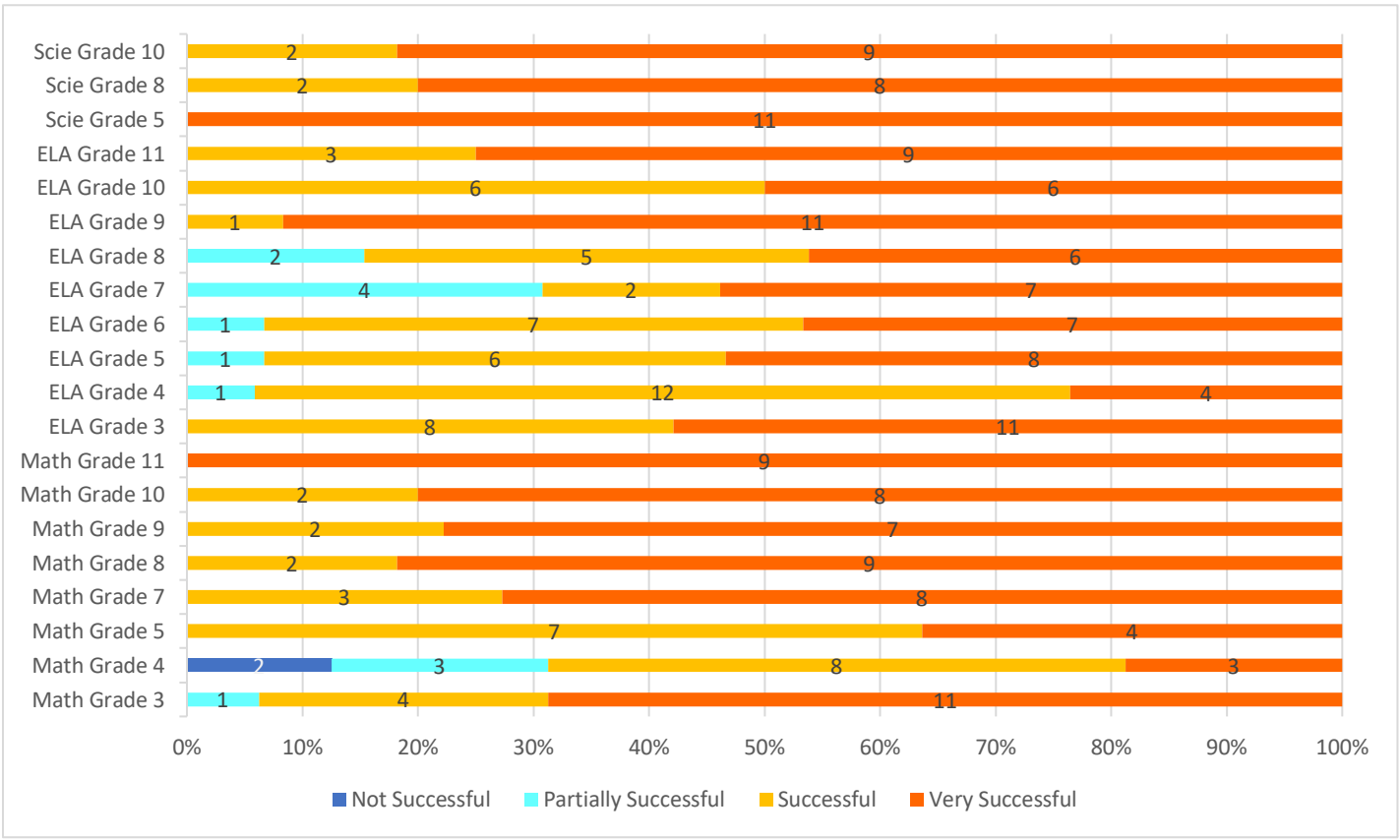


Judgment round feedback - panelist agreement data

Judgment round feedback - impact data

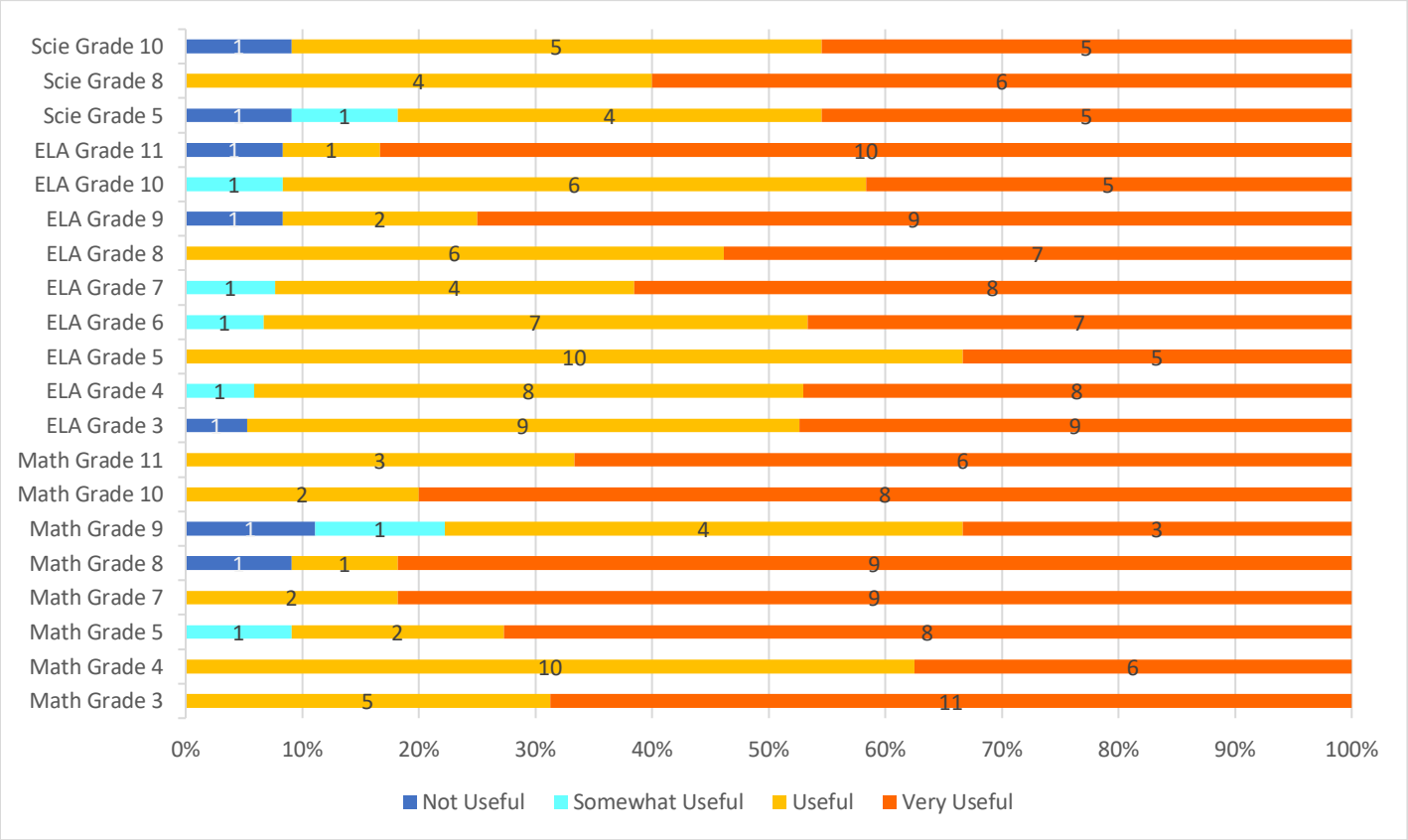


Discussions after each round

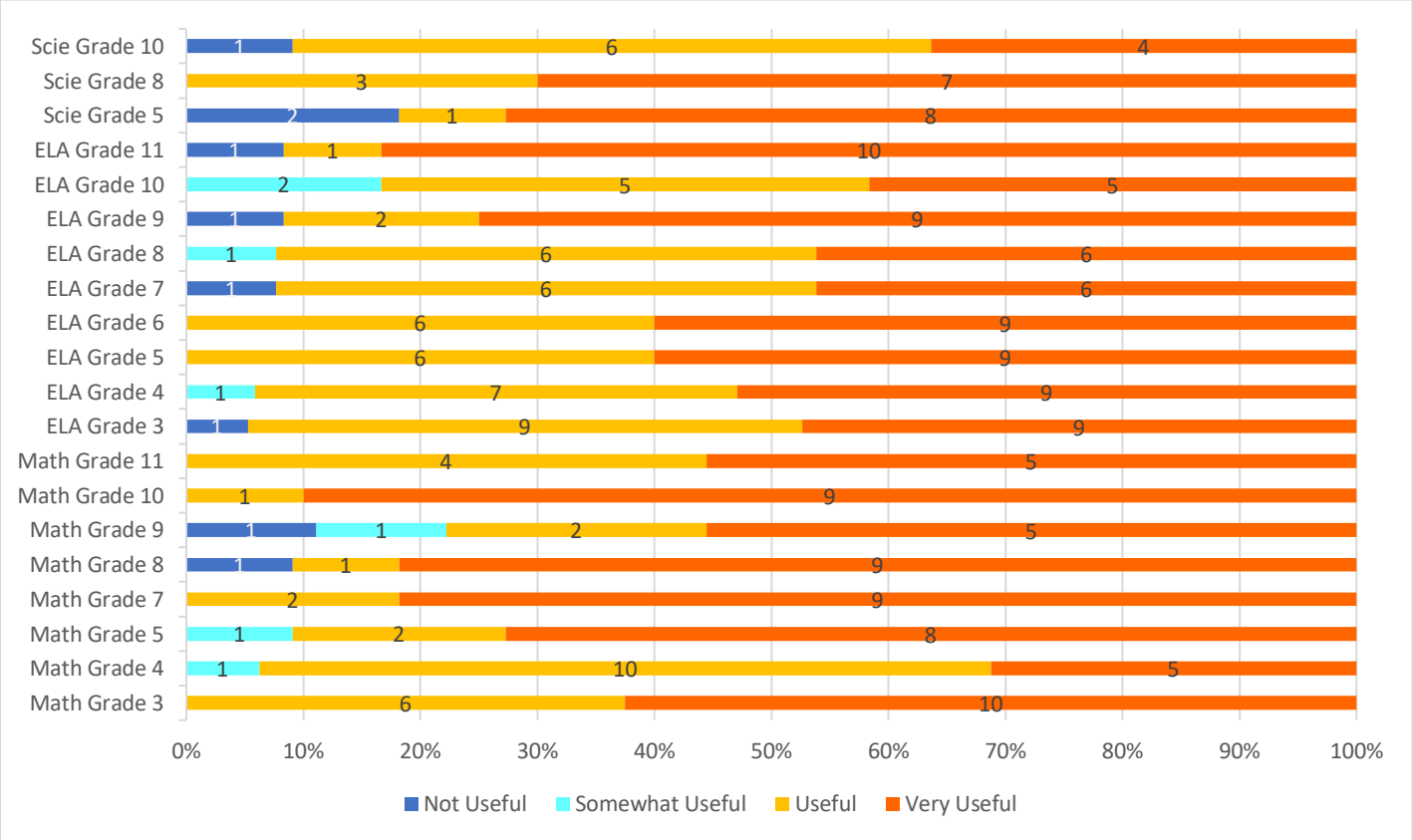


Question 5: How useful do you feel the following activities or information were in assisting you to make your recommendations?

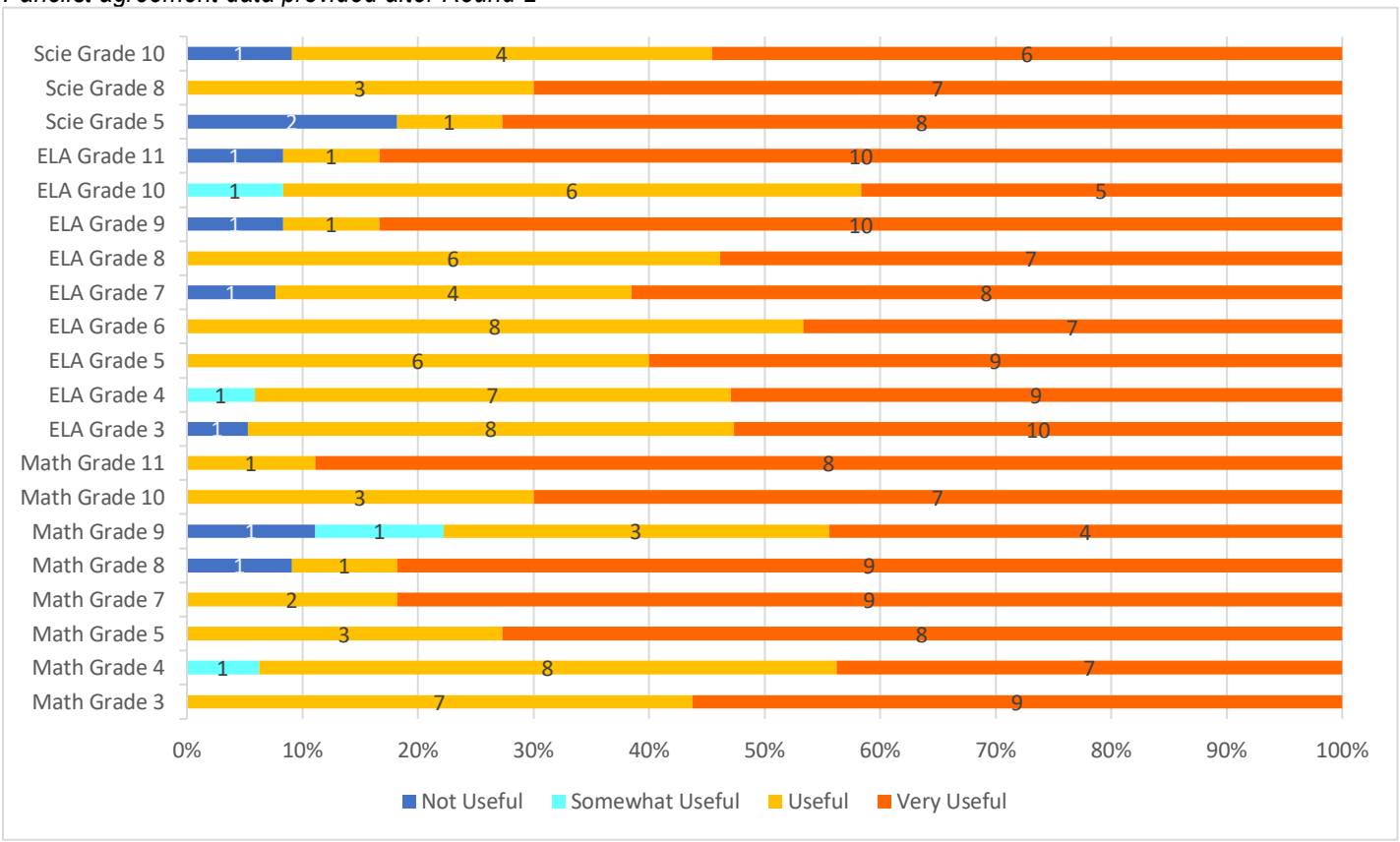
Committee-level statistics after Rounds 1 and 2



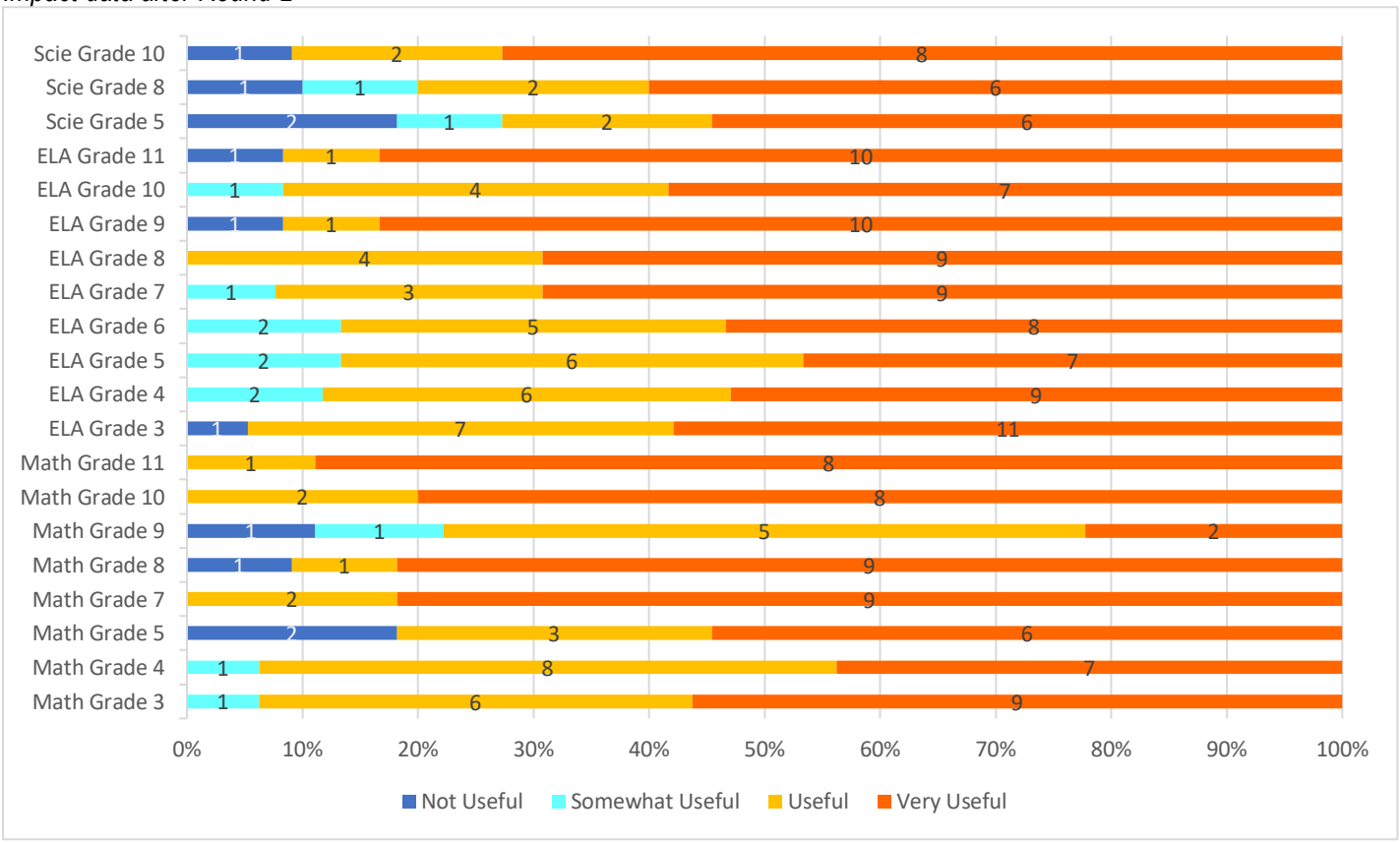
Panelist agreement data provided after Round 1



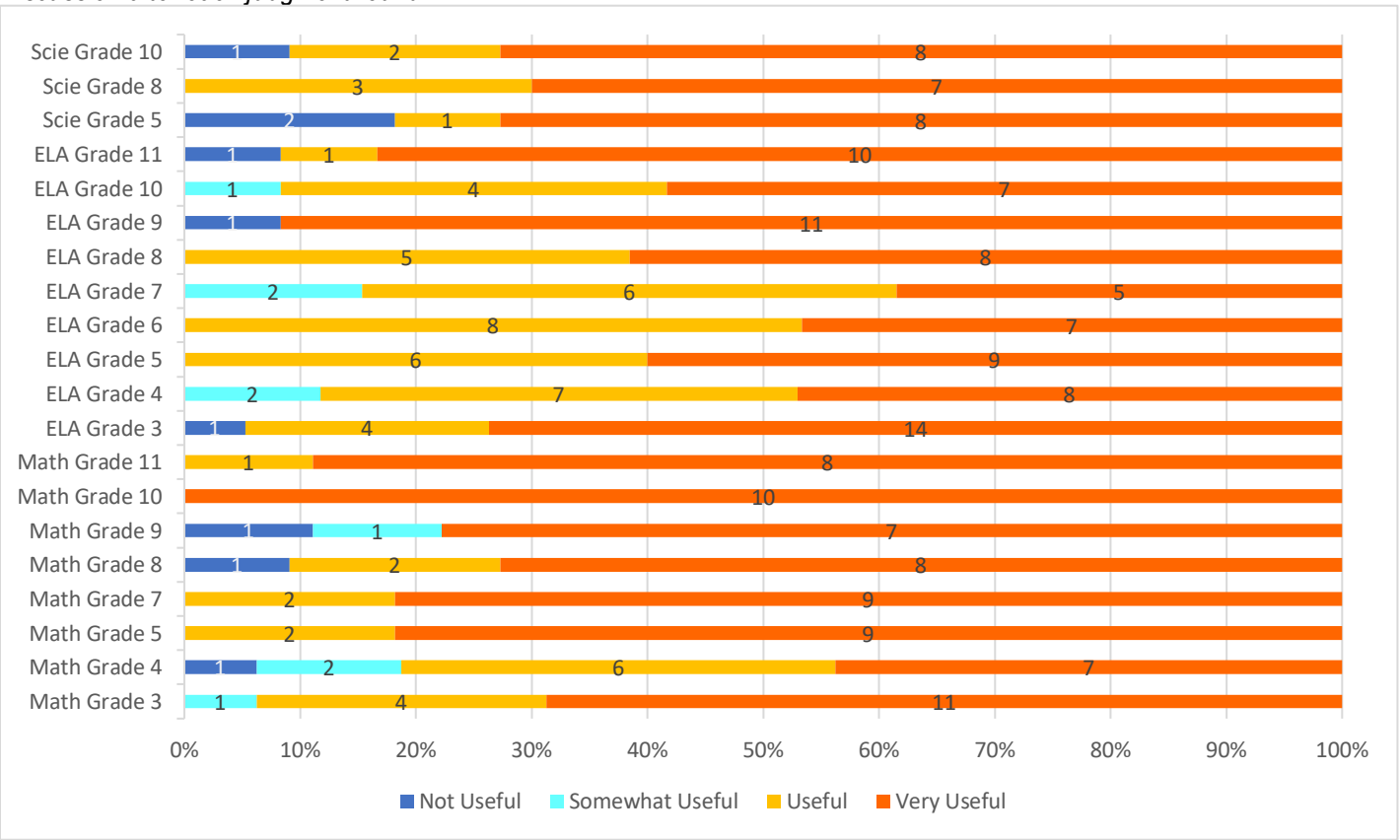
Panelist agreement data provided after Round 2



Impact data after Round 2

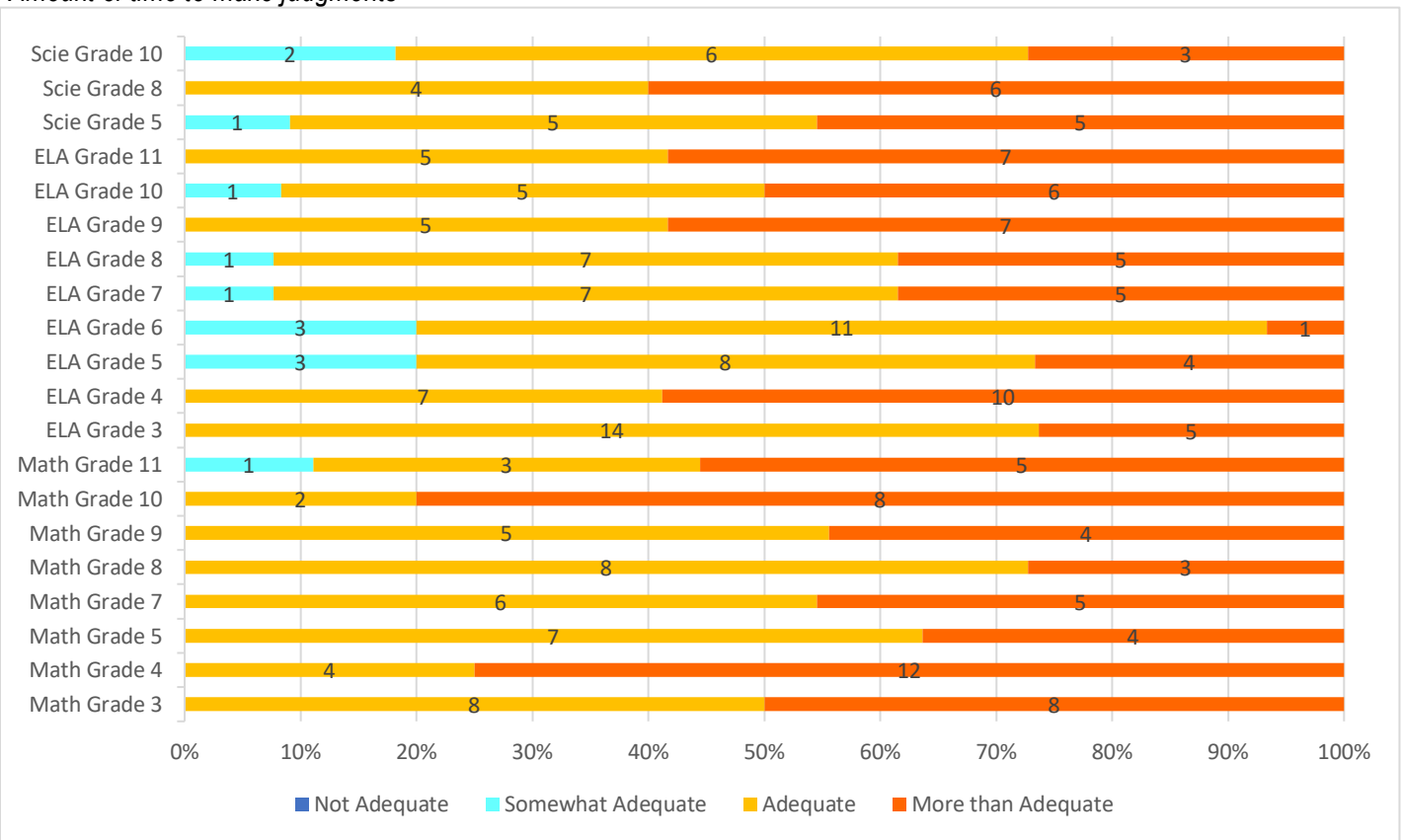


Discussion after each judgment round

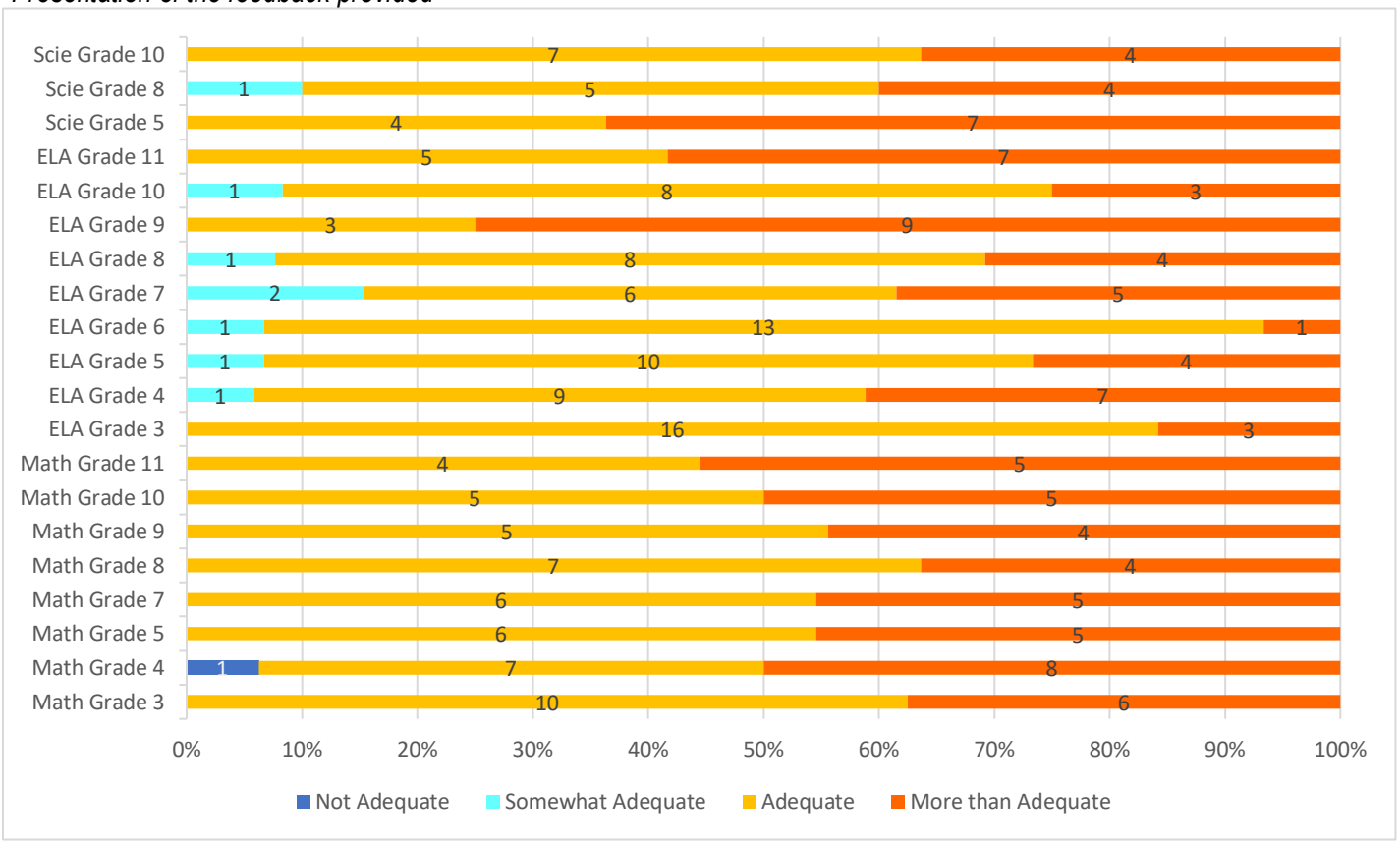


Question 6: How adequate were the following elements of the session?

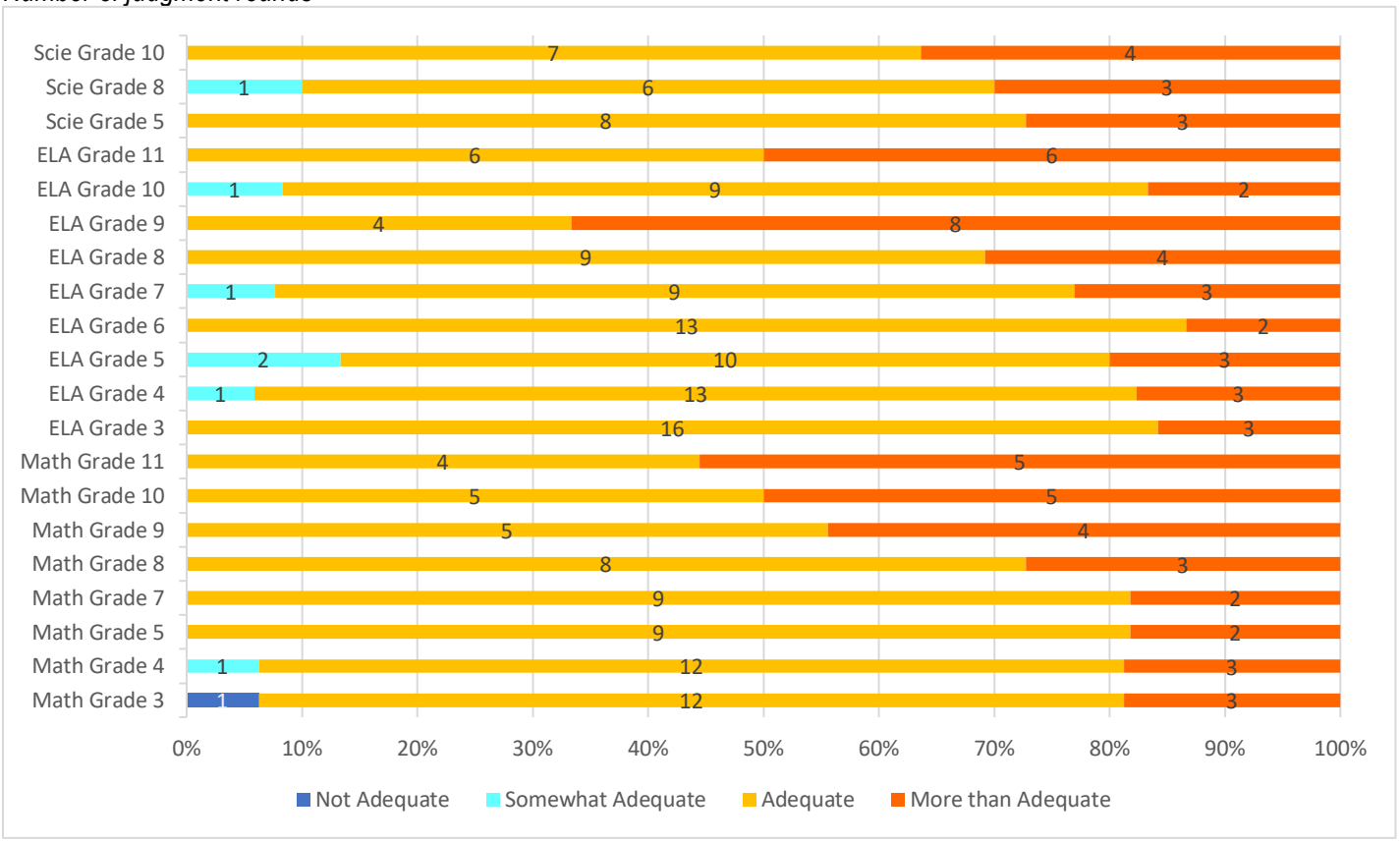
Amount of time to make judgments



Presentation of the feedback provided



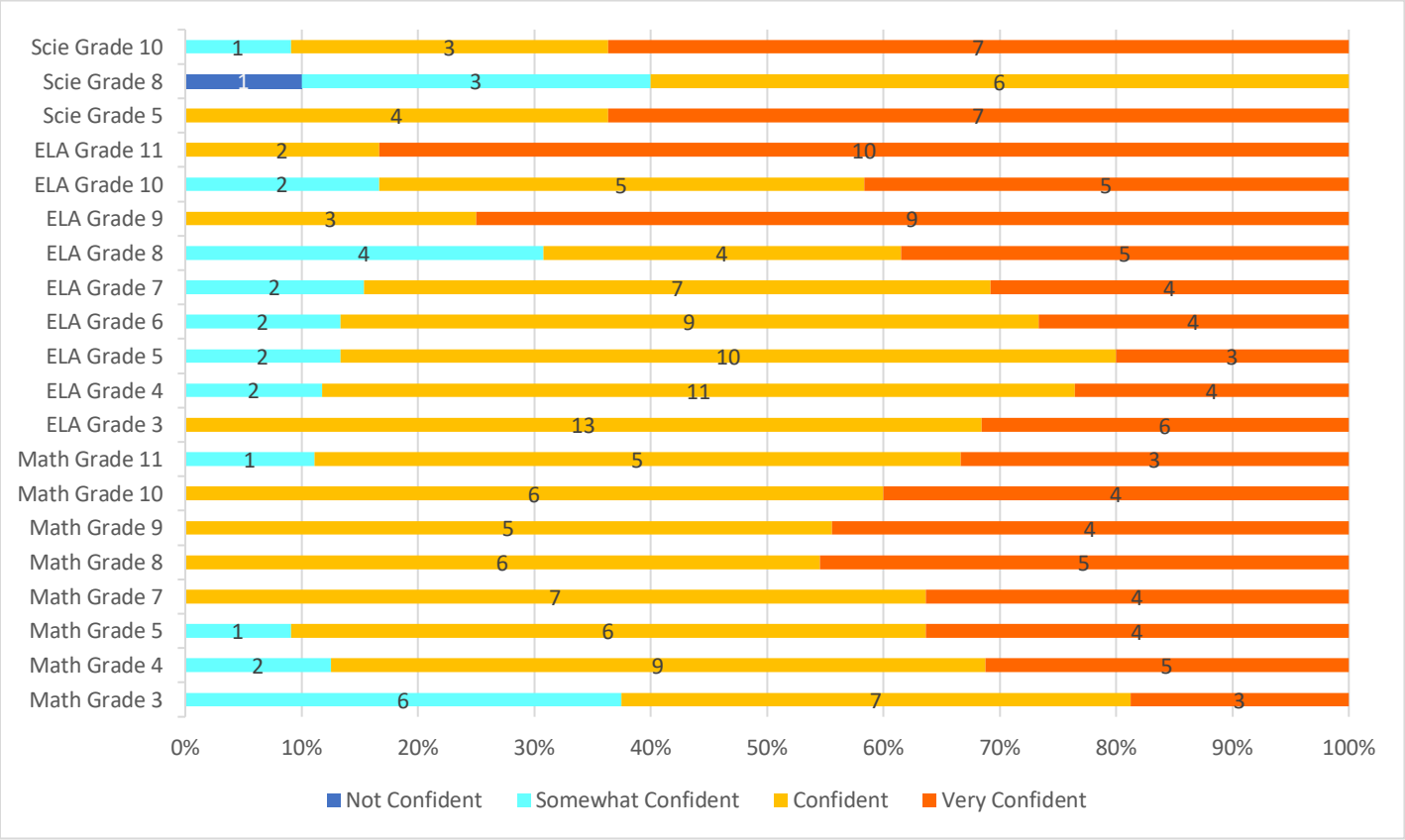
Number of judgment rounds



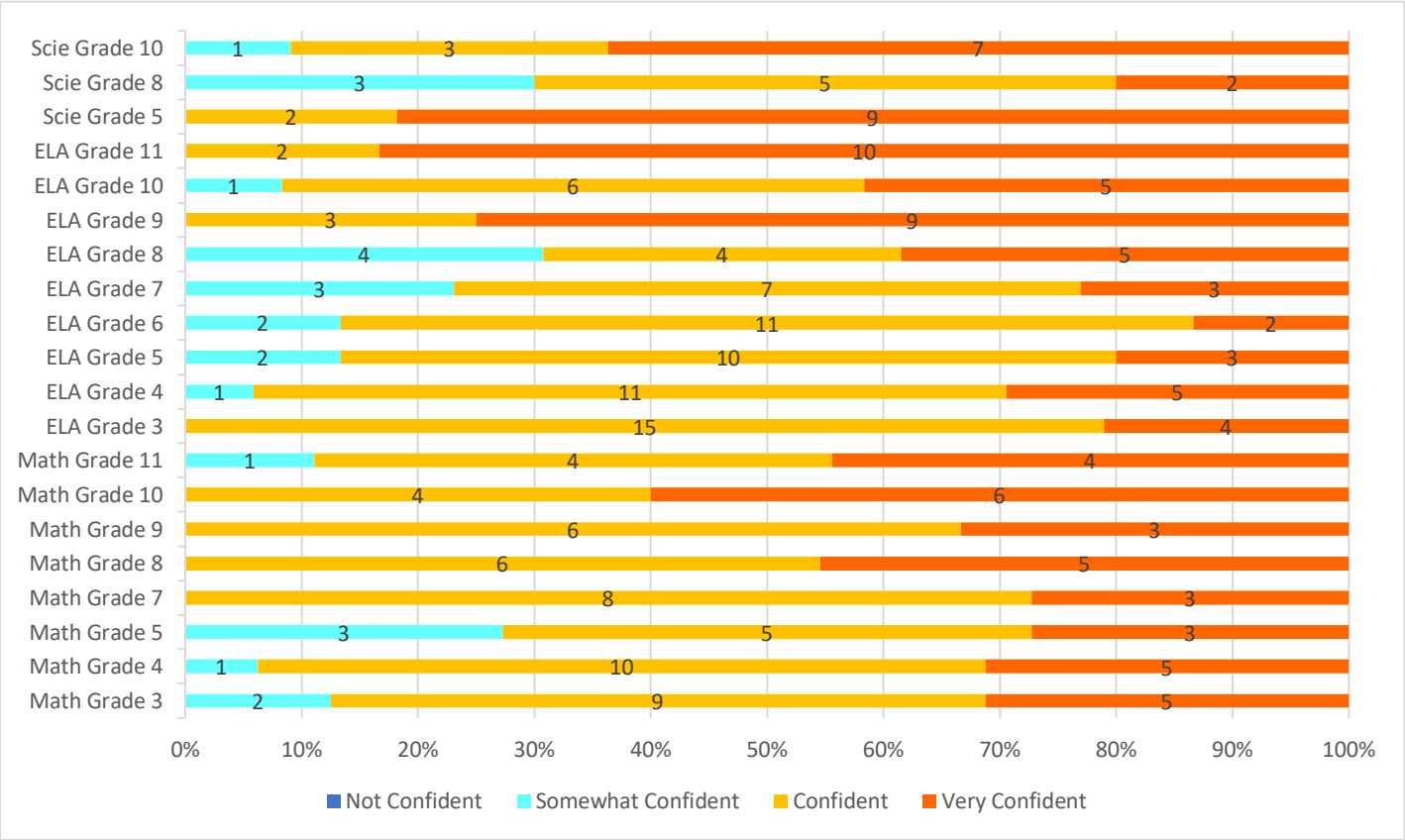
Question 7: In applying the standard-setting method, you were asked to recommend cut scores (separating three performance levels) for student performance on the ISASP assessments.

How confident do you feel that the Performance Level Descriptors (PLDs) for the following ISASP assessments are reasonable for each performance level?

Proficient

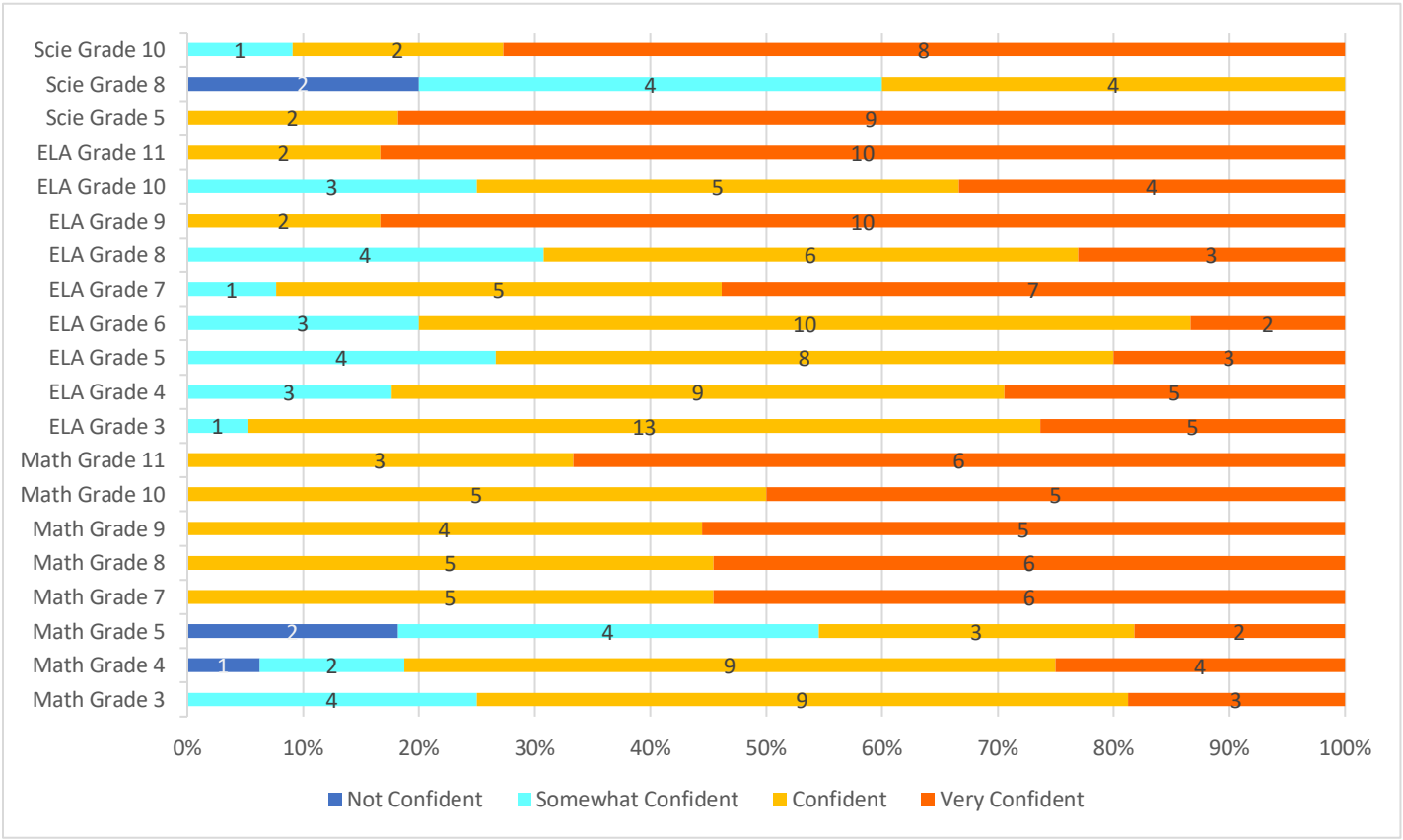


Advanced

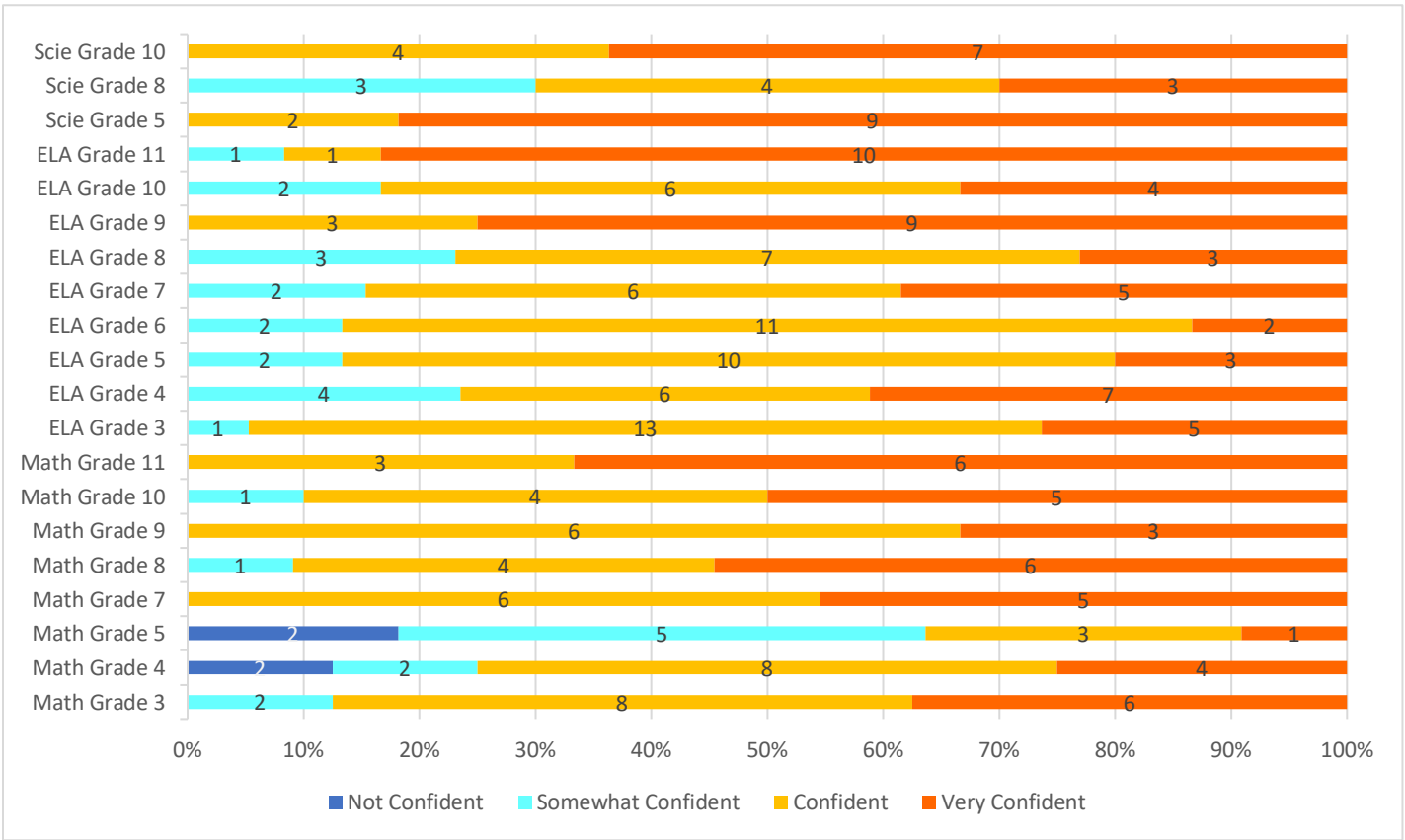


Question 8: How confident do you feel that the final cut score recommendations for the following ISASP assessments represent appropriate levels of student performance?

Proficient

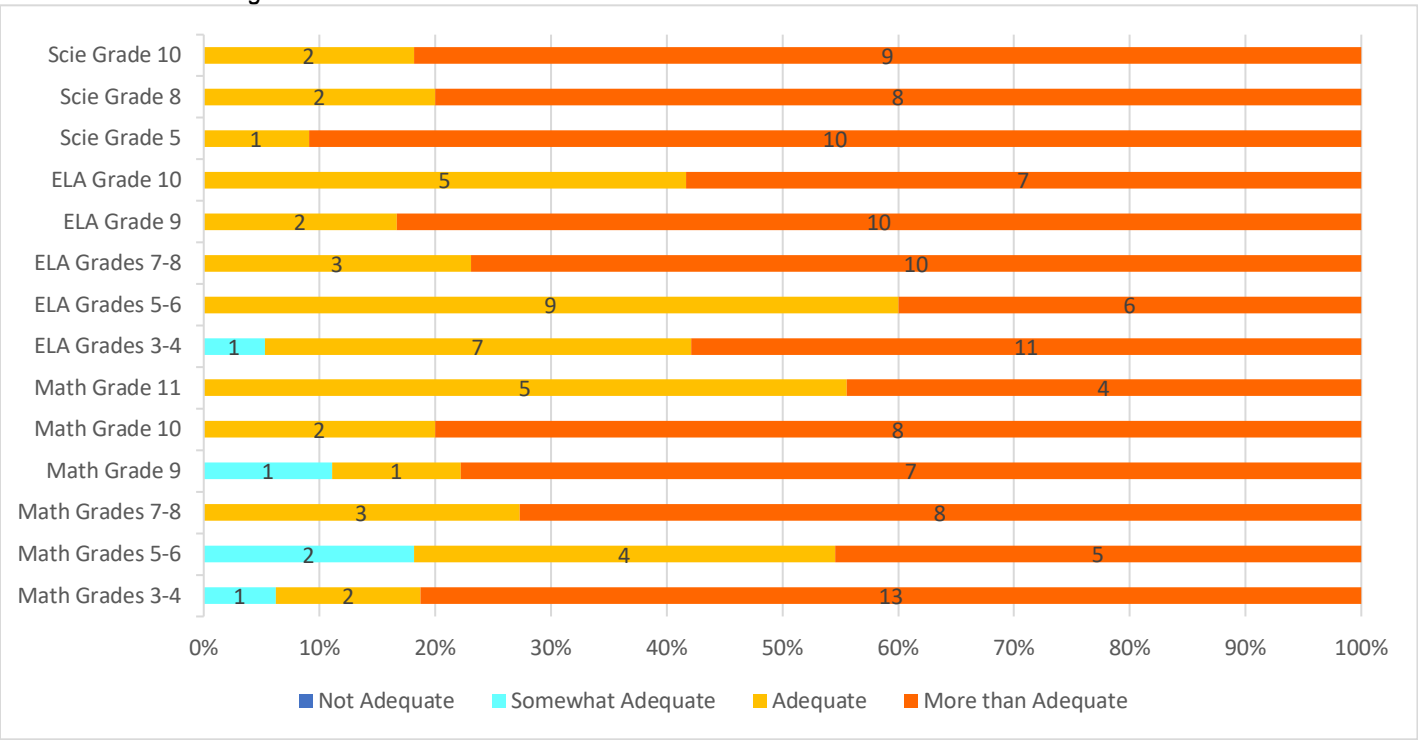


Advanced

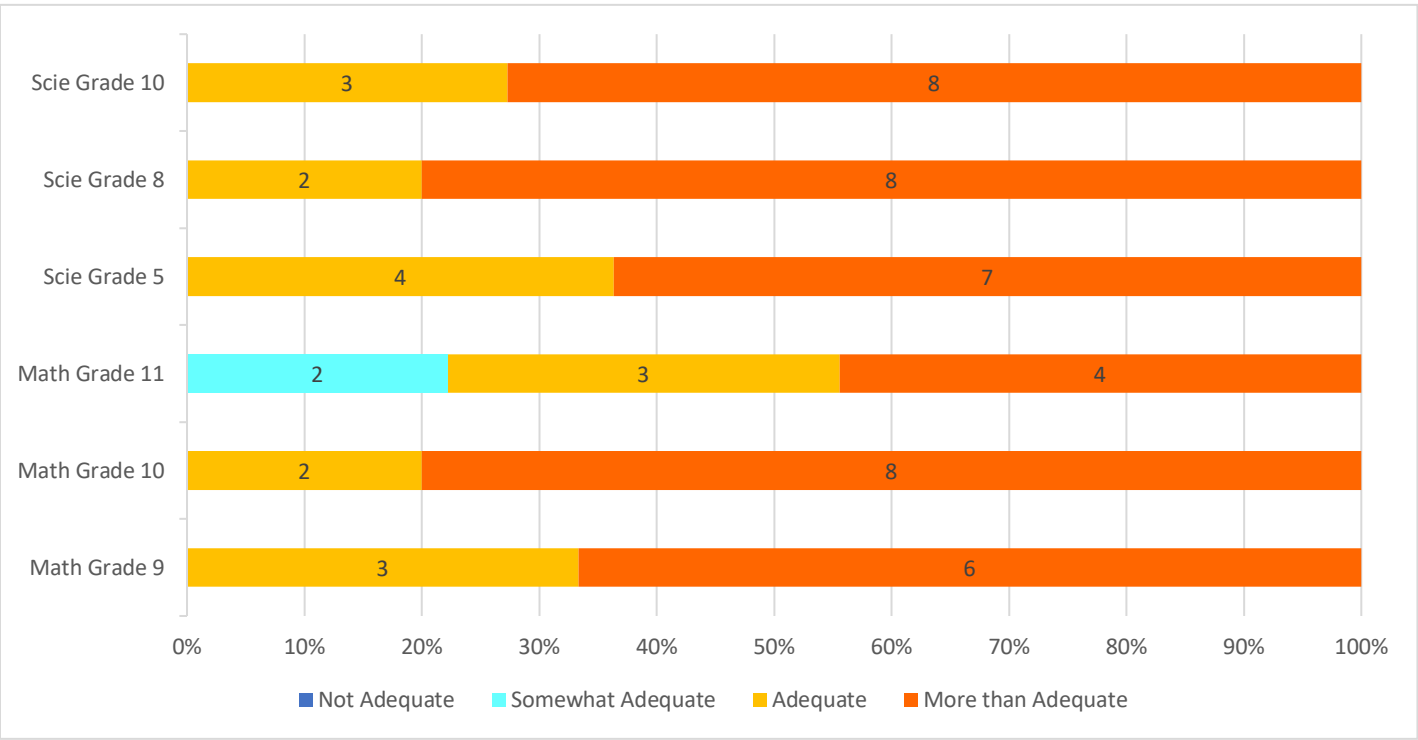


Question 9: How adequate were the following elements of the session?

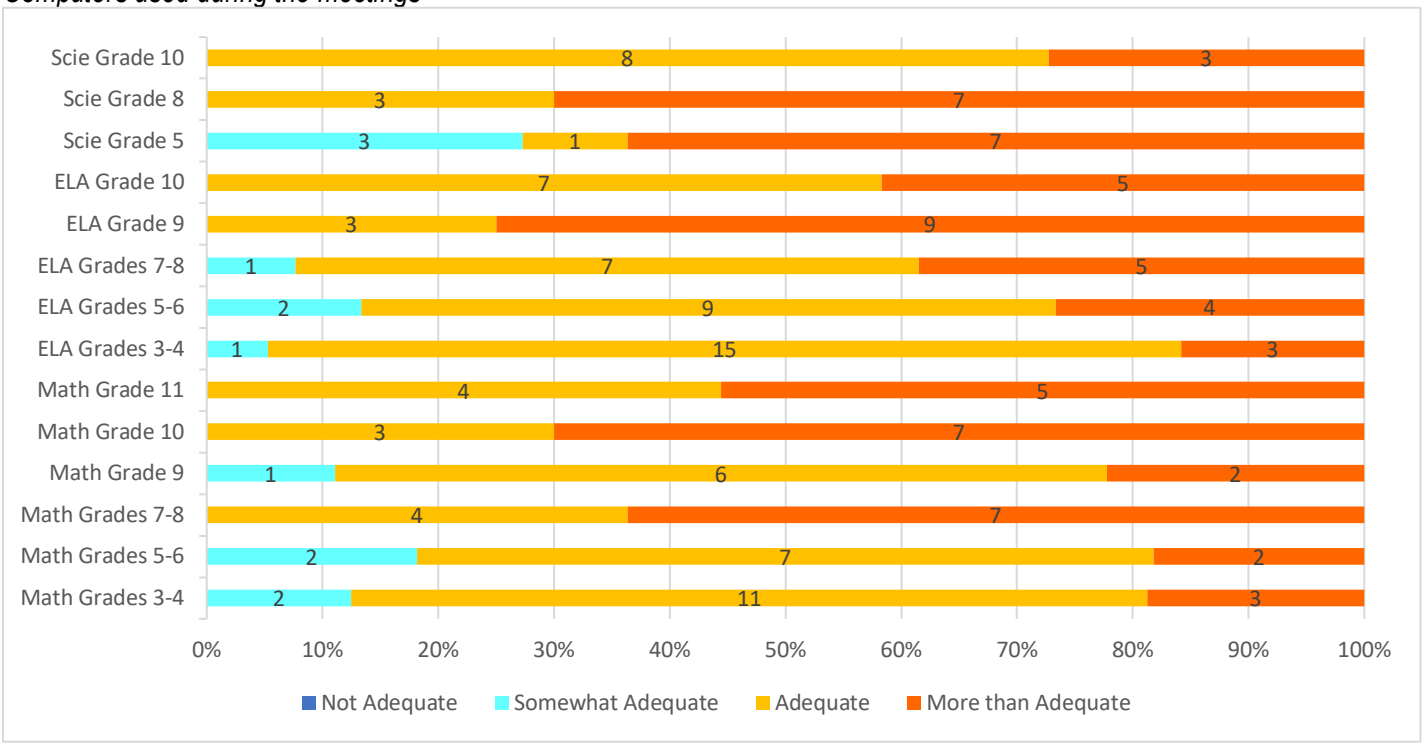
Facilities used for the general session



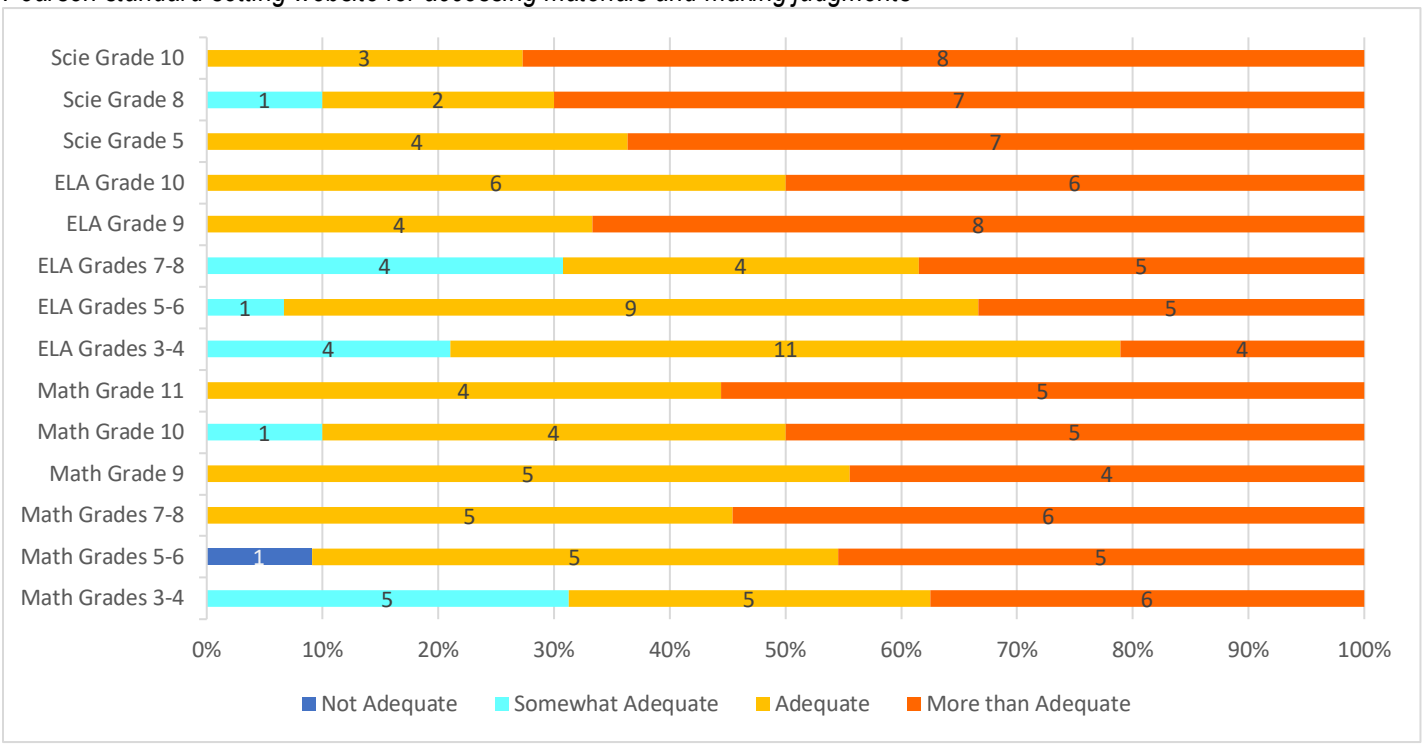
Facilities used for the breakout session



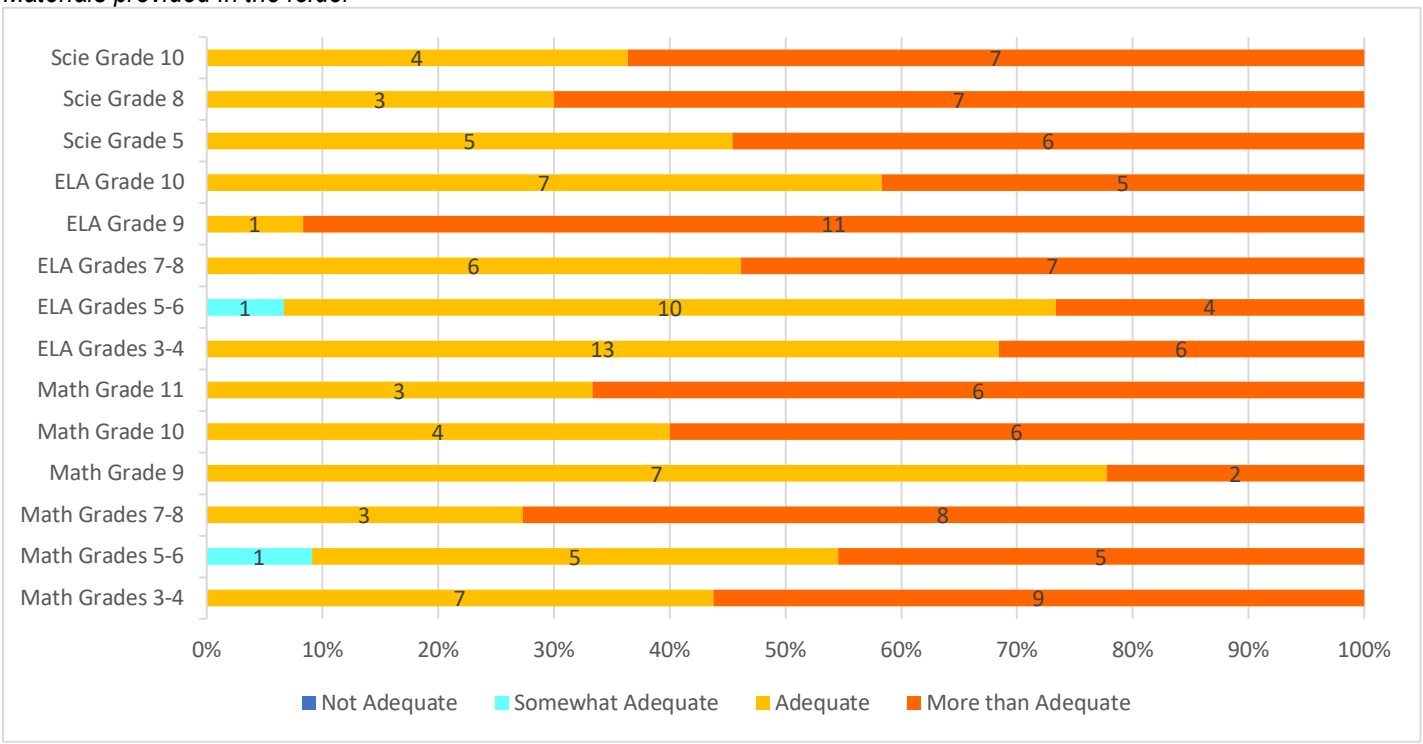
Computers used during the meetings



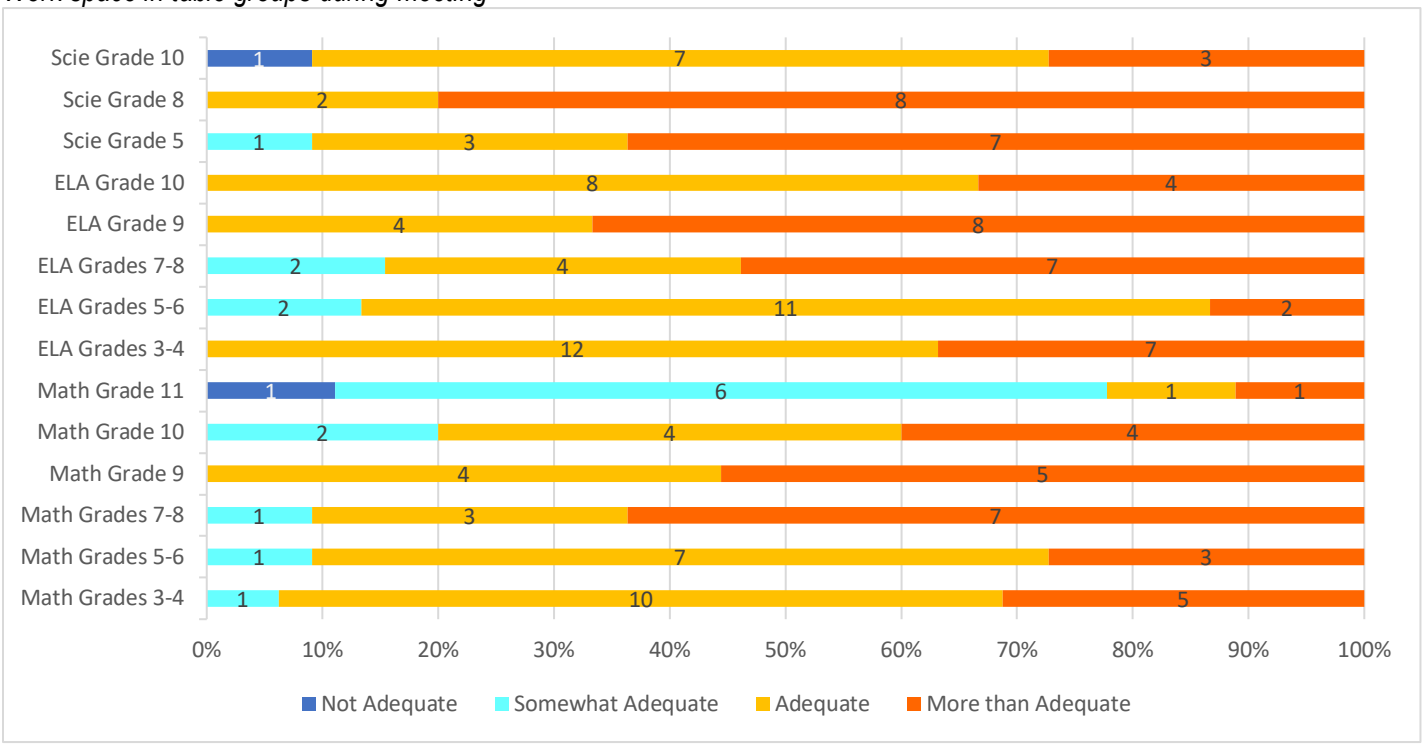
Pearson standard setting website for accessing materials and making judgments



Materials provided in the folder

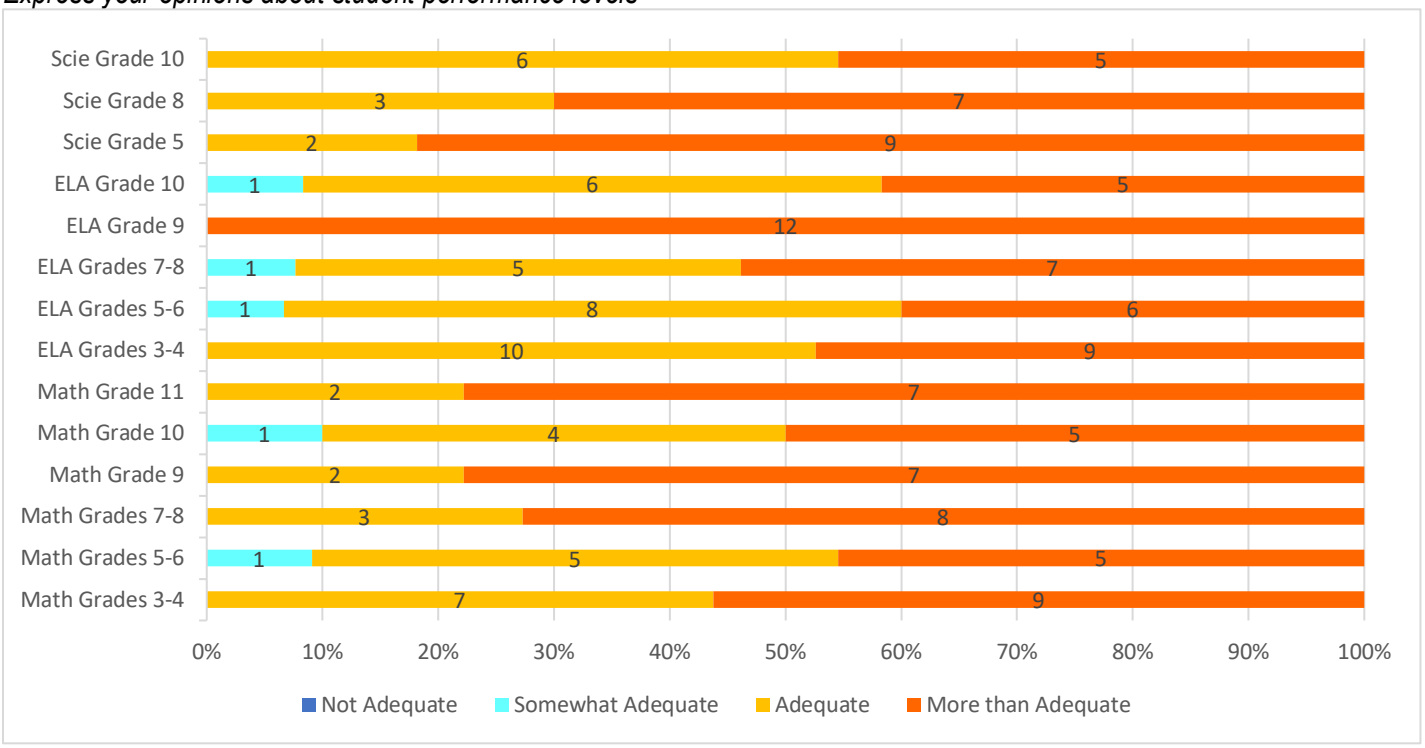


Work space in table groups during meeting

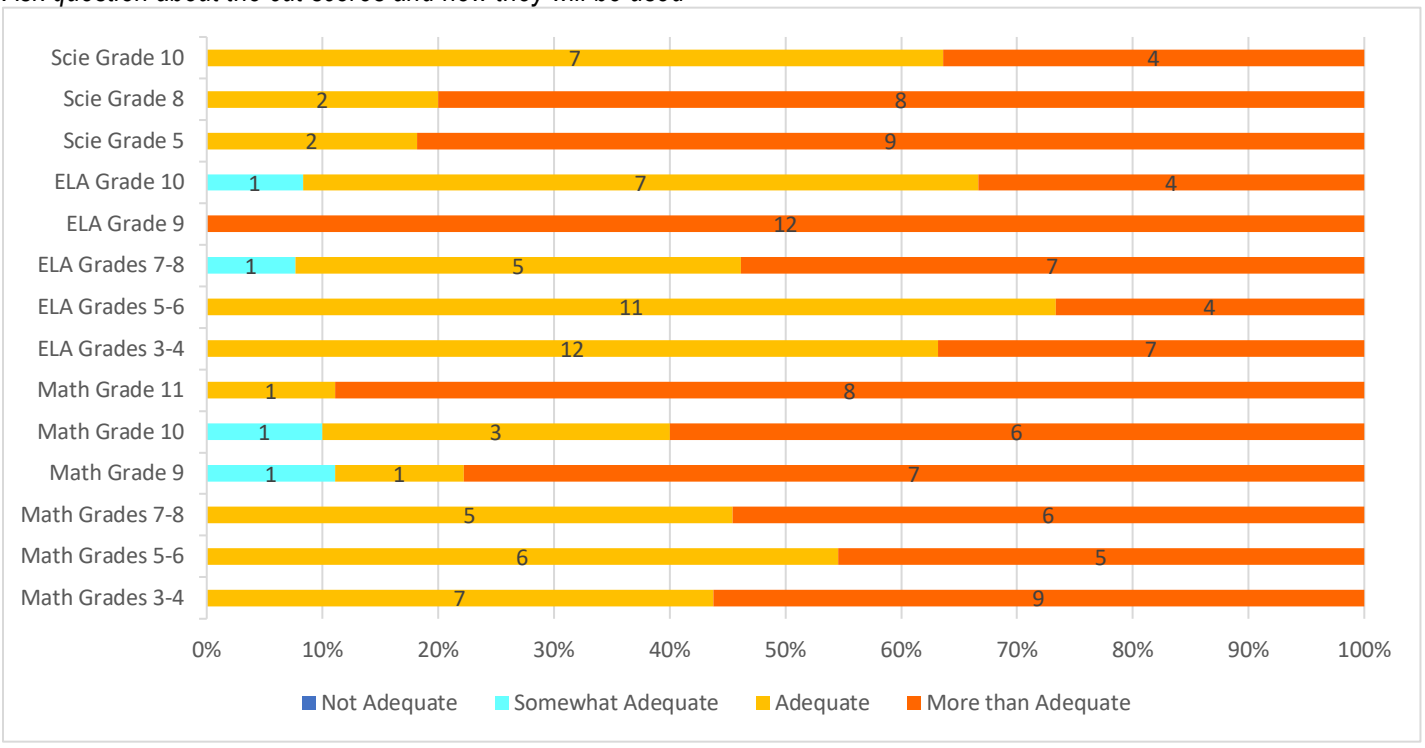


Question 10: Did you have adequate opportunities during the session to:

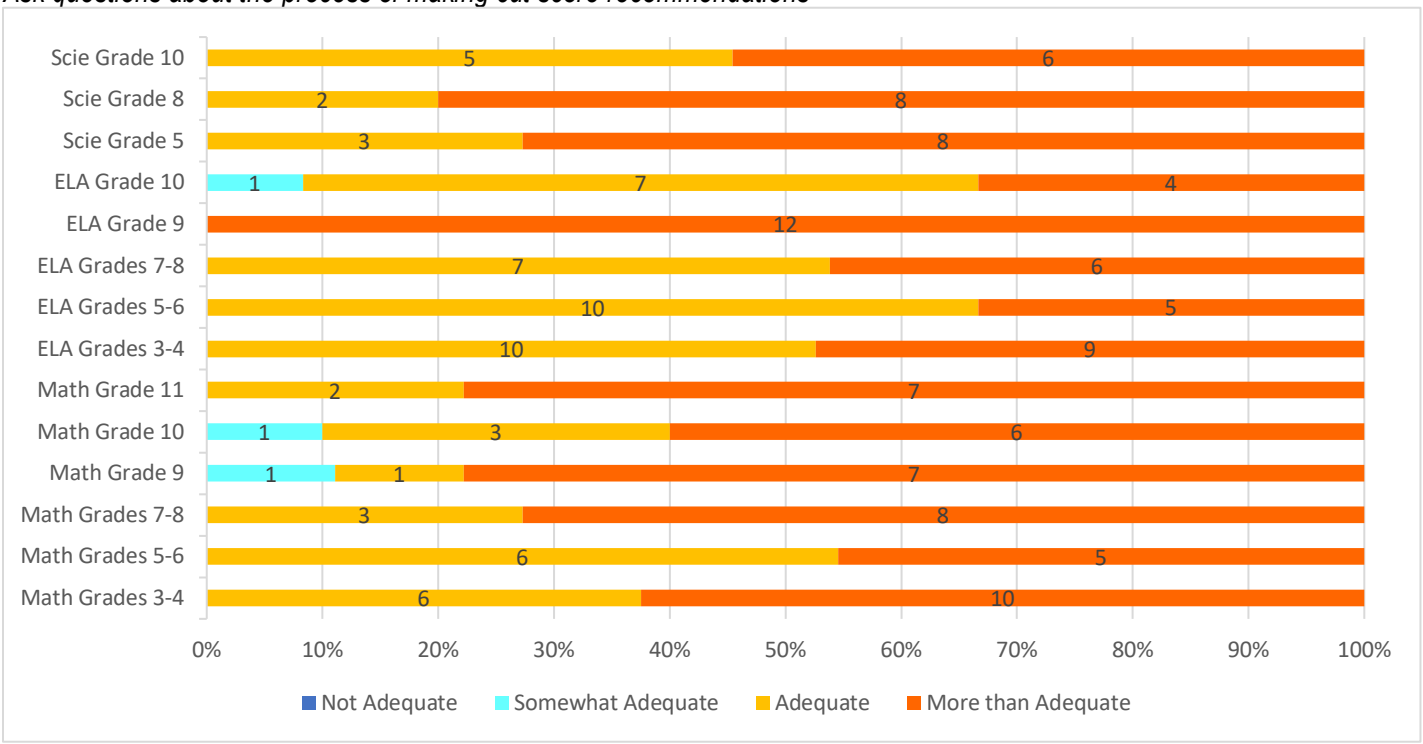
Express your opinions about student performance levels



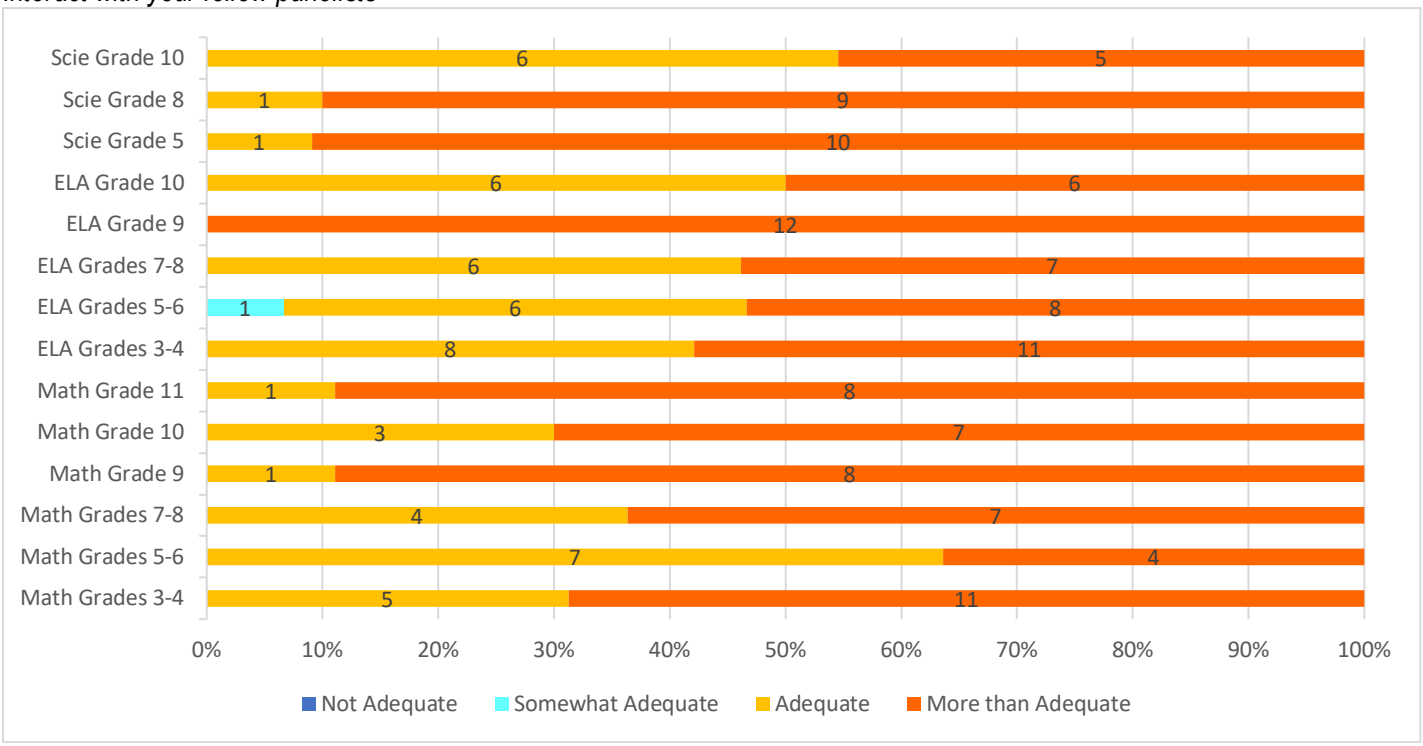
Ask question about the cut scores and how they will be used



Ask questions about the process of making cut score recommendations

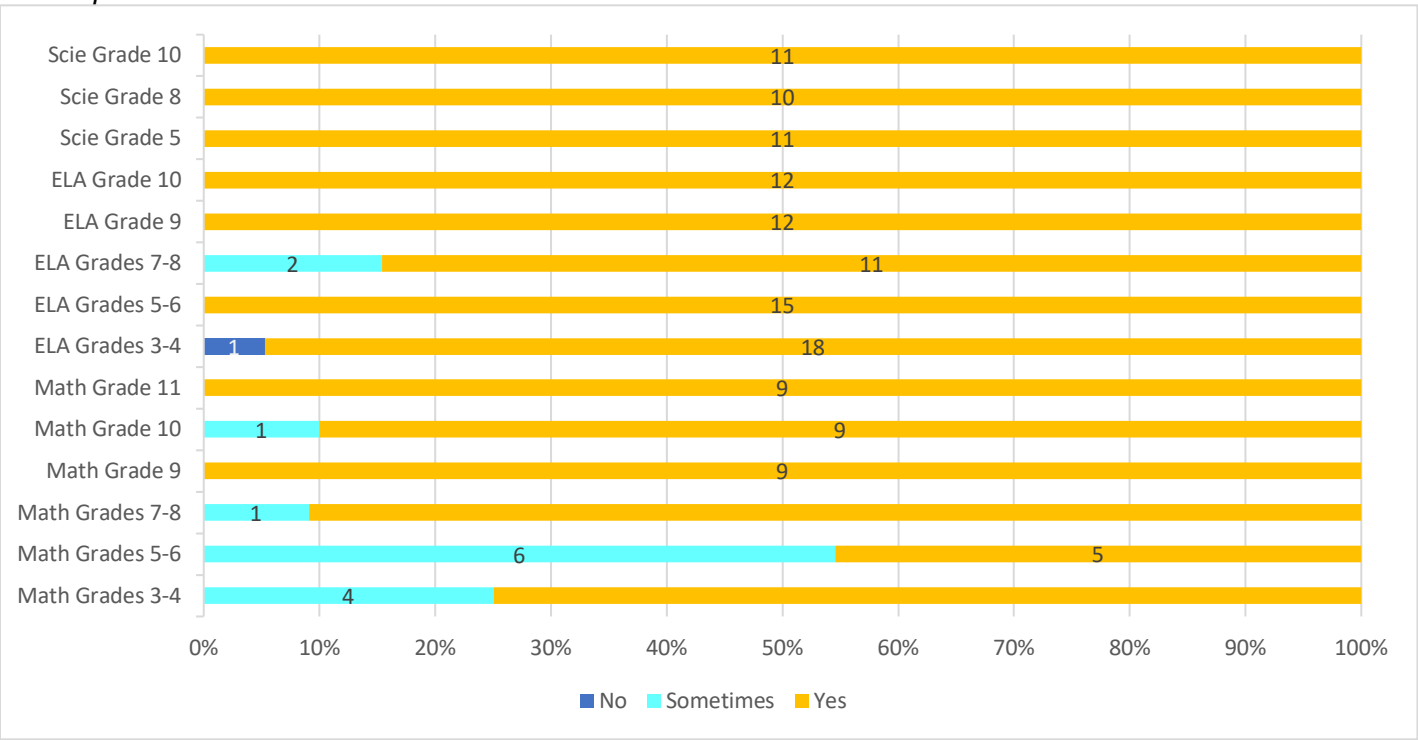


Interact with your fellow panelists

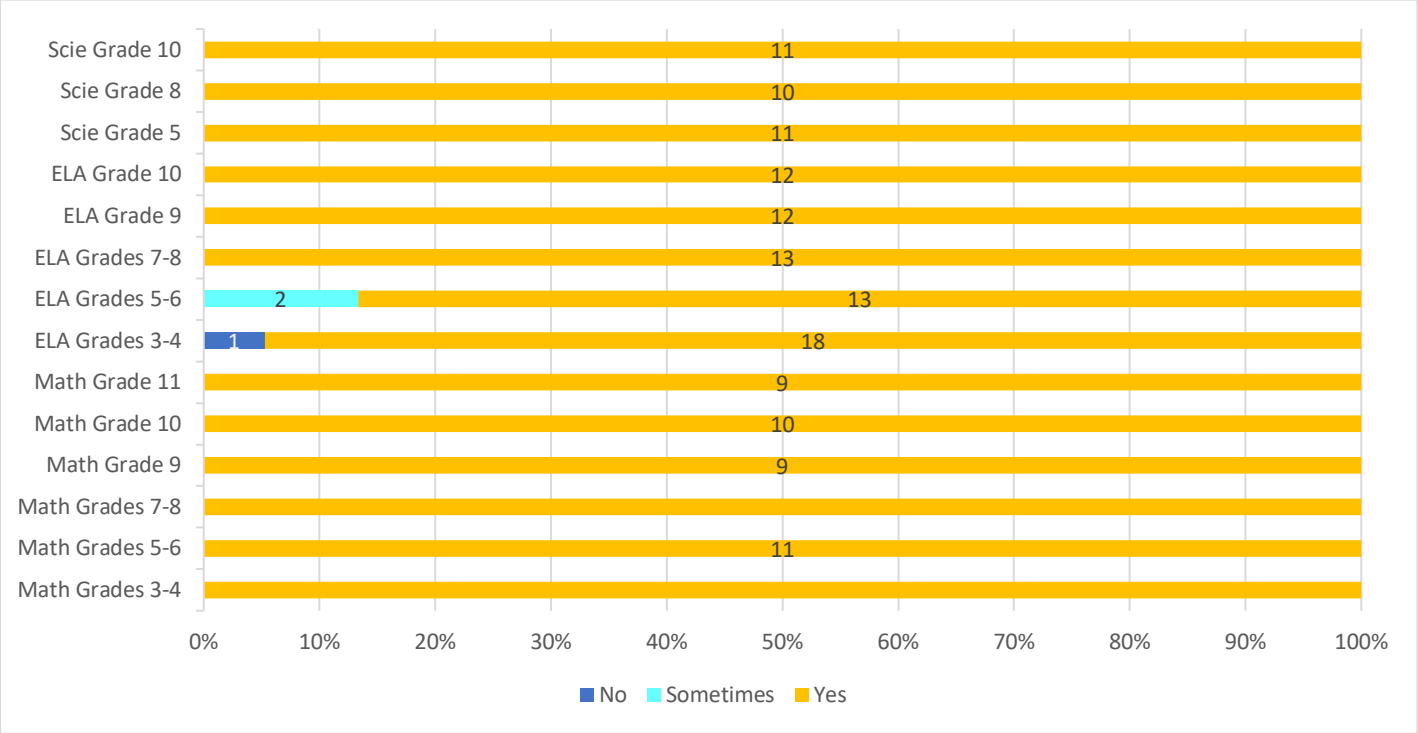


Question 11: Did you have adequate opportunities during the session to:

Fellow panelists



Facilitators



Appendix H – Committee Recommended Cut Scores by Round

Table H.1: ELA Grade 3

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	29	13	13	14	14
	Writing	44	20	20	20	19
Advanced	Reading	29	22	22	21	21
	Writing	44	34	33	33	34

Table H.2: ELA Grade 4

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	30	18	14	15	15
	Writing	45	25	19	19	19
Advanced	Reading	30	30	24	25	24
	Writing	45	40	33	34	34

Table H.3: ELA Grade 5

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	31	16	15	16	15
	Writing	46	23	22	23	22
Advanced	Reading	31	25	27	27	26
	Writing	46	36	35	35	35

Table H.4: ELA Grade 6

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	32	17	17	16	16
	Writing	47	23	23	22	22
Advanced	Reading	32	30	27	28	28
	Writing	47	37	36	36	35

Table H.5: ELA Grade 7

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	33	16	17	17	17
	Writing	48	24	24	23	23
Advanced	Reading	33	27	29	28	28
	Writing	48	39	38	39	39

Table H.6: ELA Grade 8

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	33	20	19	17	17
	Writing	48	26	24	23	23
Advanced	Reading	33	33	28	28	28
	Writing	48	44	40	38	38

Table H.7: ELA Grade 9

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	29	15	14	15	15
	Writing	49	20	19	21	21
Advanced	Reading	29	26	25	26	25
	Writing	49	37	36	37	36

Table H.8: ELA Grade 10

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	29	12	14	13	13
	Writing	49	19	23	22	22
Advanced	Reading	29	18	26	23	23
	Writing	49	36	39	39	39

Table H.9: ELA Grade 11

Performance level	Test	Maximum Score	Rounds			Vertical Articulation
			1	2	3	
Proficient	Reading	29	17	16	16	16
	Writing	49	25	26	23	23
Advanced	Reading	29	28	26	26	26
	Writing	49	41	39	36	36

Table H.10: Mathematics Grade 3

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	36	13	16	16	15
Advanced		30	30	29	29

Table H.11: Mathematics Grade 4

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	38	19	15	15	17
Advanced		37	32	30	32

Table H.12: Mathematics Grade 5

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	41	16	15	14	18
Advanced		33	30	28	33

Table H.13: Mathematics Grade 6

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	43	21	19	18	20
Advanced		39	36	33	34

Table H.14: Mathematics Grade 7

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	46	21	18	18	20
Advanced		42	42	40	38

Table H.15: Mathematics Grade 8

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	48	20	19	19	19
Advanced		45	44	41	39

Table H.16: Mathematics Grade 9

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	36	14	14	14	15
Advanced		29	28	28	28

Table H.17: Mathematics Grade 10

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	36	11	10	14	14
Advanced		31	31	32	28

Table H.18: Mathematics Grade 11

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	36	15	16	15	14
Advanced		31	29	29	30

Table H.19: Science Grade 5

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	34	23	17	16	16
Advanced		33	29	28	27

Table H.20: Science Grade 8

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	34	18	16	10	15
Advanced		28	27	21	25

Table H.21: Science Grade 10

Performance level	Maximum Score	Rounds			Vertical Articulation
		1	2	3	
Proficient	36	16	15	15	16
Advanced		31	28	28	29

Appendix I – Recommended Cut Score Summary Statistics by Round

Table I.1: ELA Grade 3

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	13.05	21.05
		Minimum	9	15
		Q1	12	19
		Median	**13**	**22**
		Q3	14	23
		Maximum	16	25
	Writing	Mean	20.58	33.84
		Minimum	13	28
		Q1	19	32
		Median	**20**	**34**
		Q3	23	36
		Maximum	26	38
2	Reading	Mean	13.47	21.42
		Minimum	11	18
		Q1	12	20
		Median	**13**	**22**
		Q3	15	23
		Maximum	15	24
	Writing	Mean	18.74	32.89
		Minimum	10	25
		Q1	17	32
		Median	**20**	**33**
		Q3	21	35
		Maximum	24	37
3	Reading	Mean	14.00	21.32
		Minimum	11	18
		Q1	13	20
		Median	**14**	**21**
		Q3	15	23
		Maximum	17	24
	Writing	Mean	19.37	32.89
		Minimum	15	29

		Q1	19	32
		Median	**20**	**33**
		Q3	21	34
		Maximum	24	36

Table I.2: ELA Grade 4

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	19.26	29.32
		Minimum	15	26
		Q1	18	29
		Median	**18**	**30**
		Q3	21	30
		Maximum	25	30
	Writing	Mean	24.37	39.21
		Minimum	16	35
		Q1	22	37
		Median	25	40
		Q3	27	41
		Maximum	30	42
2	Reading	Mean	14.68	24.26
		Minimum	11	19
		Q1	11	23
		Median	**14**	**24**
		Q3	17	27
		Maximum	21	28
	Writing	Mean	19.05	32.79
		Minimum	12	23
		Q1	18	29
		Median	**19**	**33**
		Q3	21	36
		Maximum	27	40
3	Reading	Mean	15.00	24.89
		Minimum	12	21
		Q1	14	24
		Median	**15**	**25**
		Q3	17	26
		Maximum	19	29
	Writing	Mean	19.00	33.16
		Minimum	10	26
		Q1	16	32
		Median	**19**	**34**
		Q3	23	35
		Maximum	25	37

Table I.3: ELA Grade 5

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	14.93	25.29
		Minimum	9	21
		Q1	13	25
		Median	**16**	**25**
		Q3	17	26
		Maximum	18	29
	Writing	Mean	22.93	36.14
		Minimum	18	32
		Q1	21	35
		Median	**23**	**36**
		Q3	25	38
		Maximum	28	41
2	Reading	Mean	15.20	27.00
		Minimum	10	25
		Q1	14	26
		Median	**15**	**27**
		Q3	16	28
		Maximum	21	29
	Writing	Mean	22.20	35.13
		Minimum	17	32
		Q1	21	34
		Median	**22**	**35**
		Q3	23	36
		Maximum	27	39
3	Reading	Mean	15.80	27.13
		Minimum	12	23
		Q1	14	26
		Median	**16**	**27**
		Q3	17	28
		Maximum	19	30
	Writing	Mean	22.33	34.80
		Minimum	17	32
		Q1	20	34
		Median	**23**	**35**
		Q3	24	36
		Maximum	26	38

Table I.4: ELA Grade 6

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	16.36	28.43
		Minimum	11	22
		Q1	14	26
		Median	**17**	**30**
		Q3	19	32
		Maximum	21	32
	Writing	Mean	22.50	37.07
		Minimum	17	30
		Q1	21	36
		Median	**23**	**37**
		Q3	24	40
		Maximum	27	43
2	Reading	Mean	16.80	27.40
		Minimum	8	24
		Q1	15	25
		Median	**17**	**27**
		Q3	19	29
		Maximum	26	31
	Writing	Mean	22.53	35.60
		Minimum	17	31
		Q1	21	33
		Median	**23**	**36**
		Q3	25	38
		Maximum	26	40
3	Reading	Mean	16.73	27.80
		Minimum	13	25
		Q1	16	26
		Median	**16**	**28**
		Q3	18	30
		Maximum	19	30
	Writing	Mean	21.80	34.73
		Minimum	17	30
		Q1	20	33
		Median	**22**	**36**
		Q3	23	36
		Maximum	27	38

Table I.5: ELA Grade 7

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	16.31	27.46
		Minimum	11	25
		Q1	16	26
		Median	**16**	**27**
		Q3	17	28
		Maximum	19	31
	Writing	Mean	23.62	37.46
		Minimum	15	28
		Q1	22	36
		Median	**24**	**39**
		Q3	26	40
		Maximum	28	41
2	Reading	Mean	17.31	28.31
		Minimum	14	25
		Q1	16	27
		Median	**17**	**29**
		Q3	19	29
		Maximum	21	31
	Writing	Mean	24.00	37.08
		Minimum	19	30
		Q1	23	36
		Median	**24**	**38**
		Q3	25	39
		Maximum	29	40
3	Reading	Mean	16.92	28.54
		Minimum	10	26
		Q1	15	27
		Median	**17**	**28**
		Q3	19	30
		Maximum	21	32
	Writing	Mean	23.46	38.00
		Minimum	19	34
		Q1	23	37
		Median	**23**	**39**
		Q3	25	39
		Maximum	27	40

Table I.6: ELA Grade 8

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	19.77	31.85
		Minimum	9	28
		Q1	19	31
		Median	**20**	**33**
		Q3	23	33
		Maximum	27	33
	Writing	Mean	26.46	42.77
		Minimum	21	37
		Q1	25	42
		Median	**26**	**44**
		Q3	28	44
		Maximum	31	47
2	Reading	Mean	18.38	28.23
		Minimum	14	23
		Q1	16	27
		Median	**19**	**28**
		Q3	20	30
		Maximum	22	33
	Writing	Mean	23.38	38.00
		Minimum	19	33
		Q1	22	35
		Median	**24**	**40**
		Q3	25	40
		Maximum	29	44
3	Reading	Mean	16.77	27.62
		Minimum	11	24
		Q1	14	27
		Median	**17**	**28**
		Q3	19	29
		Maximum	20	31
	Writing	Mean	22.54	37.54
		Minimum	17	34
		Q1	22	35
		Median	**23**	**38**
		Q3	24	39
		Maximum	26	43

Table I.7: ELA Grade 9

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	13.67	24.92
		Minimum	4	16
		Q1	11.50	23
		Median	**15**	**26**
		Q3	16	27.50
		Maximum	20	29
	Writing	Mean	21.25	37.50
		Minimum	13	31
		Q1	17	34
		Median	**20**	**37**
		Q3	24.50	41.50
		Maximum	32	45
2	Reading	Mean	12.92	24.08
		Minimum	8	17
		Q1	10.50	23
		Median	**14**	**25**
		Q3	15	26.50
		Maximum	20	28
	Writing	Mean	18.92	35.58
		Minimum	13	32
		Q1	17	34.50
		Median	**19**	**36**
		Q3	21.50	36.50
		Maximum	23	39
3	Reading	Mean	14.58	25.42
		Minimum	5	21
		Q1	13.50	24.50
		Median	**15**	**26**
		Q3	16.50	27
		Maximum	20	29
	Writing	Mean	20.75	37.00
		Minimum	13	31
		Q1	18	35
		Median	**21**	**37**
		Q3	24	40
		Maximum	26	42

Table I.8: ELA Grade 10

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	9.27	19.36
		Minimum	4	12
		Q1	6	16
		Median	**12**	**18**
		Q3	12	24
		Maximum	14	26
	Writing	Mean	18.82	34.27
		Minimum	12	26
		Q1	15	30
		Median	**19**	**36**
		Q3	23	38
		Maximum	28	39
2	Reading	Mean	12.73	24.55
		Minimum	5	20
		Q1	10	22
		Median	**14**	**26**
		Q3	15	26
		Maximum	16	29
	Writing	Mean	22.18	39.00
		Minimum	16	33
		Q1	19	36
		Median	**23**	**39**
		Q3	25	42
		Maximum	28	44
3	Reading	Mean	12.58	23.00
		Minimum	9	20
		Q1	11	21.50
		Median	**13**	**23**
		Q3	14.50	23.50
		Maximum	15	27
	Writing	Mean	21.08	39.00
		Minimum	16	36
		Q1	20.50	38
		Median	**22**	**39**
		Q3	23	40
		Maximum	25	42

Table I.9: ELA Grade 11

Round	Test	Statistic	Performance level	
			Proficient	Advanced
1	Reading	Mean	17.33	26.58
		Minimum	12	20
		Q1	15	25.50
		Median	**17**	**28**
		Q3	19.50	29
		Maximum	22	29
	Writing	Mean	24.08	40.58
		Minimum	19	35
		Q1	21.50	38
		Median	**25**	**41**
		Q3	27	43.50
		Maximum	29	45
2	Reading	Mean	16.08	25.67
		Minimum	13	20
		Q1	14.50	24.50
		Median	**16**	**26**
		Q3	17.50	27
		Maximum	19	29
	Writing	Mean	23.58	38.00
		Minimum	16	30
		Q1	21	35.50
		Median	**26**	**39**
		Q3	26.50	40.50
		Maximum	27	43
3	Reading	Mean	16.08	25.42
		Minimum	11	20
		Q1	15	23.50
		Median	**16**	**26**
		Q3	18	27.50
		Maximum	20	28
	Writing	Mean	22.67	35.50
		Minimum	18	31
		Q1	20.50	32.50
		Median	**23**	**36**
		Q3	24.50	38.50
		Maximum	27	40

Table I.10: Mathematics Grade 3

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	13.31	29.19
	Minimum	8	26
	Q1	12	27.50
	Median	**13**	**30**
	Q3	15	31
	Maximum	18	32
2	Mean	15.88	29.69
	Minimum	8	27
	Q1	14.50	28.50
	Median	**16**	**30**
	Q3	18	31
	Maximum	20	32
3	Mean	15.50	29.00
	Minimum	13	26
	Q1	15	27.50
	Median	**16**	**29**
	Q3	16	30.50
	Maximum	17	31

Table I.11: Mathematics Grade 4

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	18.44	36.31
	Minimum	5	32
	Q1	16.50	35.50
	Median	**19**	**37**
	Q3	21.50	38
	Maximum	27	38
2	Mean	14.31	31.81
	Minimum	9	29
	Q1	12.50	30.50
	Median	**15**	**32**
	Q3	15.50	33
	Maximum	22	34
3	Mean	14.75	30.31
	Minimum	11	27
	Q1	14	29
	Median	**15**	**30**
	Q3	16	32
	Maximum	17	34

Table I.12: Mathematics Grade 5

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	16.18	33.55
	Minimum	13	28
	Q1	13	31
	Median	**16**	**33**
	Q3	17	36
	Maximum	22	38
2	Mean	15.27	30.64
	Minimum	13	27
	Q1	14	28
	Median	**15**	**30**
	Q3	18	31
	Maximum	18	36
3	Mean	14.55	28.82
	Minimum	13	26
	Q1	14	28
	Median	**14**	**28**
	Q3	15	30
	Maximum	17	35

Table I.13: Mathematics Grade 6

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	23.10	37.30
	Minimum	14	29
	Q1	19	35
	Median	**21**	**39**
	Q3	26	39
	Maximum	37	41
2	Mean	18.82	36.55
	Minimum	15	33
	Q1	18	34
	Median	**19**	**36**
	Q3	20	40
	Maximum	23	40
3	Mean	18.27	33.27
	Minimum	16	31
	Q1	16	31
	Median	**18**	**33**
	Q3	20	35
	Maximum	23	36

Table I.14: Mathematics Grade 7

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	20.45	40.91
	Minimum	15	36
	Q1	17	38
	Median	**21**	**42**
	Q3	24	44
	Maximum	27	46
2	Mean	18.36	42.00
	Minimum	15	39
	Q1	16	41
	Median	**18**	**42**
	Q3	21	43
	Maximum	23	45
3	Mean	18.55	40.73
	Minimum	15	39
	Q1	16	39
	Median	**18**	**40**
	Q3	21	42
	Maximum	24	44

Table I.15: Mathematics Grade 8

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	21.30	43.00
	Minimum	16	34
	Q1	18	41
	Median	**20**	**45**
	Q3	24	46
	Maximum	31	47
2	Mean	19.18	43.36
	Minimum	17	37
	Q1	18	43
	Median	**19**	**44**
	Q3	20	45
	Maximum	21	45
3	Mean	18.27	41.00
	Minimum	14	40
	Q1	18	40
	Median	**19**	**41**
	Q3	19	42
	Maximum	19	42

Table I.16: Mathematics Grade 9

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	14.67	29.22
	Minimum	11	26
	Q1	12	28
	Median	**14**	**29**
	Q3	17	31
	Maximum	19	32
2	Mean	14.56	27.56
	Minimum	11	22
	Q1	14	27
	Median	**14**	**28**
	Q3	16	29
	Maximum	18	30
3	Mean	14.00	27.89
	Minimum	13	26
	Q1	13	27
	Median	**14**	**28**
	Q3	15	29
	Maximum	16	29

Table I.17: Mathematics Grade 10

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	12.00	30.00
	Minimum	9	22
	Q1	9	27
	Median	**11**	**31**
	Q3	14	32
	Maximum	22	36
2	Mean	9.60	30.50
	Minimum	7	26
	Q1	8	29
	Median	**10**	**31**
	Q3	10	32
	Maximum	14	34
3	Mean	14.80	30.80
	Minimum	11	28
	Q1	13	29
	Median	**14**	**32**
	Q3	17	32
	Maximum	19	33

Table I.18: Mathematics Grade 11

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	15.20	30.60
	Minimum	10	23
	Q1	13	29
	Median	**15**	**31**
	Q3	16	33
	Maximum	22	35
2	Mean	16.10	28.90
	Minimum	13	26
	Q1	15	27
	Median	**16**	**29**
	Q3	18	30
	Maximum	18	32
3	Mean	15.20	28.70
	Minimum	14	27
	Q1	14	28
	Median	**15**	**29**
	Q3	16	29
	Maximum	17	31

Table I.19: Science Grade 5

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	21.82	32.55
	Minimum	14	27
	Q1	19	32
	Median	**23**	**33**
	Q3	26	34
	Maximum	27	34
2	Mean	17.18	29.45
	Minimum	13	26
	Q1	16	29
	Median	**17**	**29**
	Q3	19	31
	Maximum	20	32
3	Mean	15.27	27.27
	Minimum	6	22
	Q1	14	26
	Median	**16**	**28**
	Q3	18	28
	Maximum	19	30

Table I.20: Science Grade 8

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	17.10	27.70
	Minimum	9	23
	Q1	15	26
	Median	**18**	**28**
	Q3	20	31
	Maximum	25	32
2	Mean	14.56	26.44
	Minimum	8	22
	Q1	13	26
	Median	**16**	**27**
	Q3	16	28
	Maximum	19	29
3	Mean	10.30	22.10
	Minimum	8	17
	Q1	8	20
	Median	**10**	**21**
	Q3	12	25
	Maximum	15	26

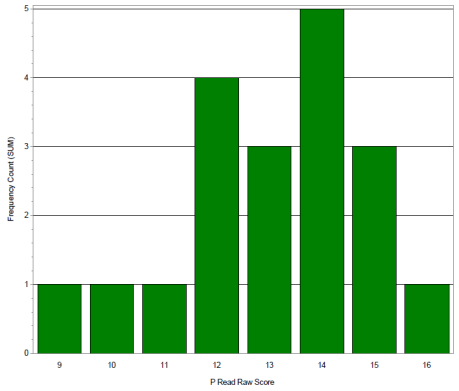
Table I.21: Science Grade 10

Round	Statistic	Performance level	
		Proficient	Advanced
1	Mean	15.91	30.82
	Minimum	7	23
	Q1	14	27
	Median	**16**	**31**
	Q3	18	36
	Maximum	24	36
2	Mean	15.09	28.09
	Minimum	11	26
	Q1	14	27
	Median	**15**	**28**
	Q3	17	29
	Maximum	18	31
3	Mean	15.55	27.73
	Minimum	14	26
	Q1	15	27
	Median	**15**	**28**
	Q3	16	29
	Maximum	19	29

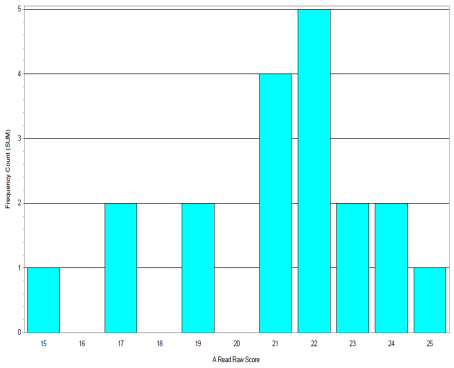
Appendix J – Test-Level Panelist Judgment Agreement

ELA Grade 3 - Reading

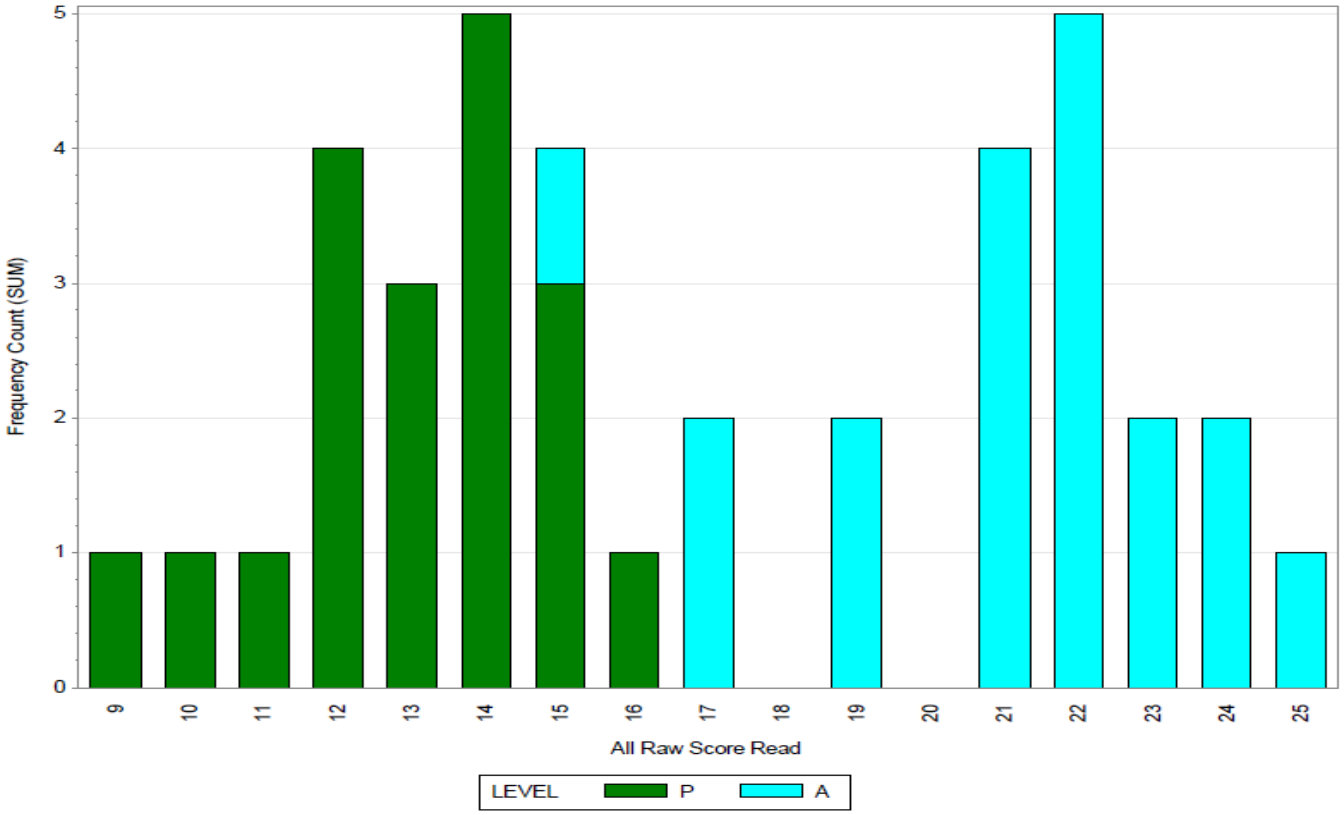
Round 1:



Proficient

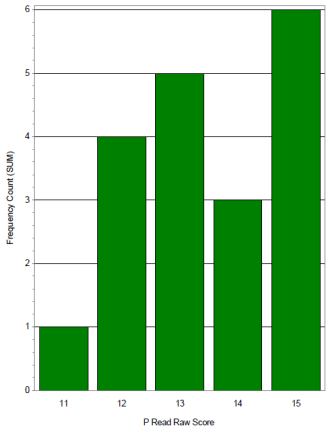


Advanced

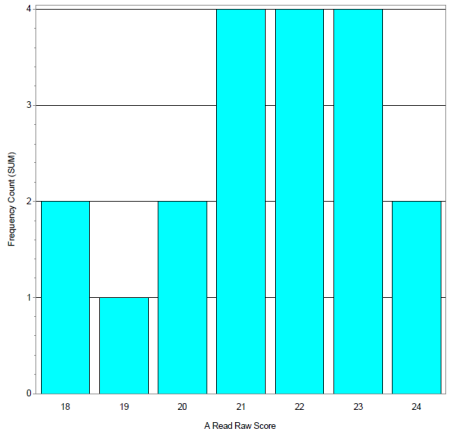


Both Performance Levels Concurrently

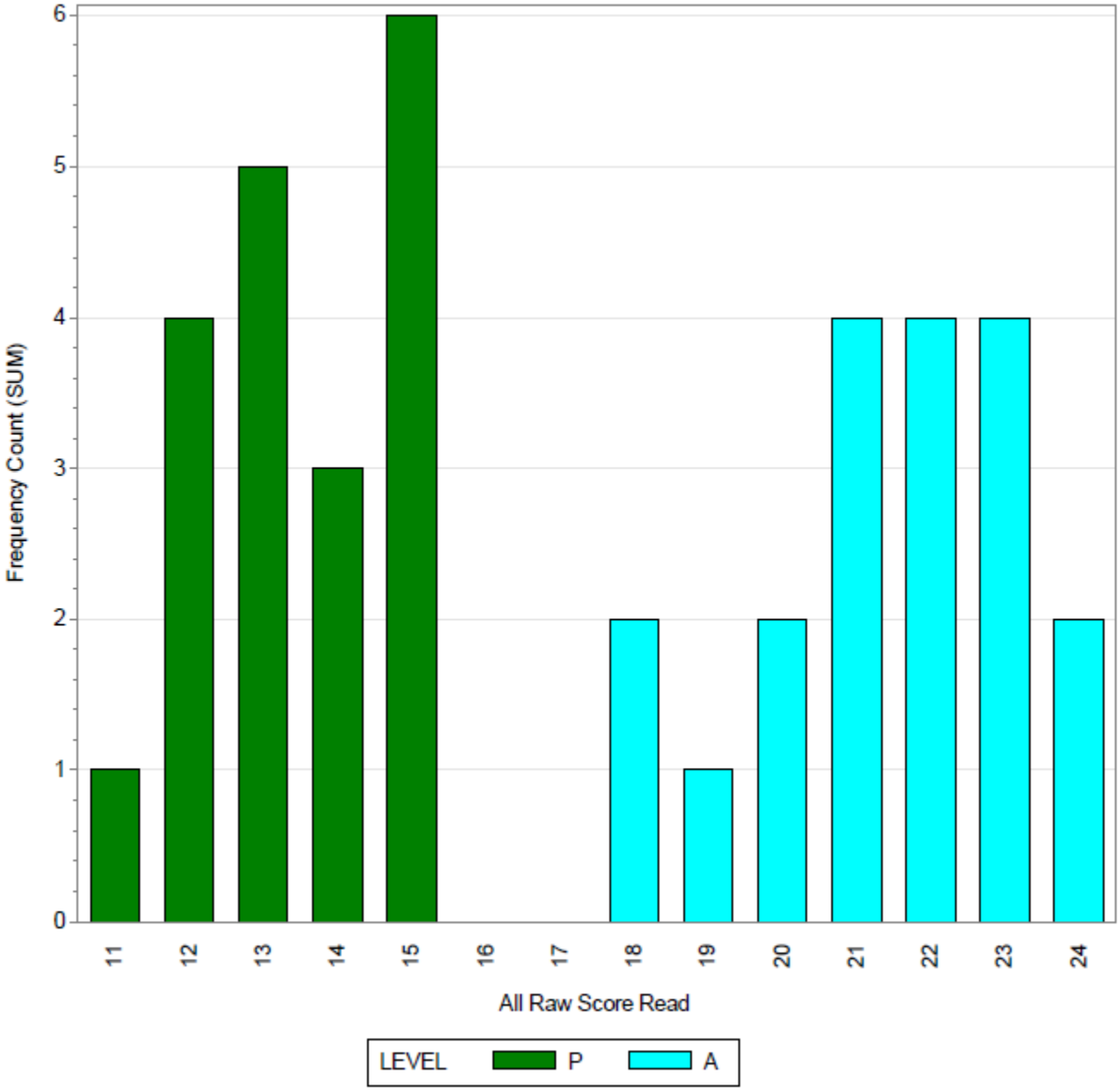
Round 2:



Proficient



Advanced



Both Performance Levels Concurrently

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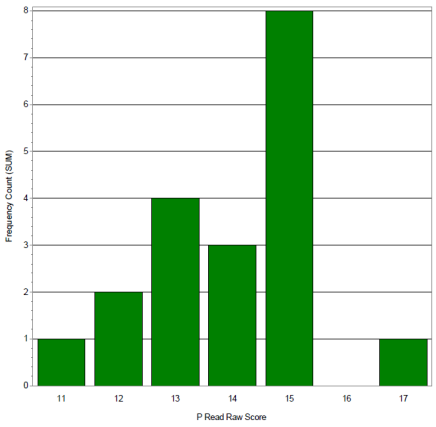
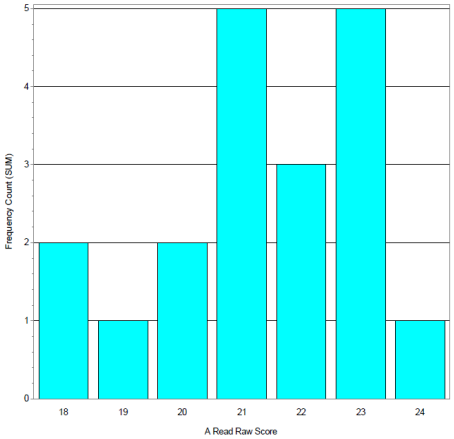
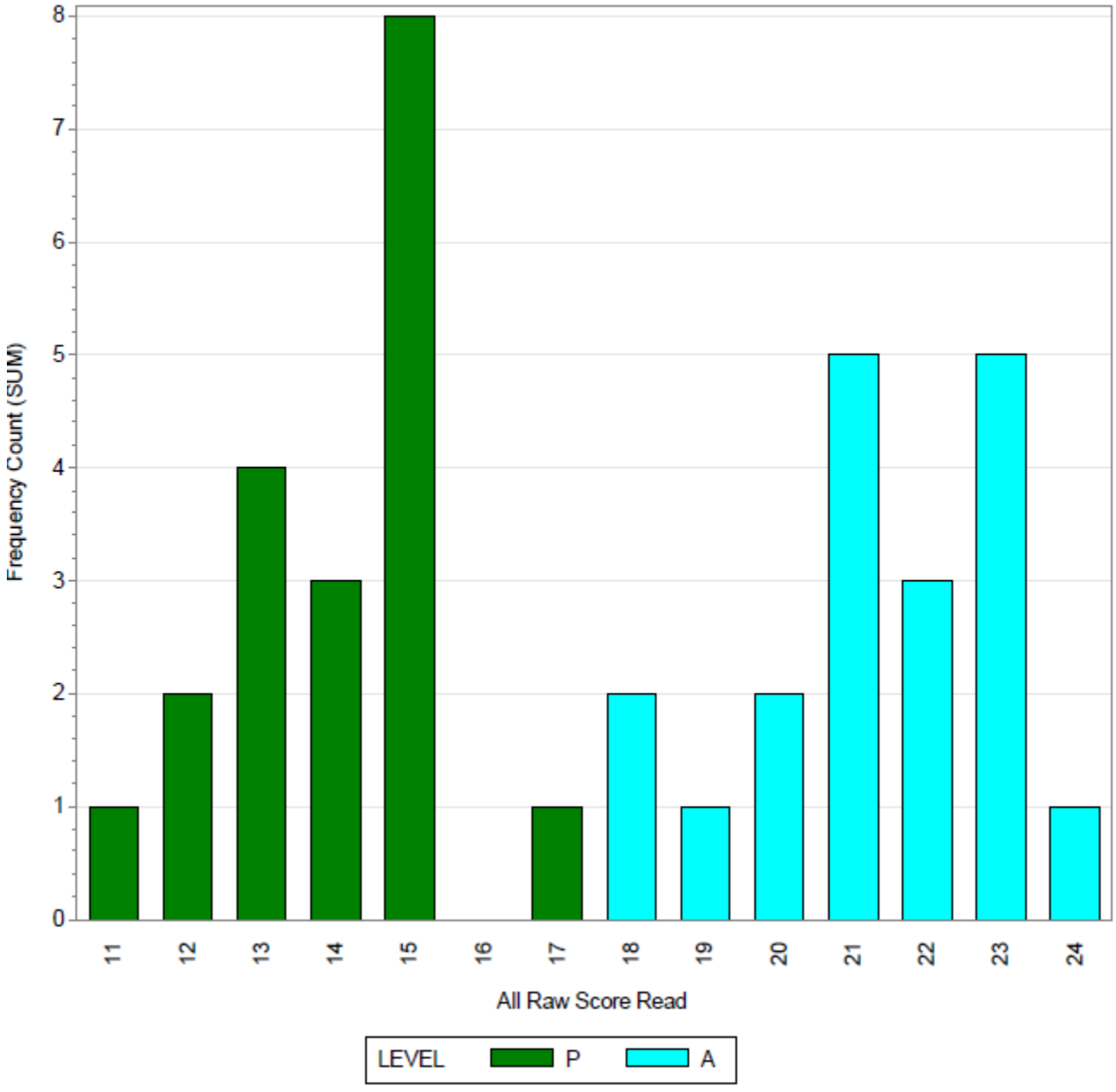


Proficient



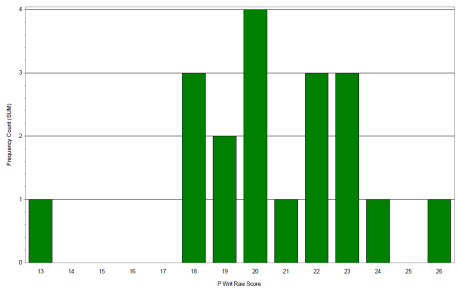
Advanced



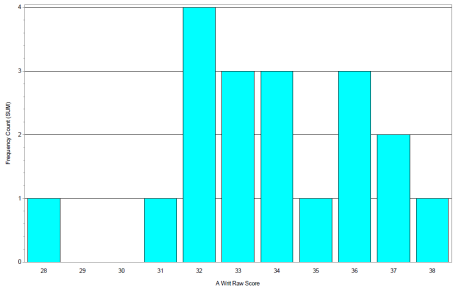
Both Performance Levels Concurrently

ELA Grade 3 - Writing

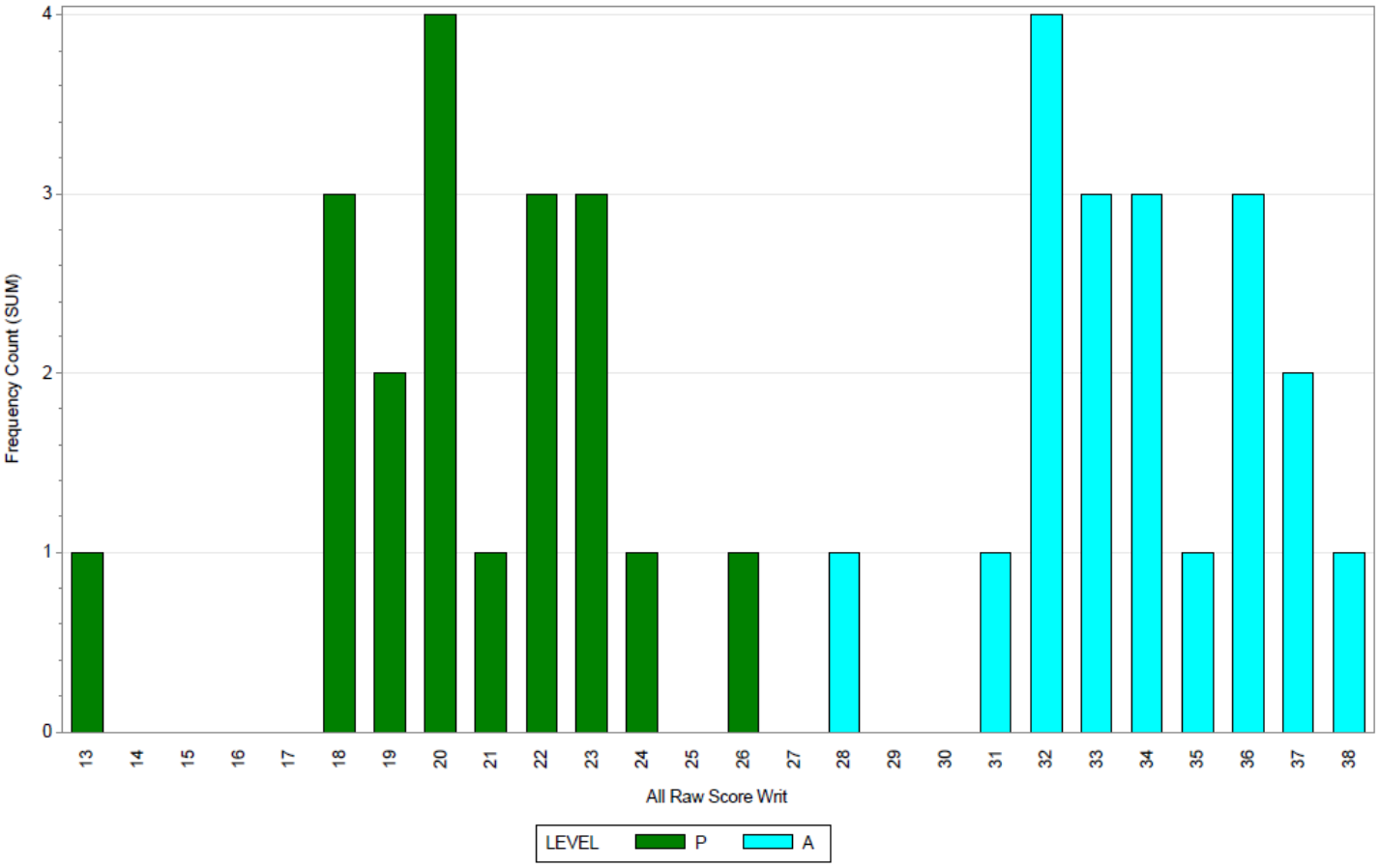
Round 1:



Proficient

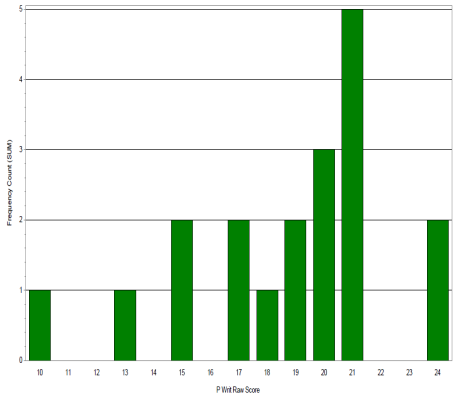


Advanced

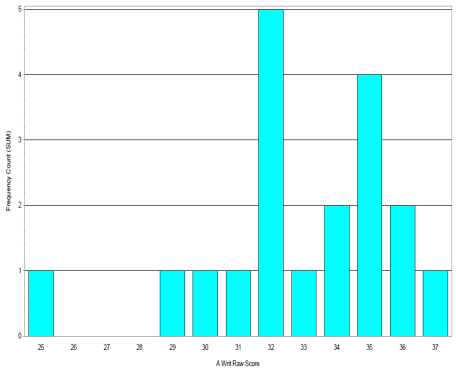


Both Performance Levels Concurrently

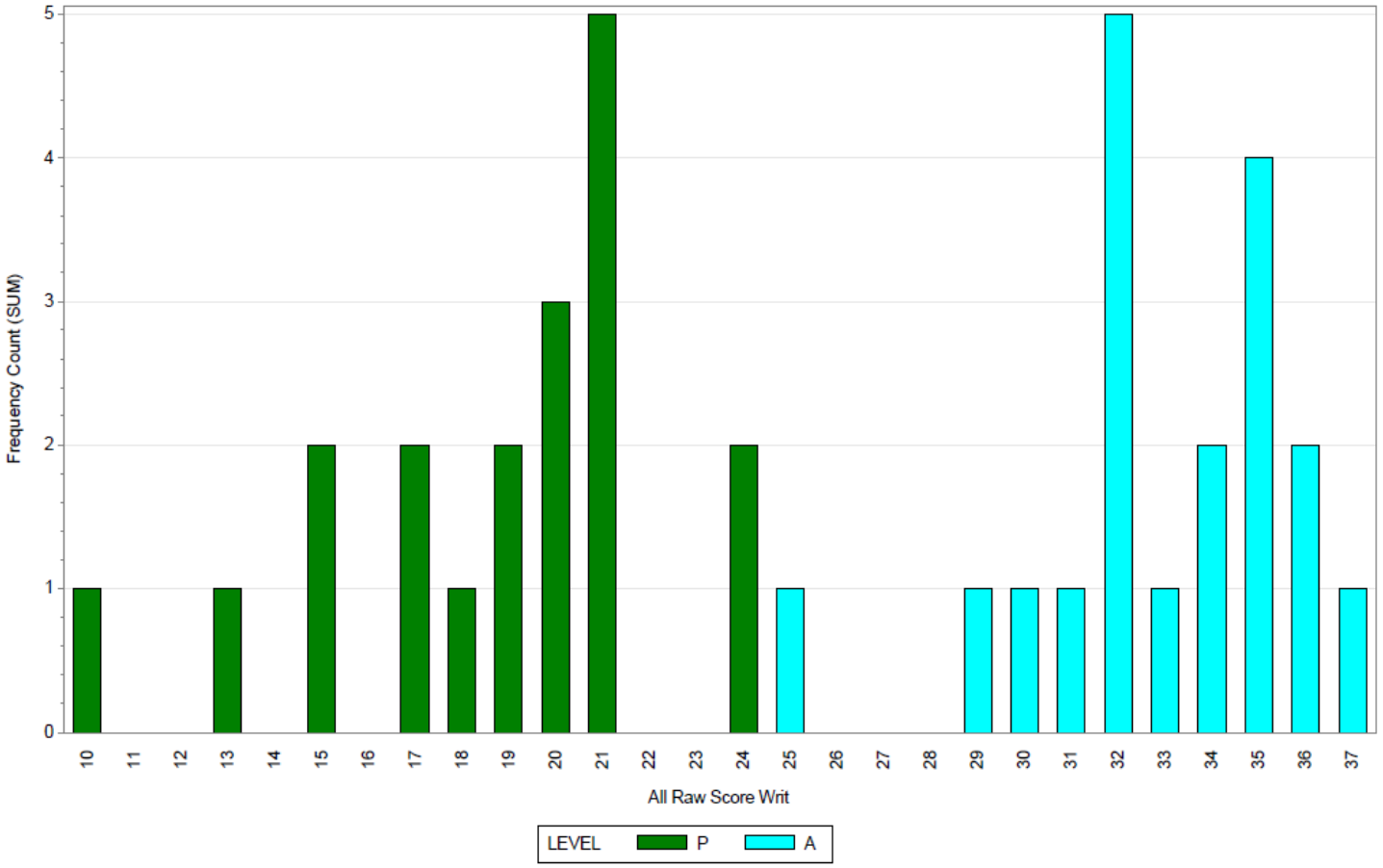
Round 2:



Proficient

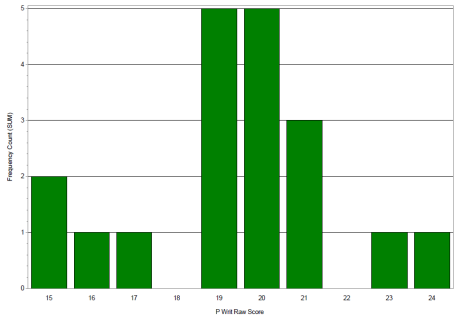


Advanced

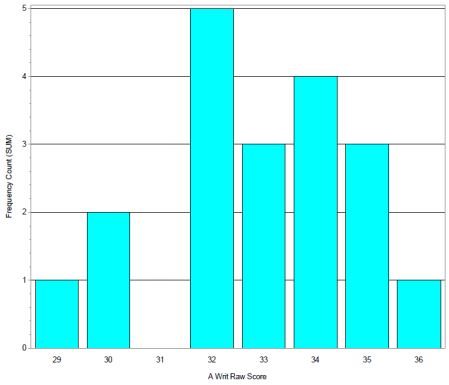


Both Performance Levels Concurrently

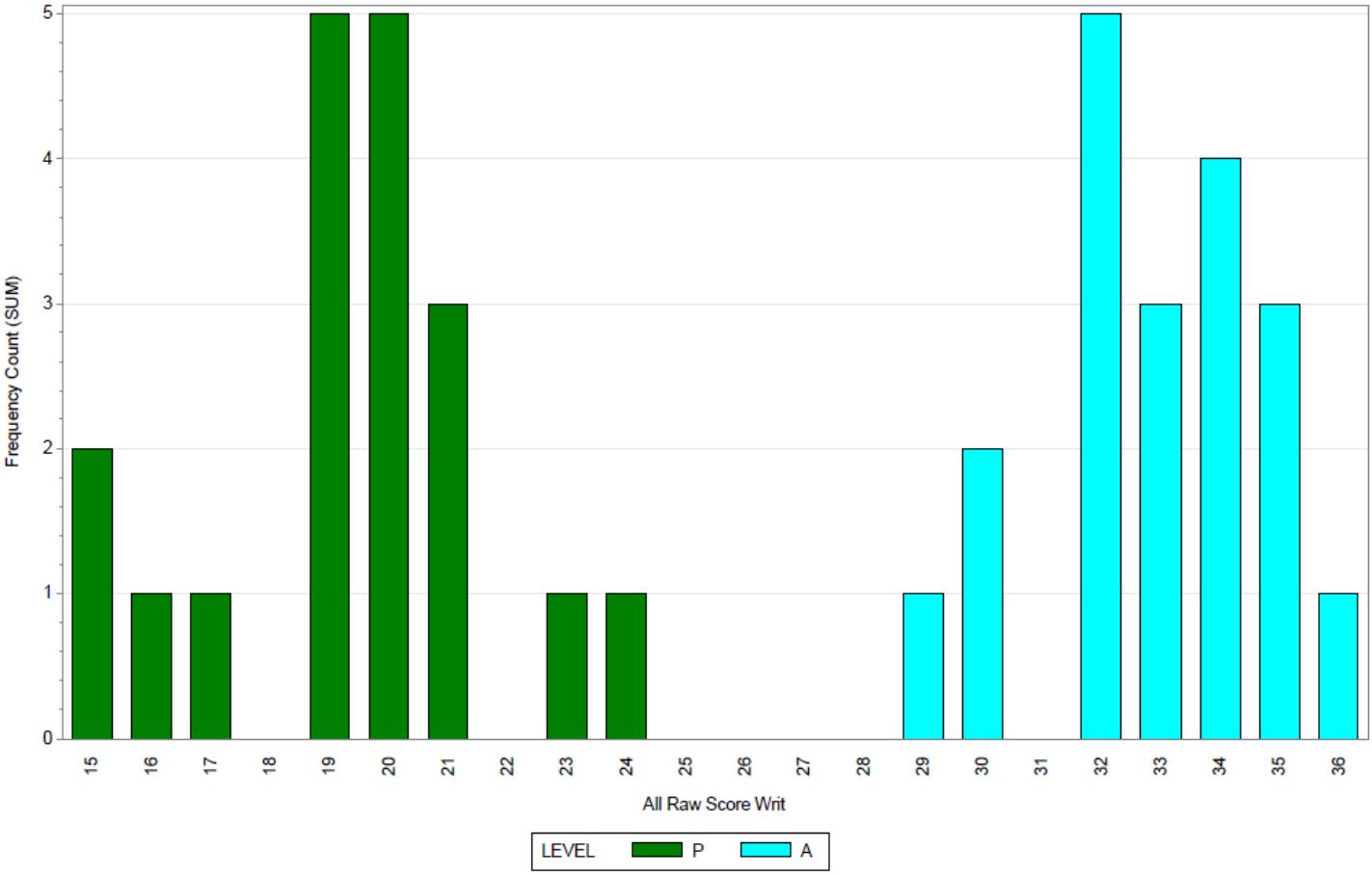
Round 3:



Proficient



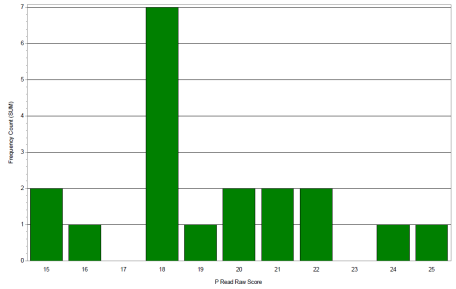
Advanced



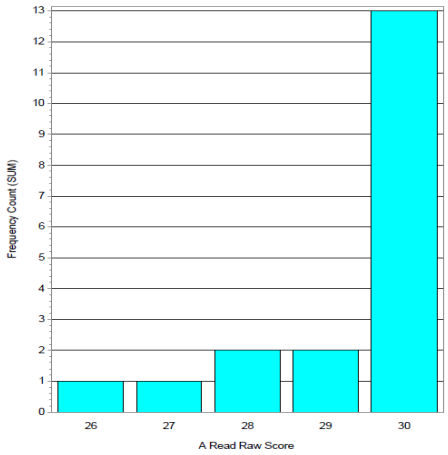
Both Performance Levels Concurrently

ELA Grade 4 - Reading

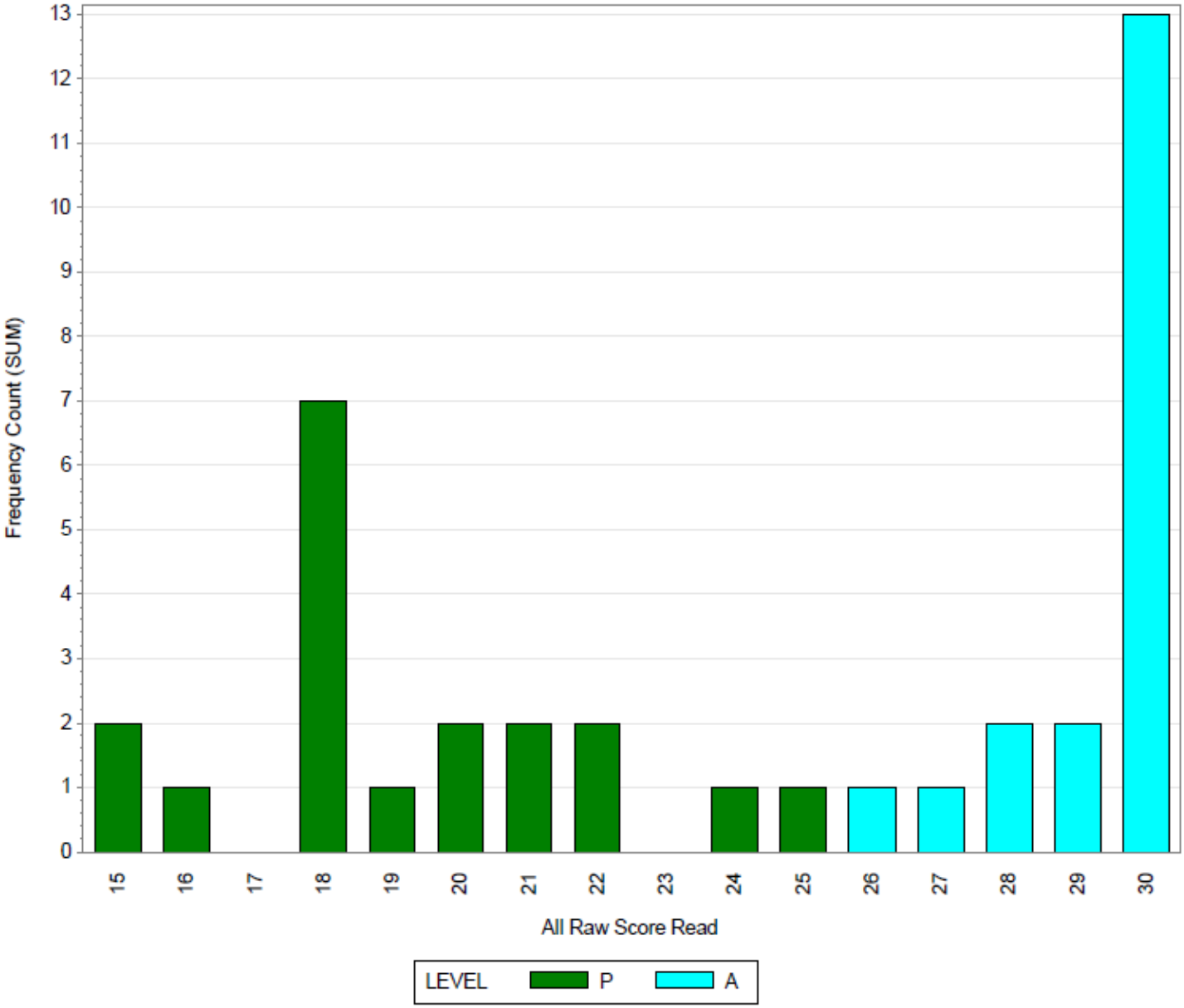
Round 1:



Proficient

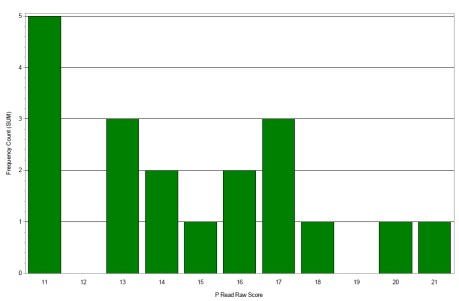


Advanced

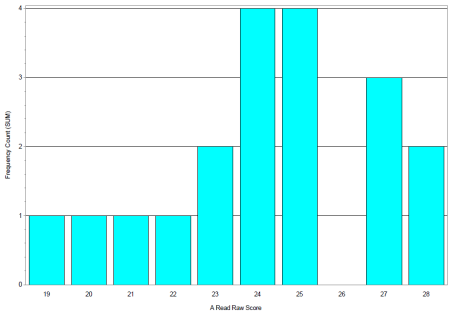


Both Performance Levels Concurrently

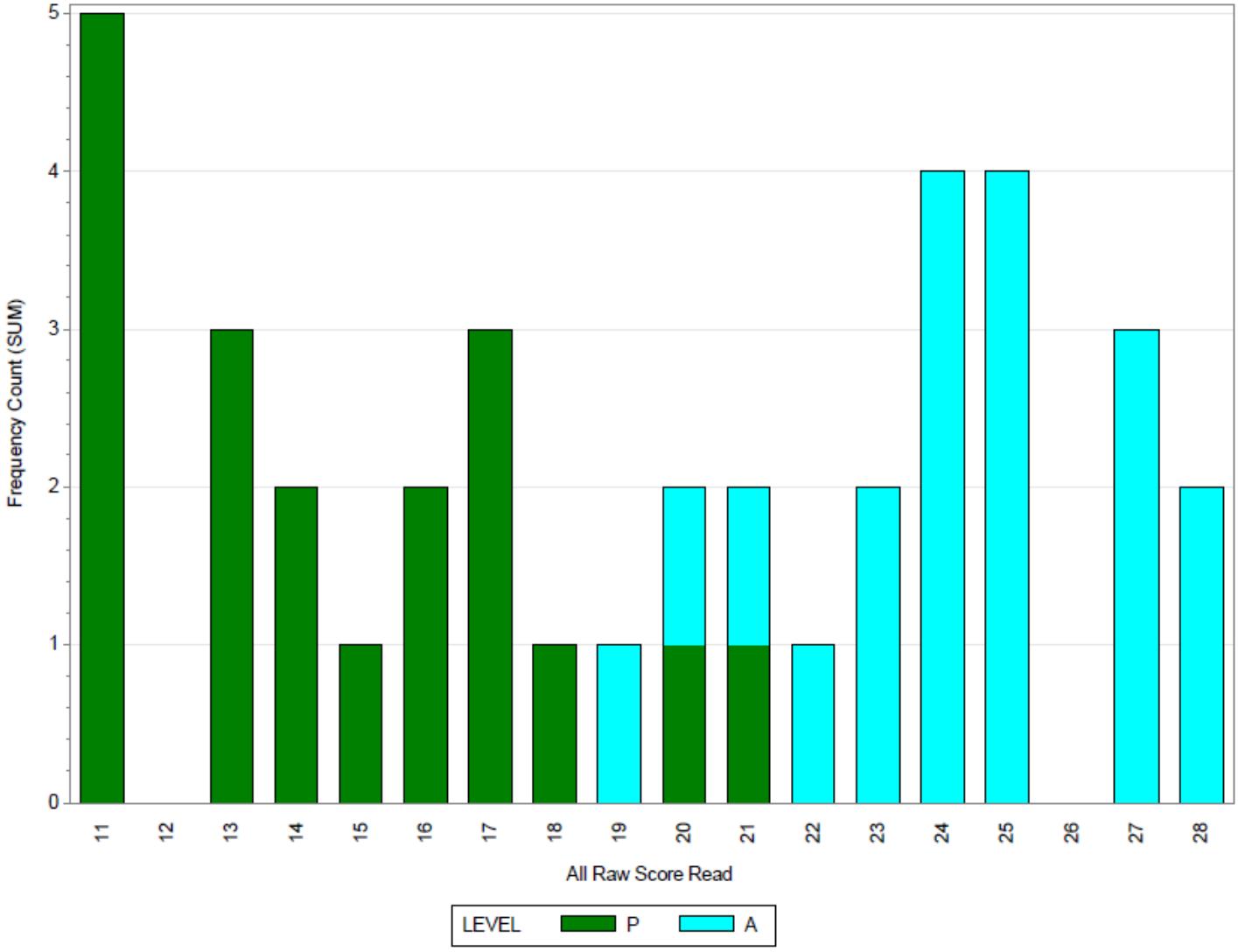
Round 2:



Proficient

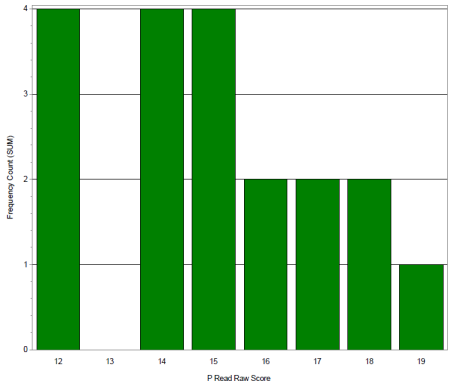


Advanced

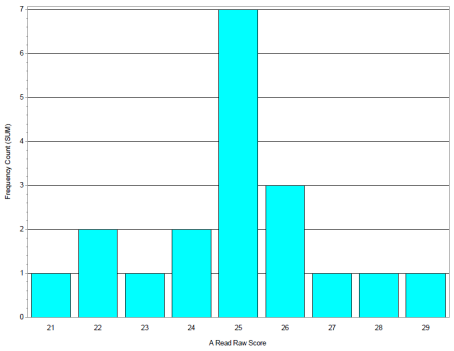


Both Performance Levels Concurrently

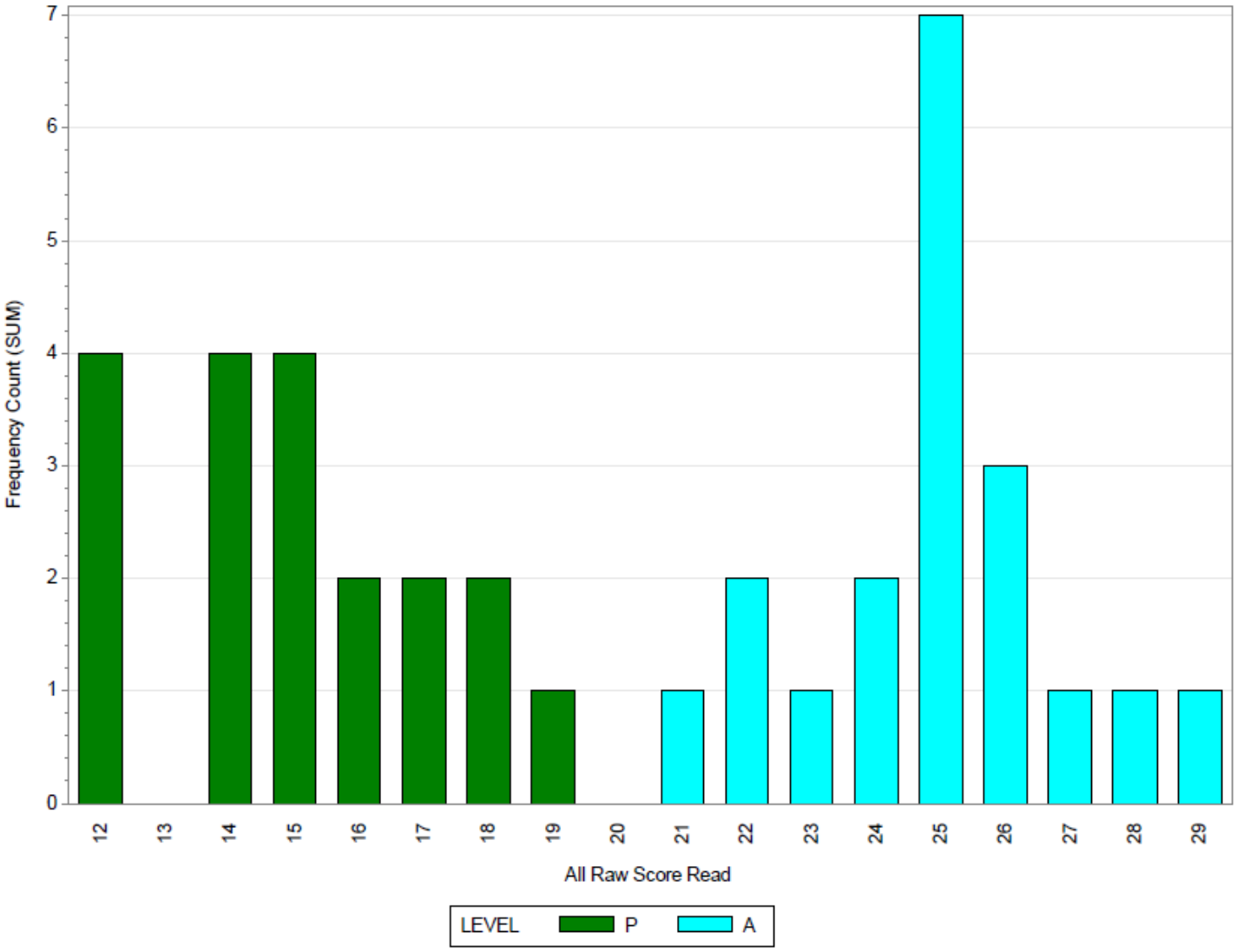
Round 3:



Proficient



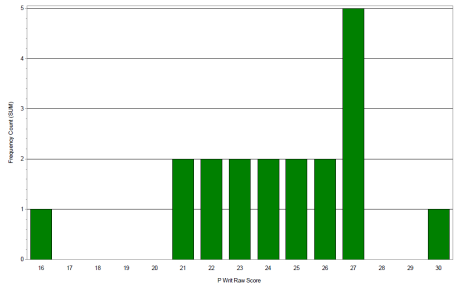
Advanced



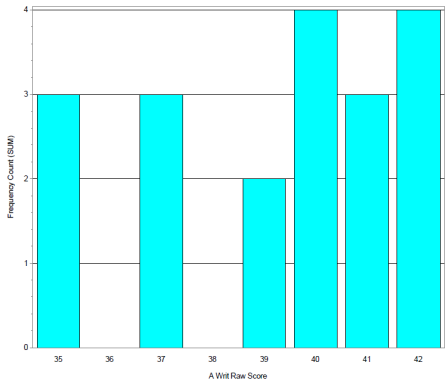
Both Performance Levels Concurrently

ELA Grade 4 - Writing

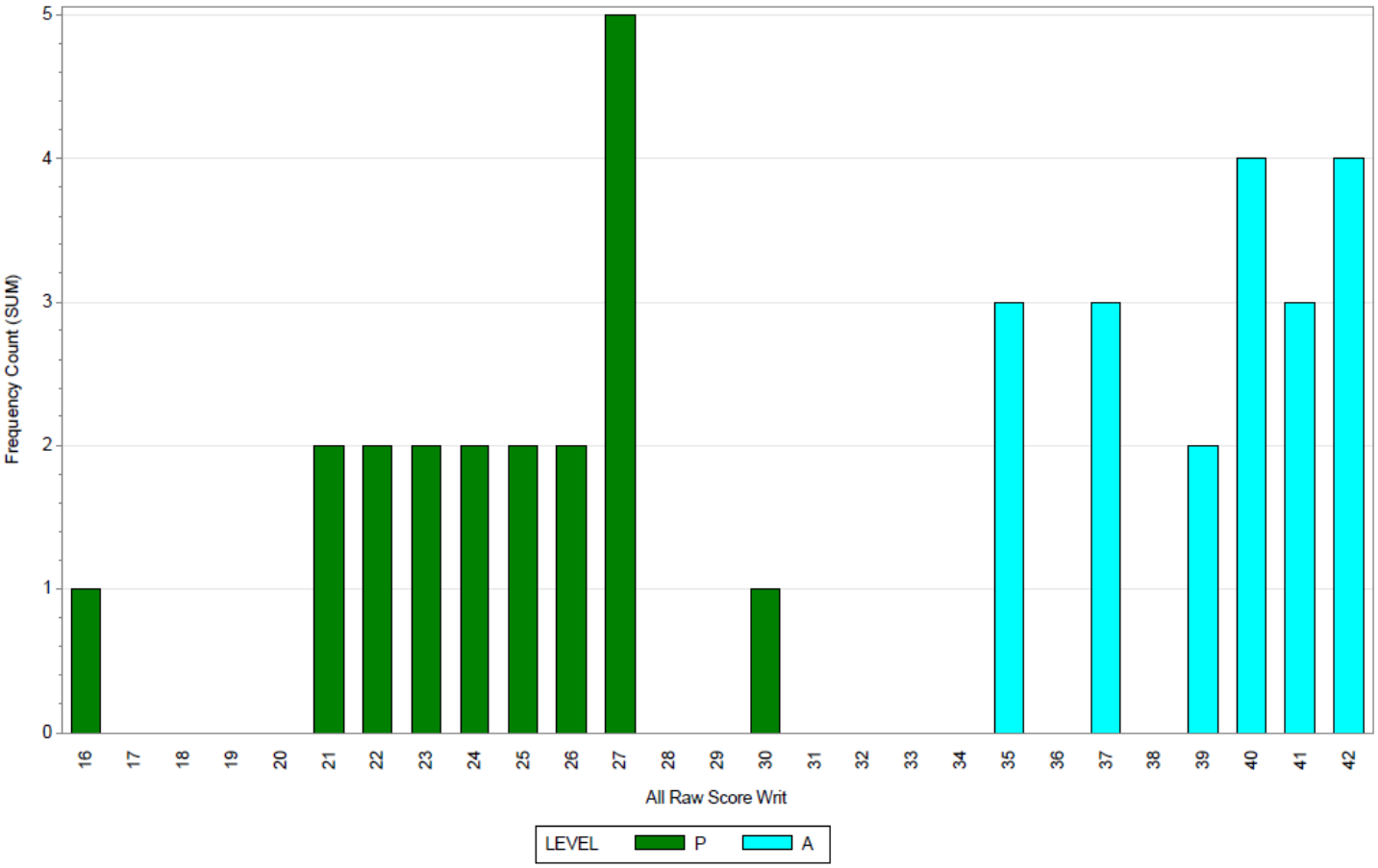
Round 1:



Proficient

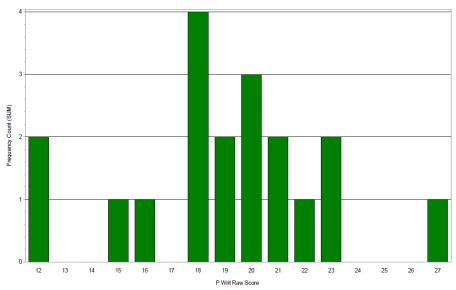


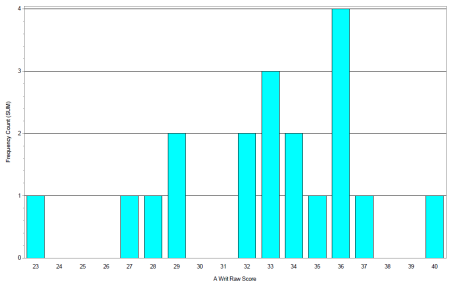
Advanced



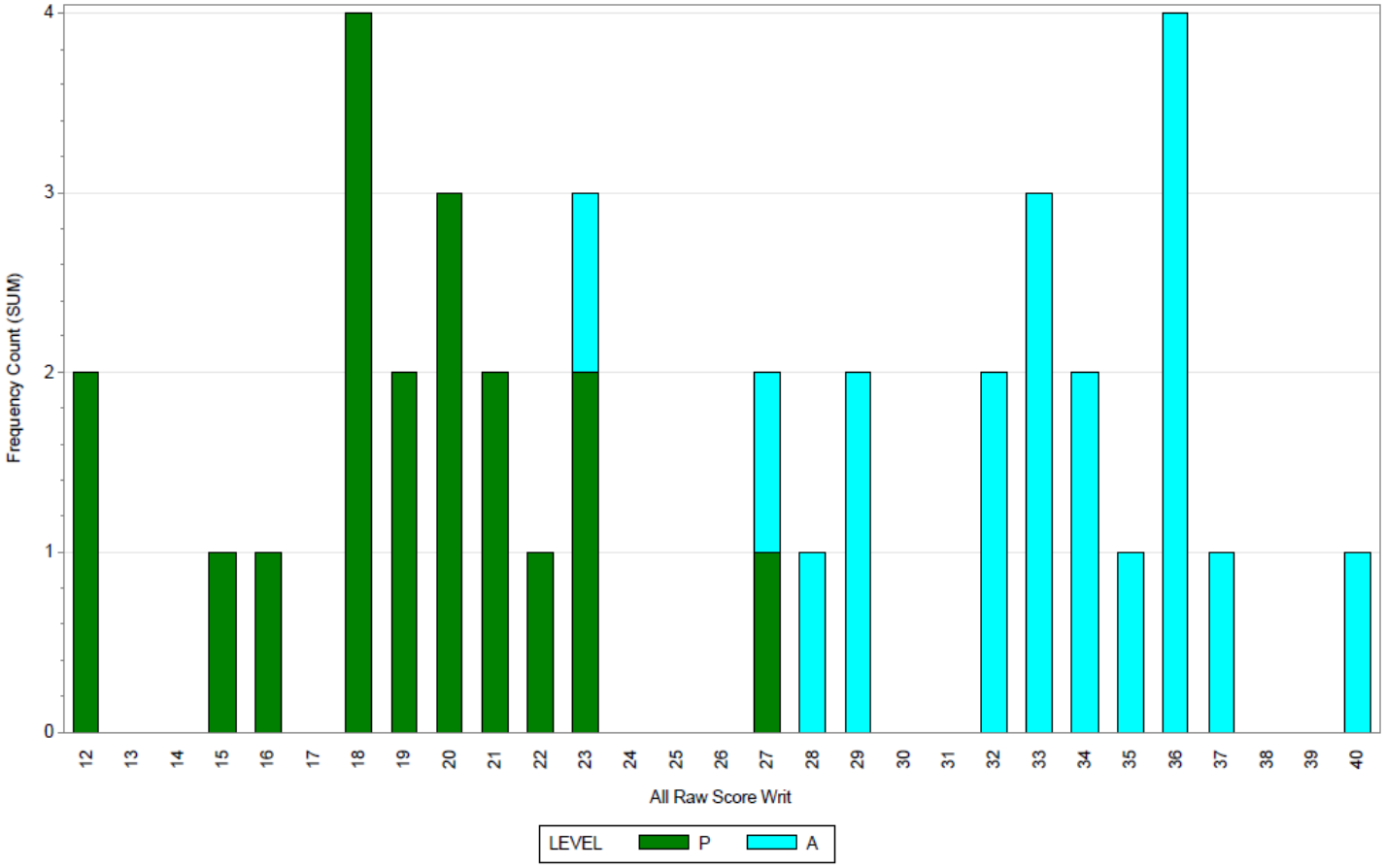
Both Performance Levels Concurrently

Round 2:



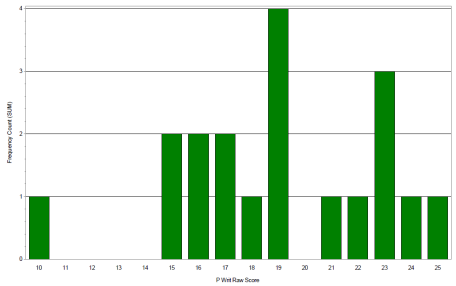


Proficient *Advanced*

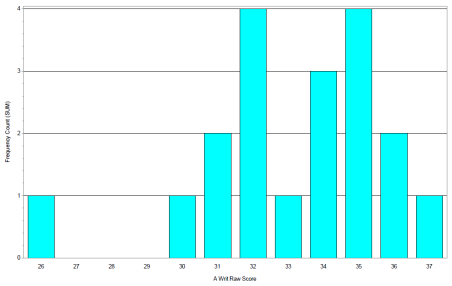


Both Performance Levels Concurrently

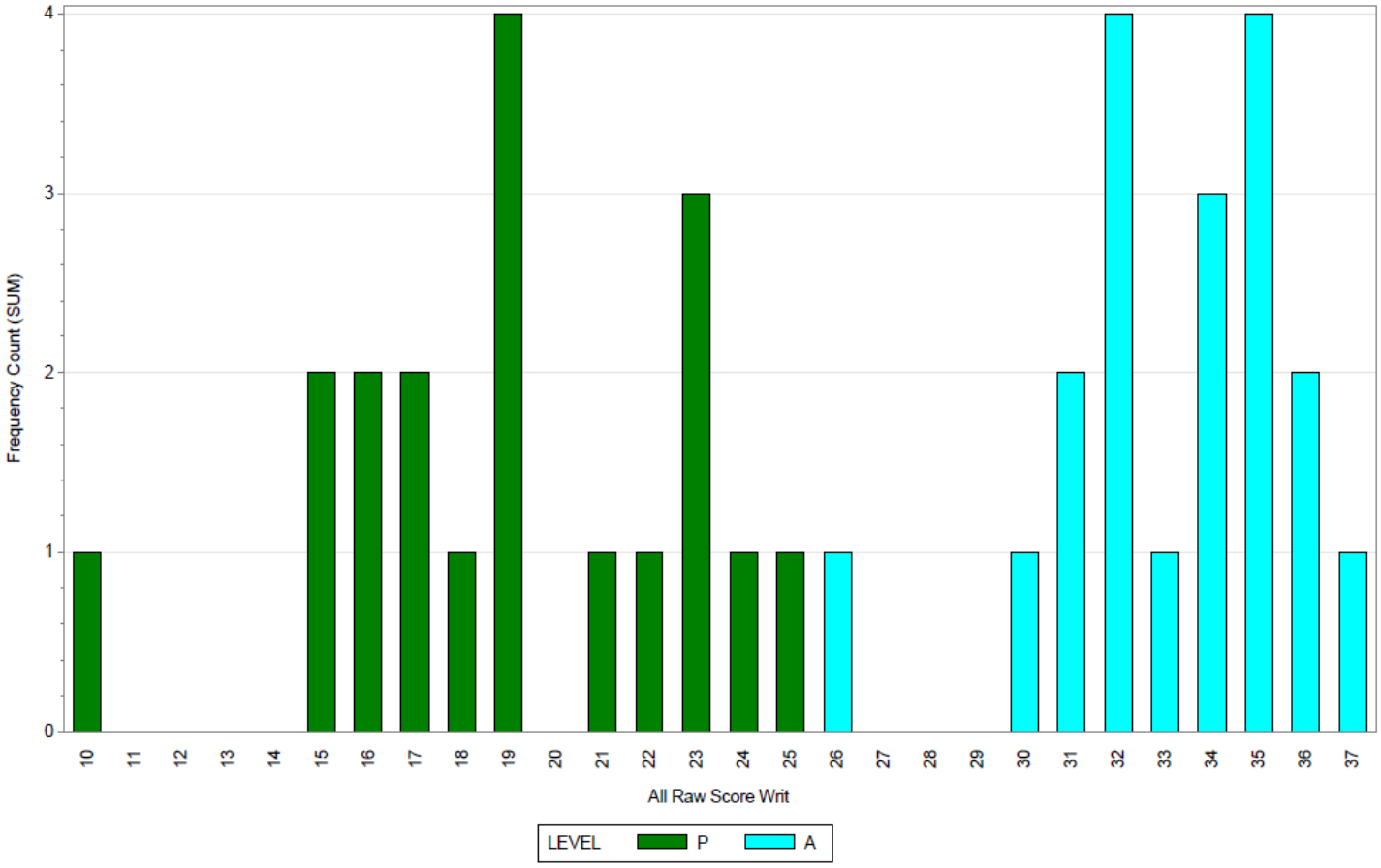
Round 3:



Proficient



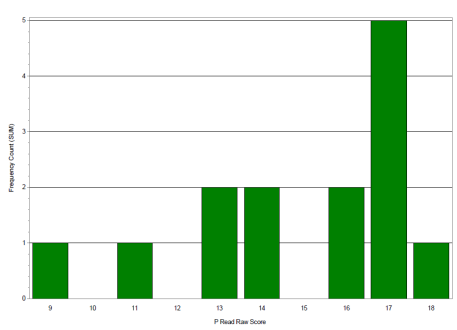
Advanced



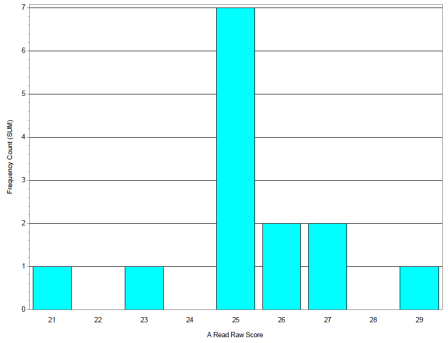
Both Performance Levels Concurrently

ELA Grade 5 - Reading

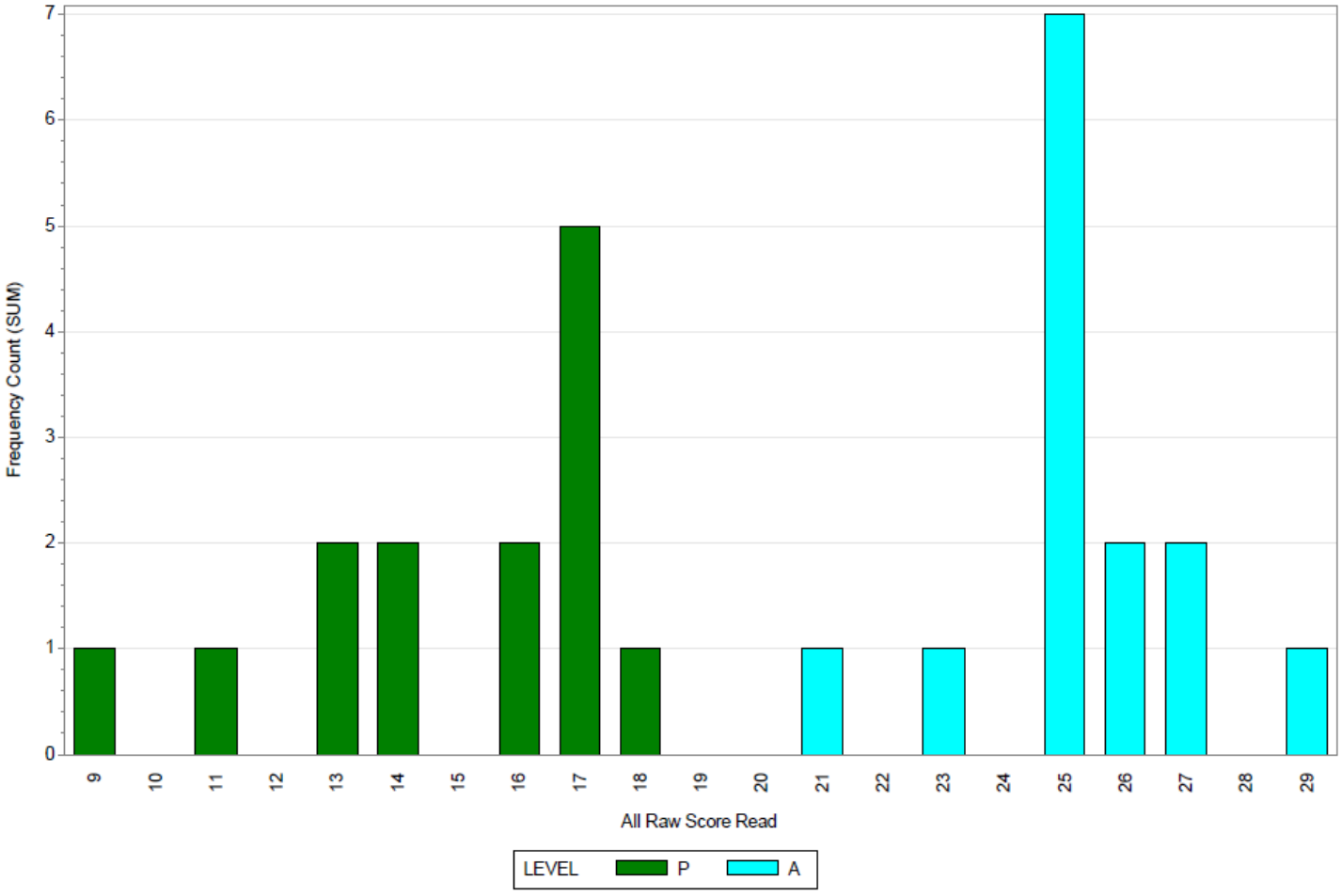
Round 1:



Proficient

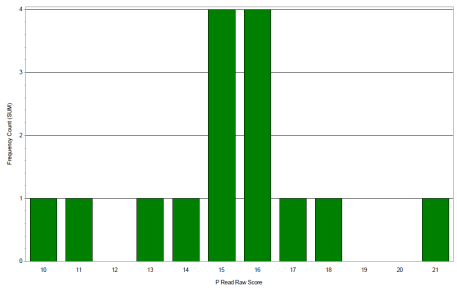


Advanced

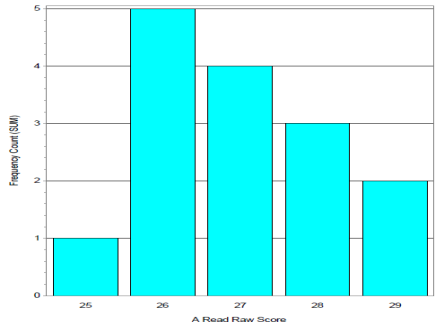


Both Performance Levels Concurrently

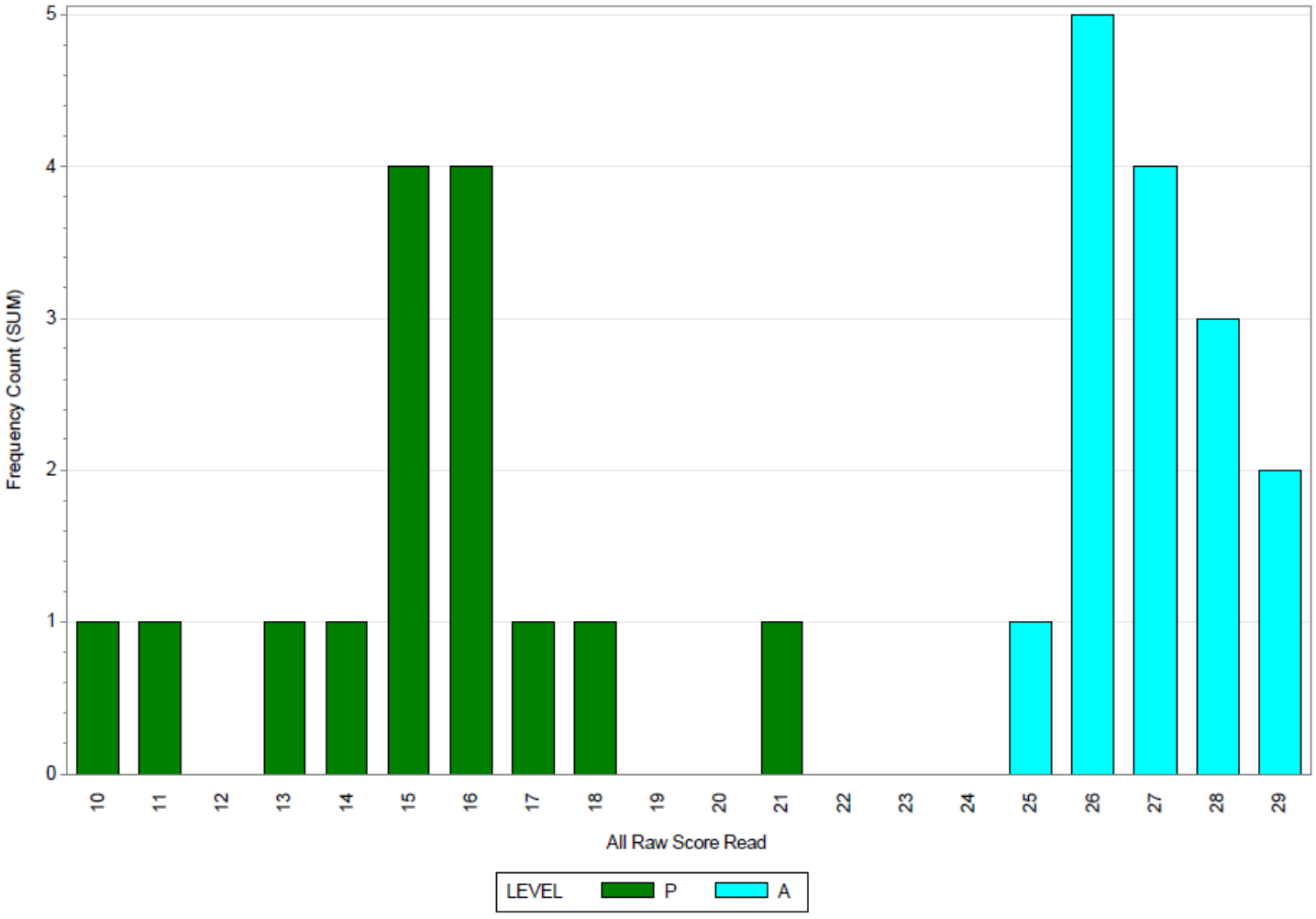
Round 2:



Proficient

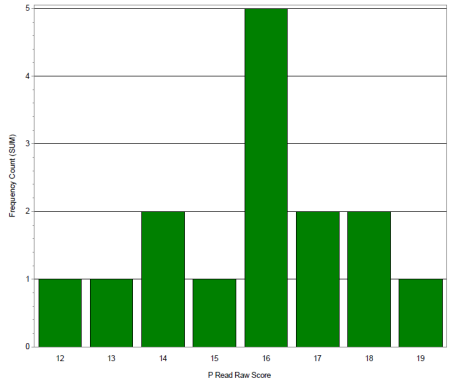


Advanced

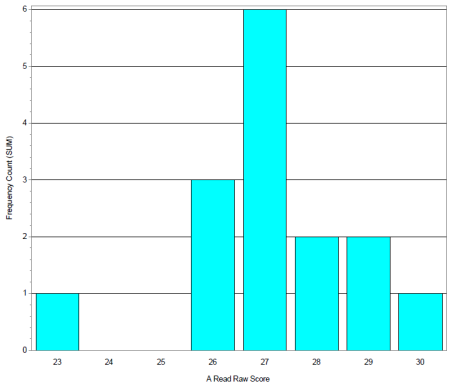


Both Performance Levels Concurrently

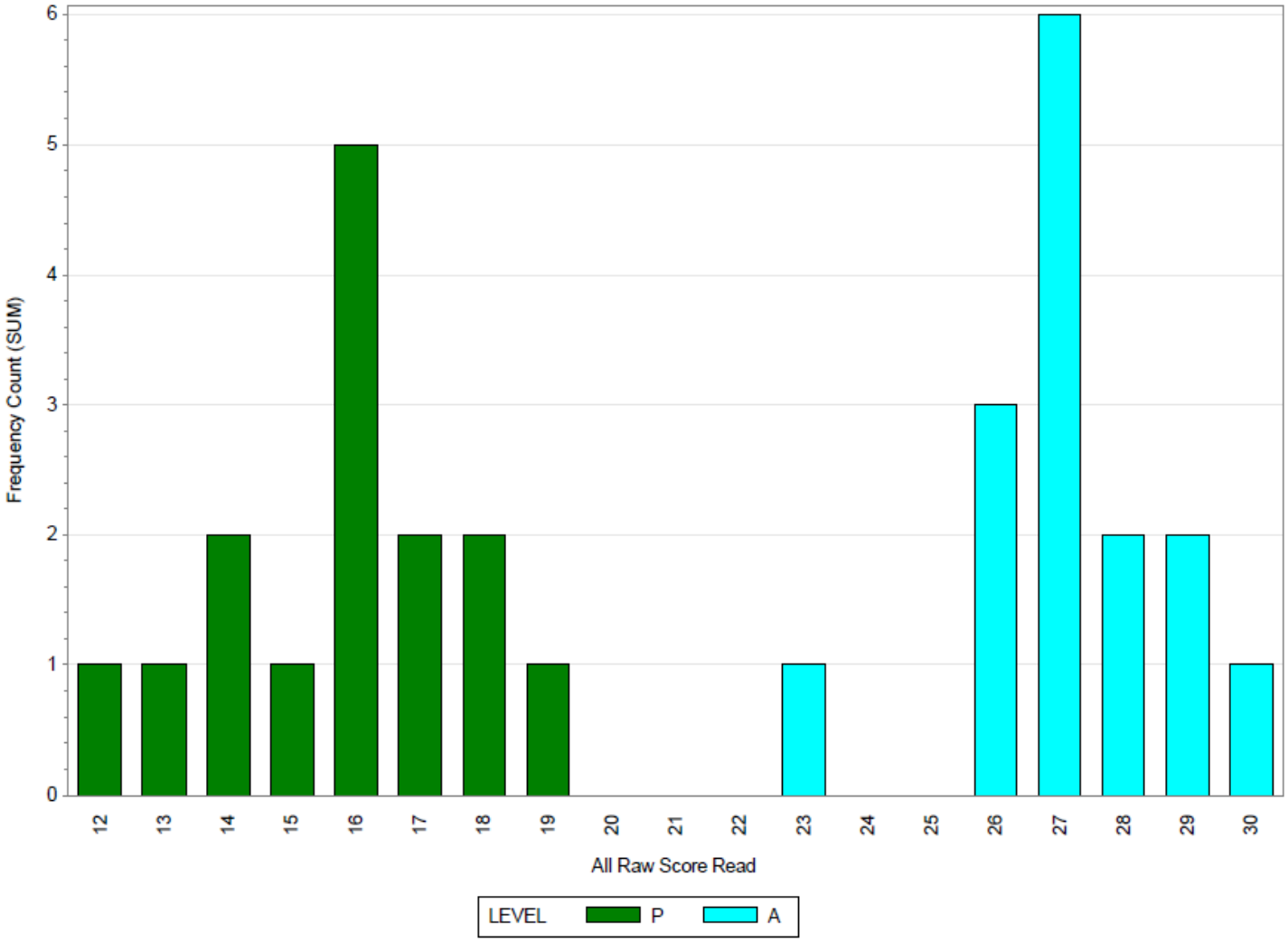
Round 3:



Proficient



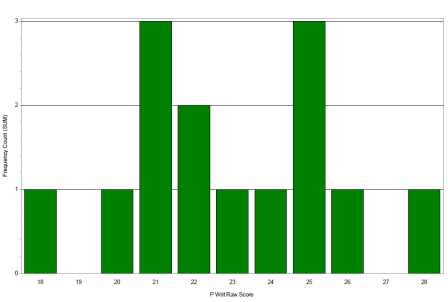
Advanced



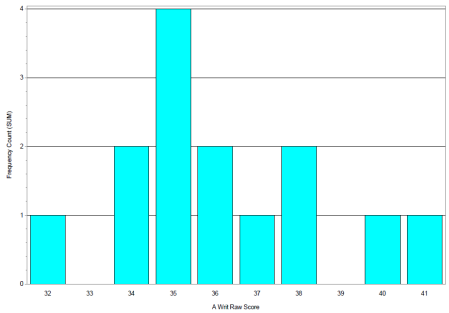
Both Performance Levels Concurrently

ELA Grade 5 - Writing

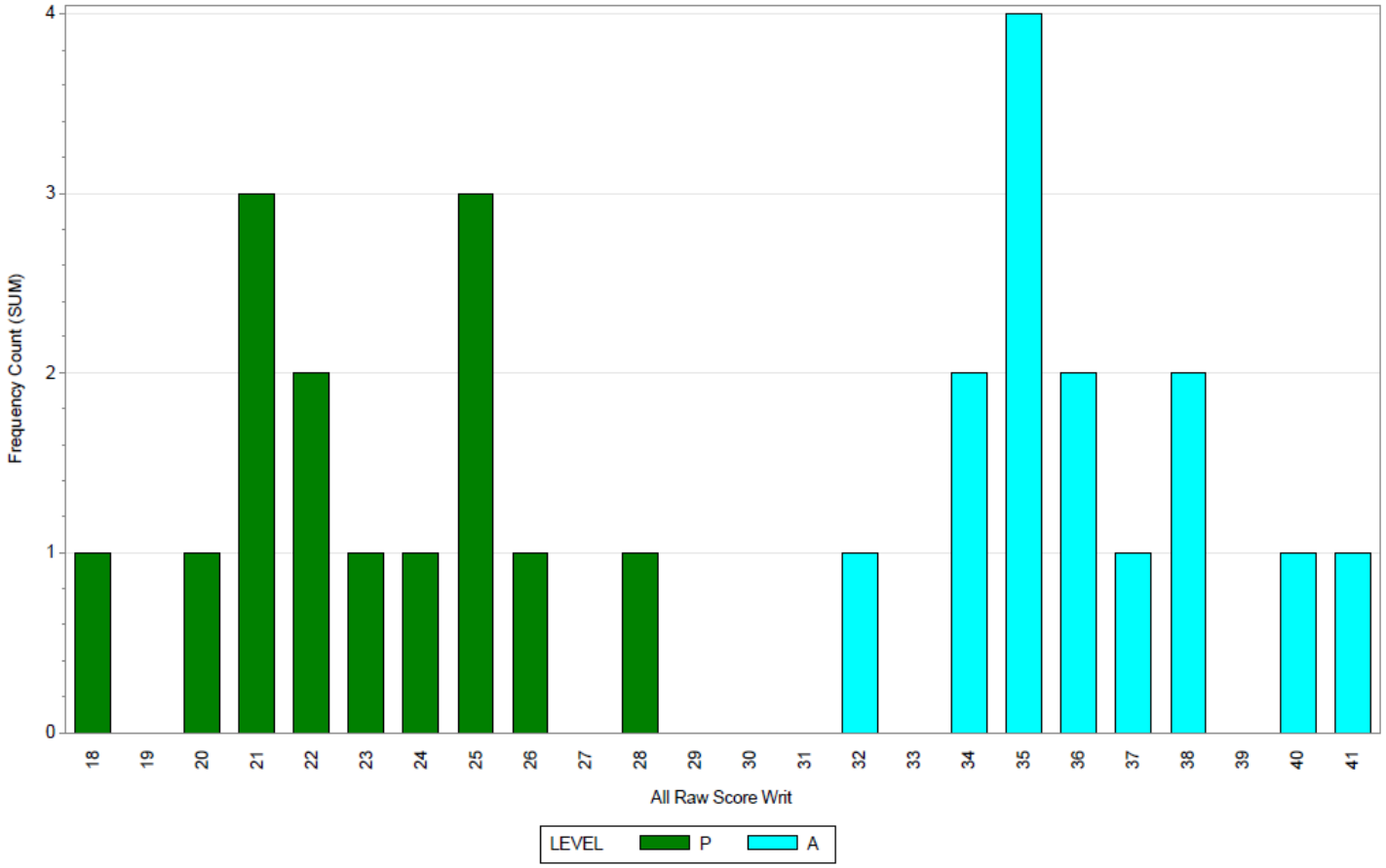
Round 1:



Proficient

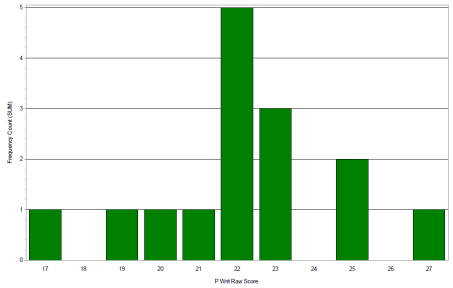


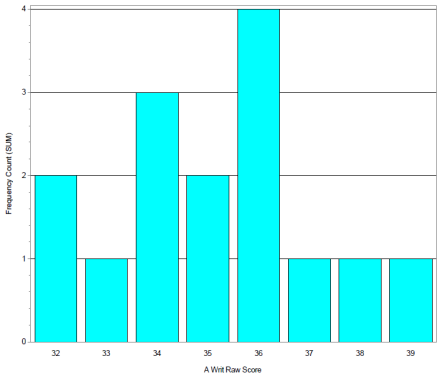
Advanced



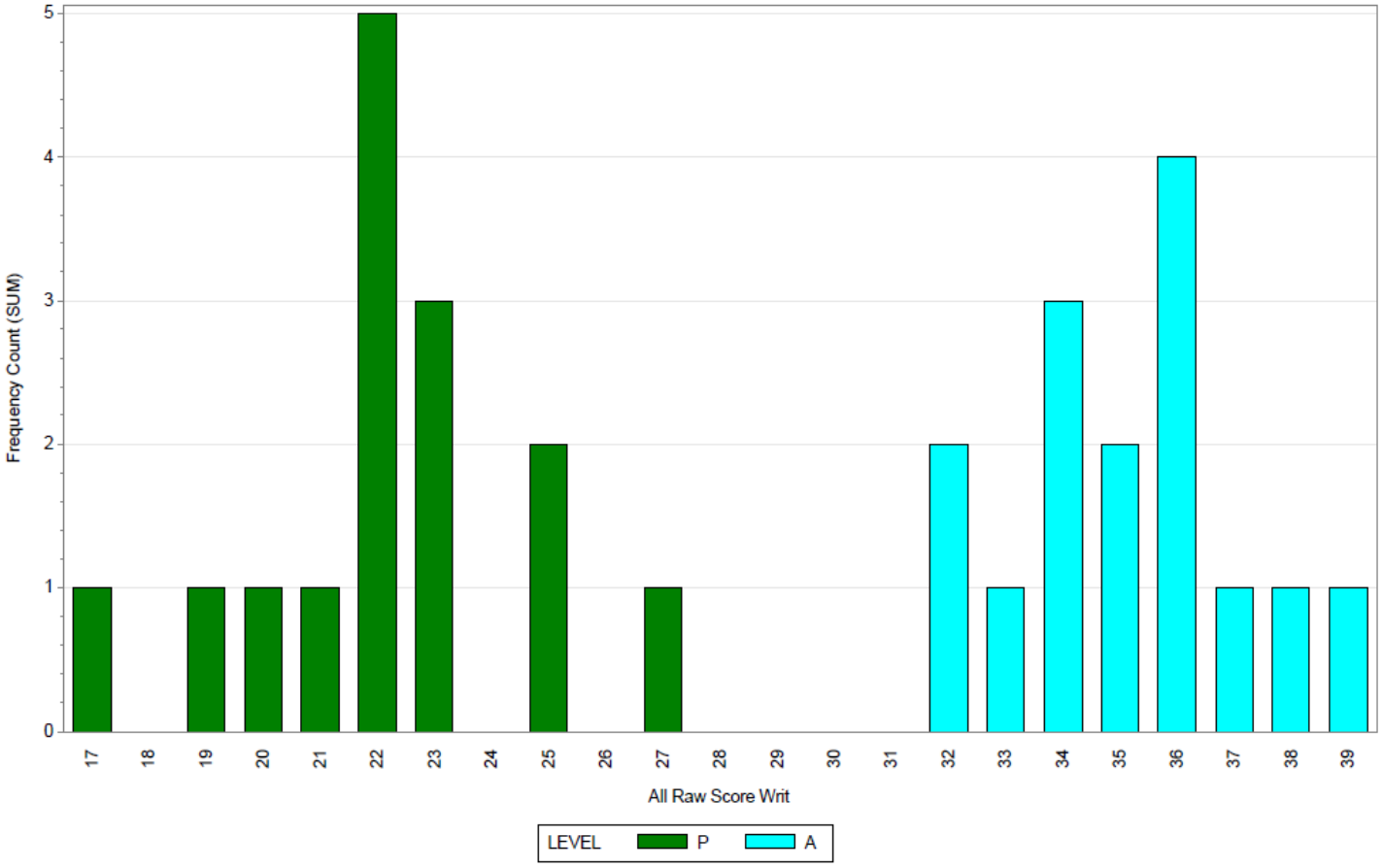
Both Performance Levels Concurrently

Round 2:



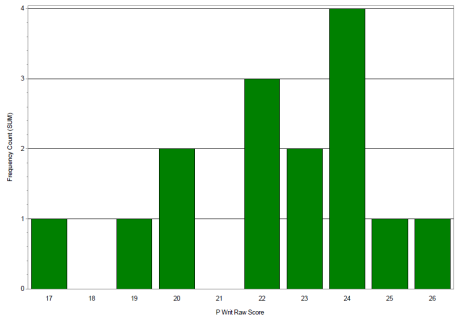


Proficient *Advanced*

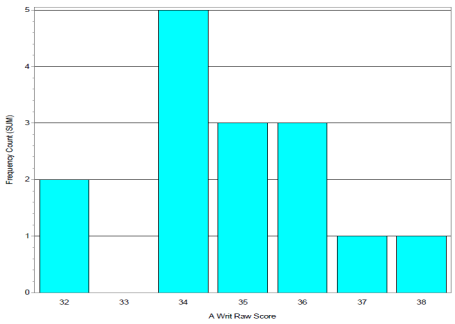


Both Performance Levels Concurrently

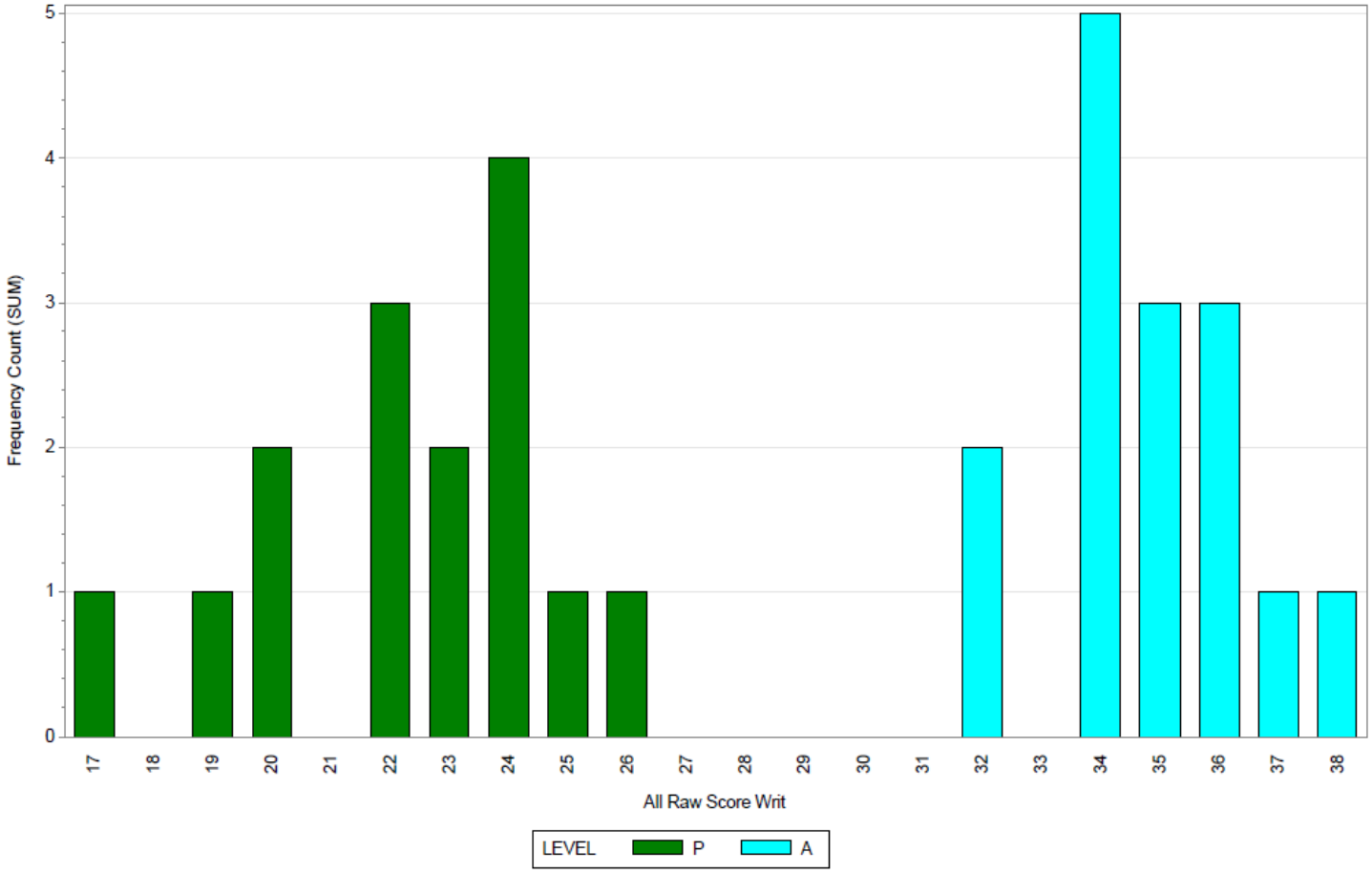
Round 3:



Proficient



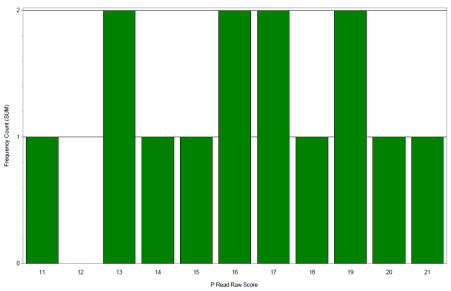
Advanced



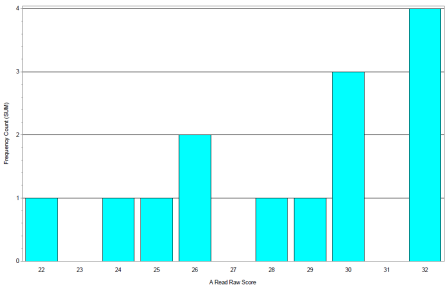
Both Performance Levels Concurrently

ELA Grade 6 - Reading

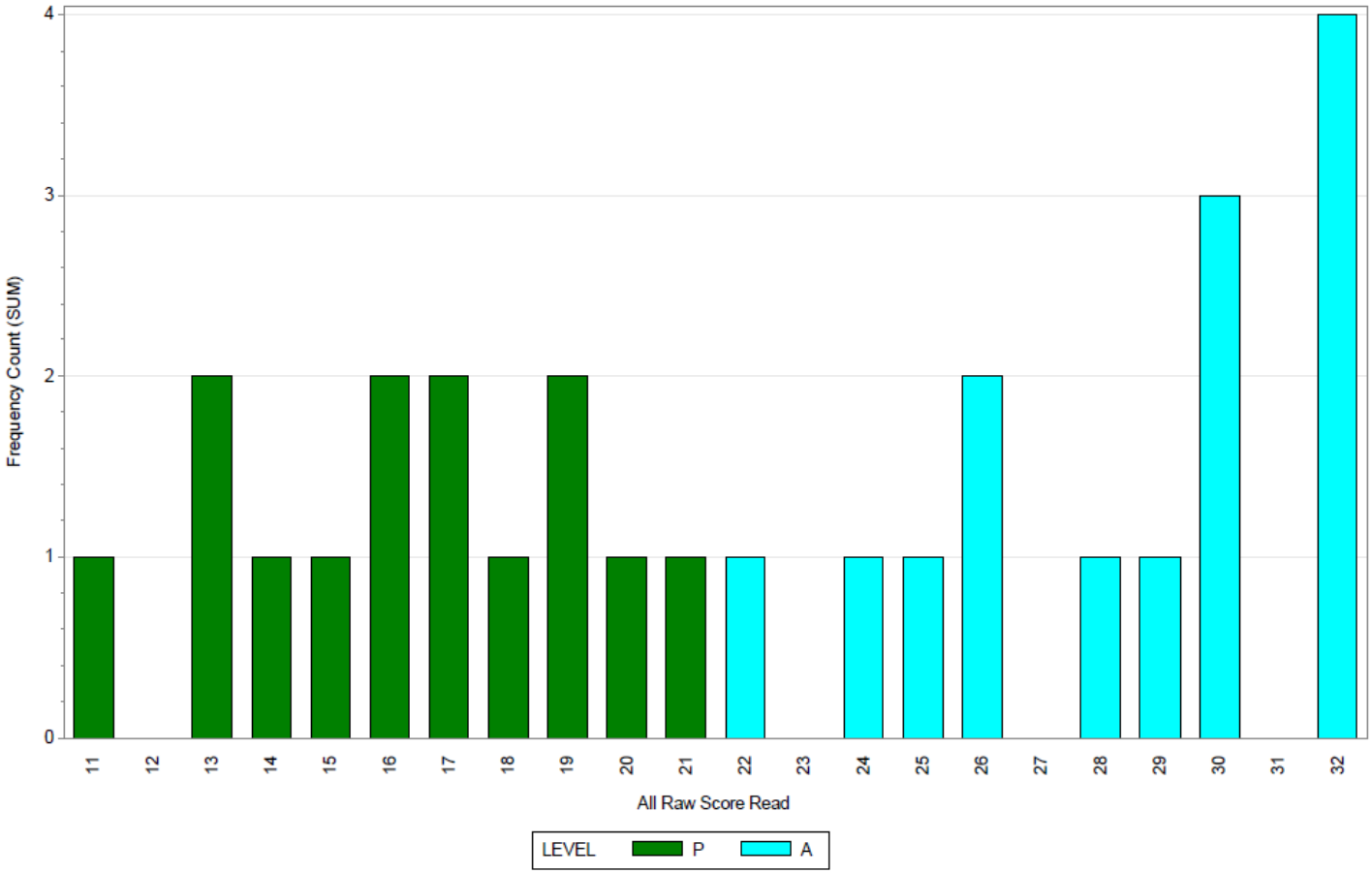
Round 1:



Proficient

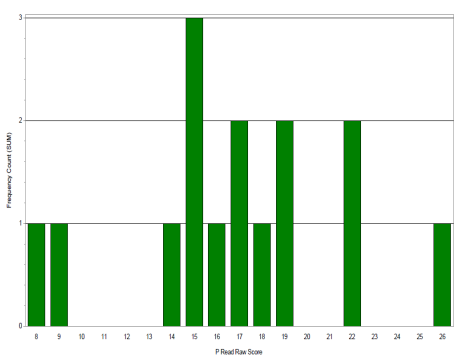


Advanced

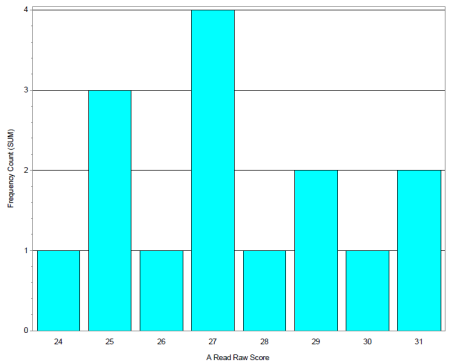


Both Performance Levels Concurrently

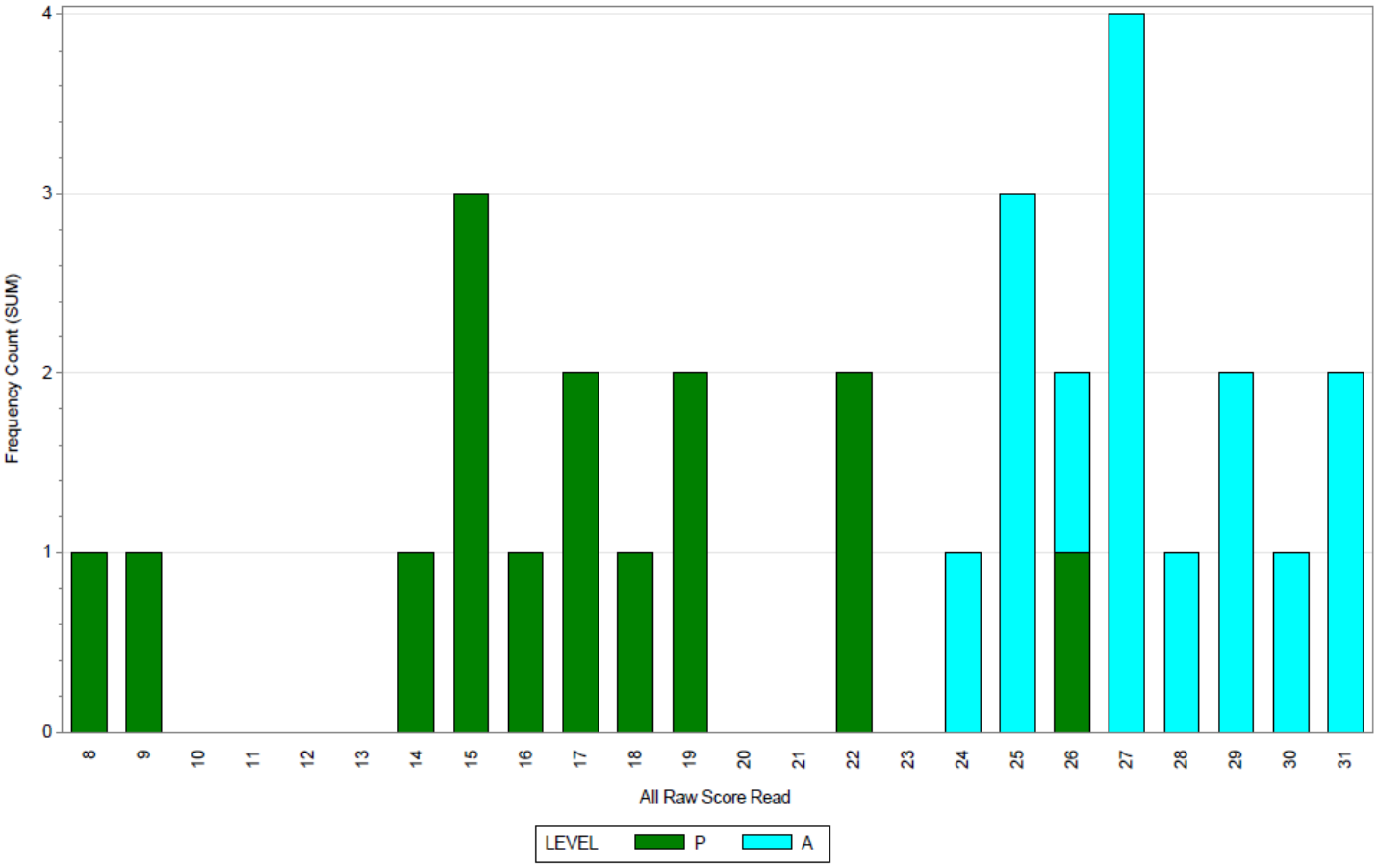
Round 2:



Proficient

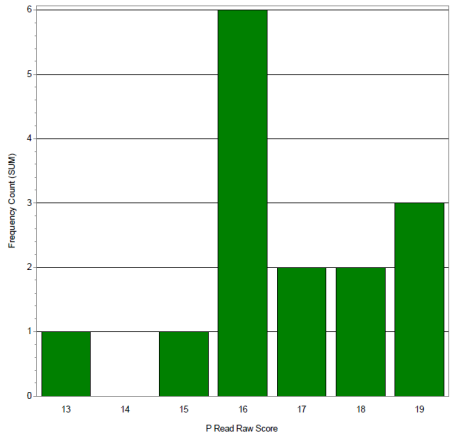


Advanced

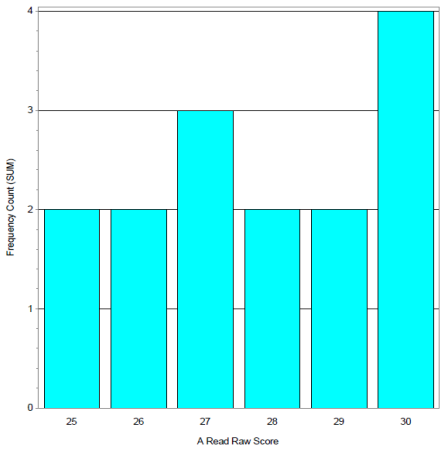


Both Performance Levels Concurrently

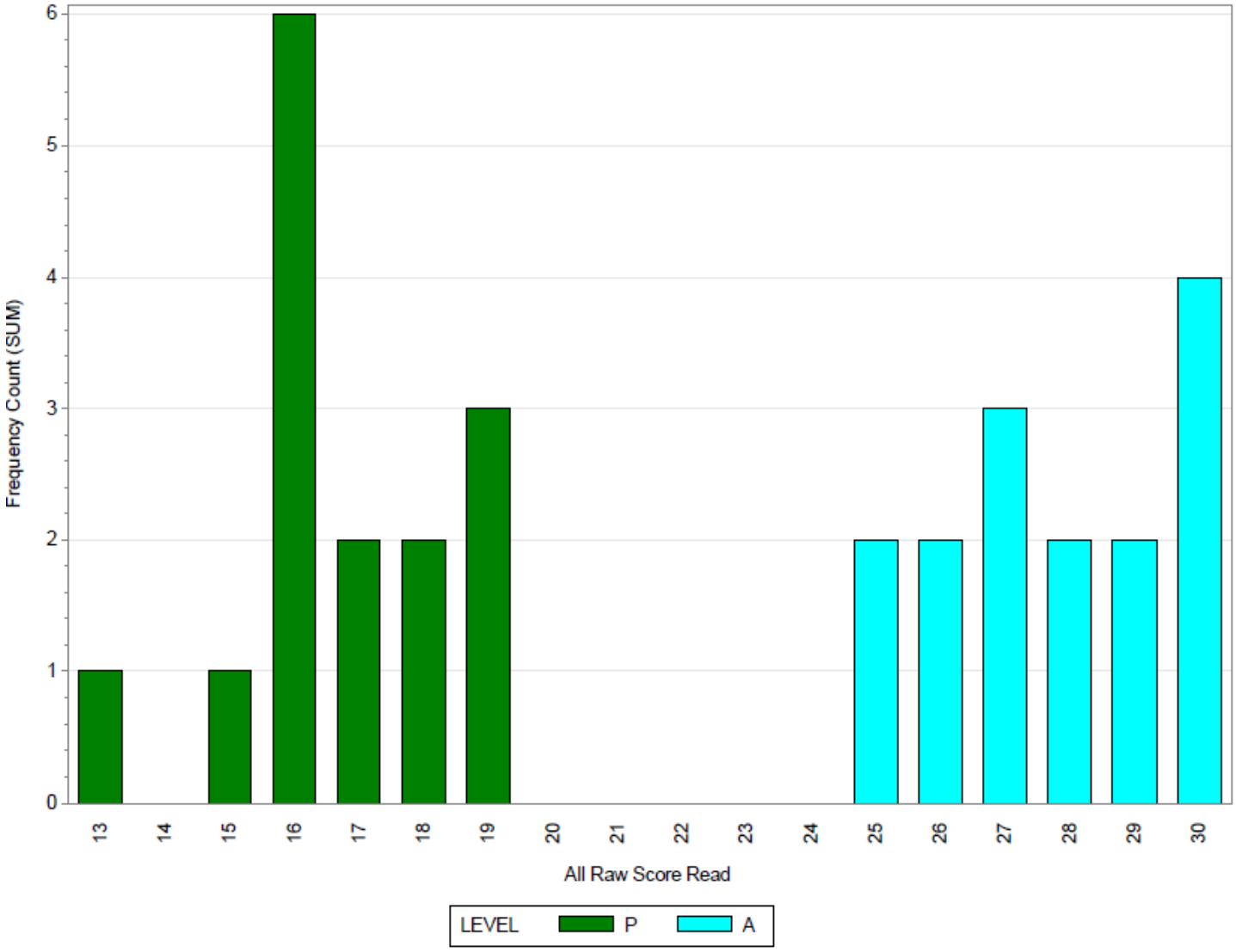
Round 3:



Proficient



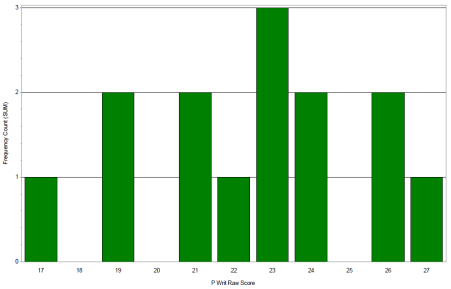
Advanced



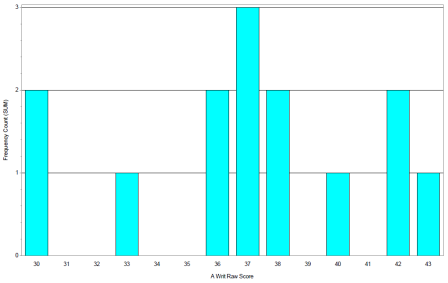
Both Performance Levels Concurrently

ELA Grade 6 - Writing

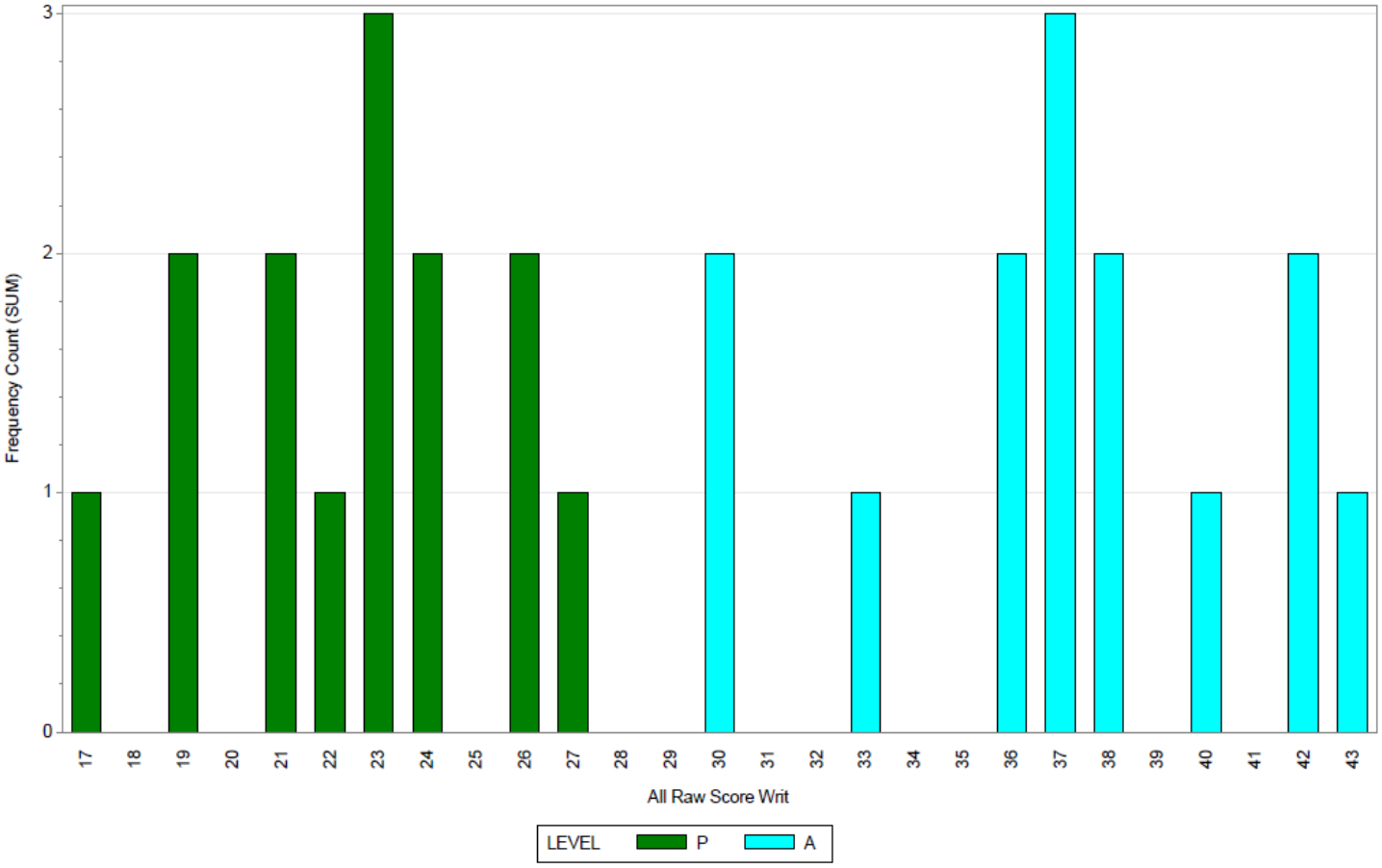
Round 1:



Proficient

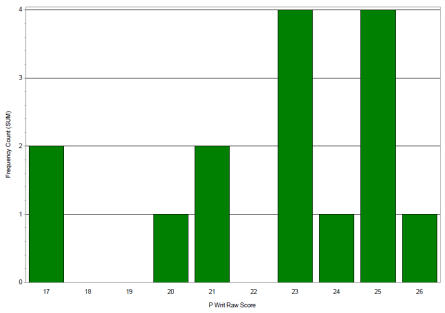


Advanced

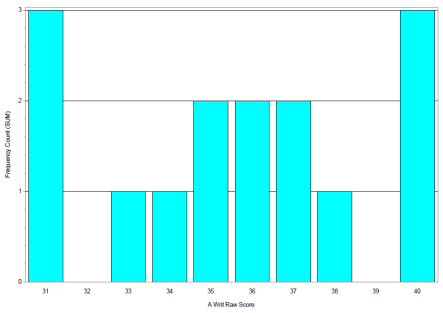


Both Performance Levels Concurrently

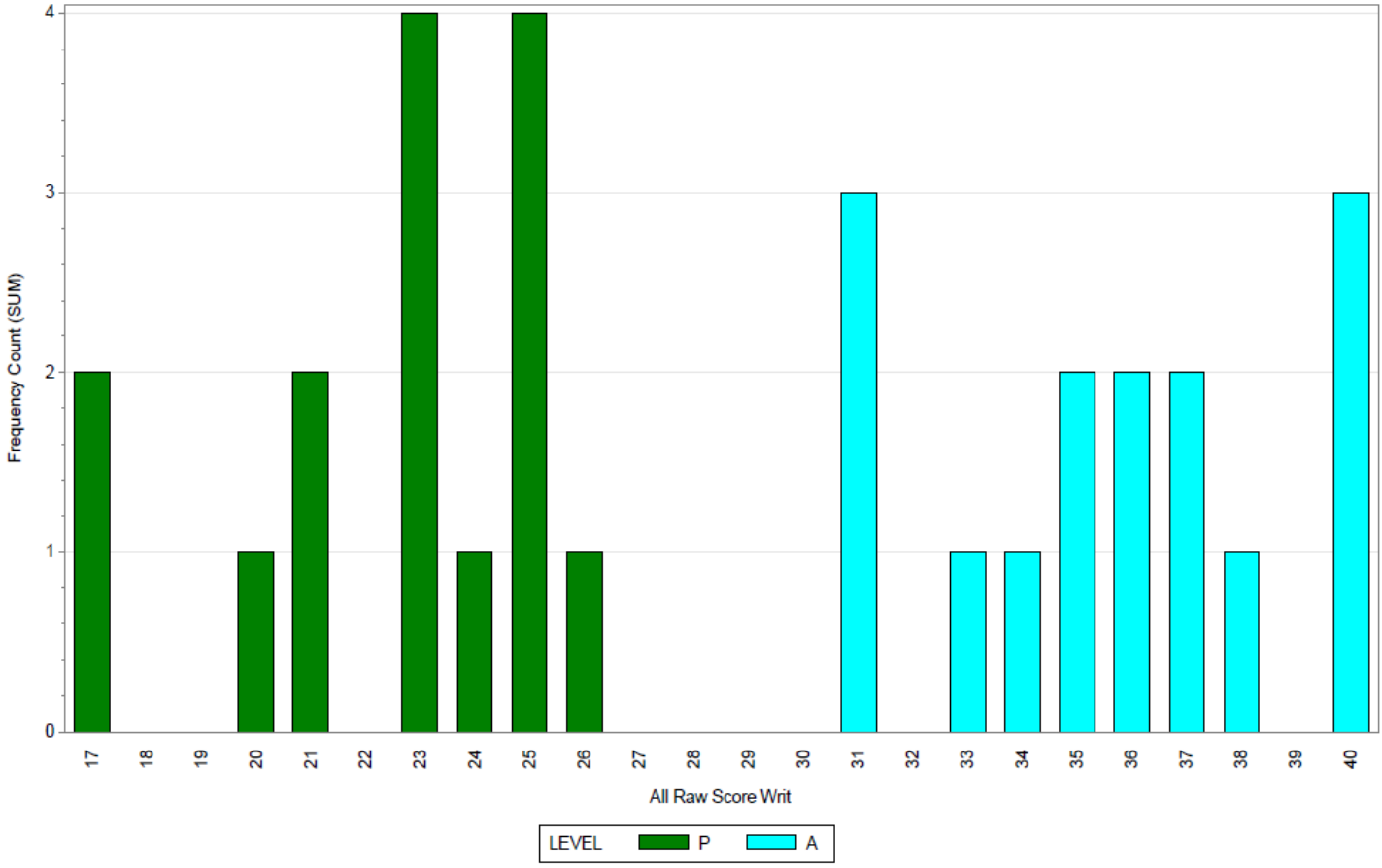
Round 2:



Proficient

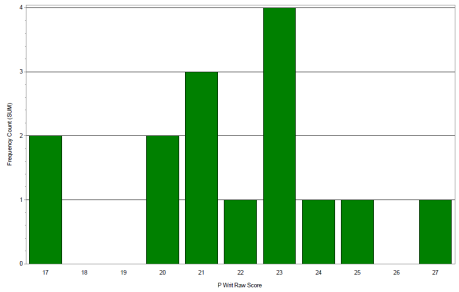


Advanced

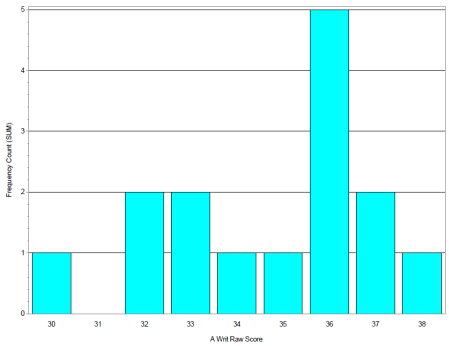


Both Performance Levels Concurrently

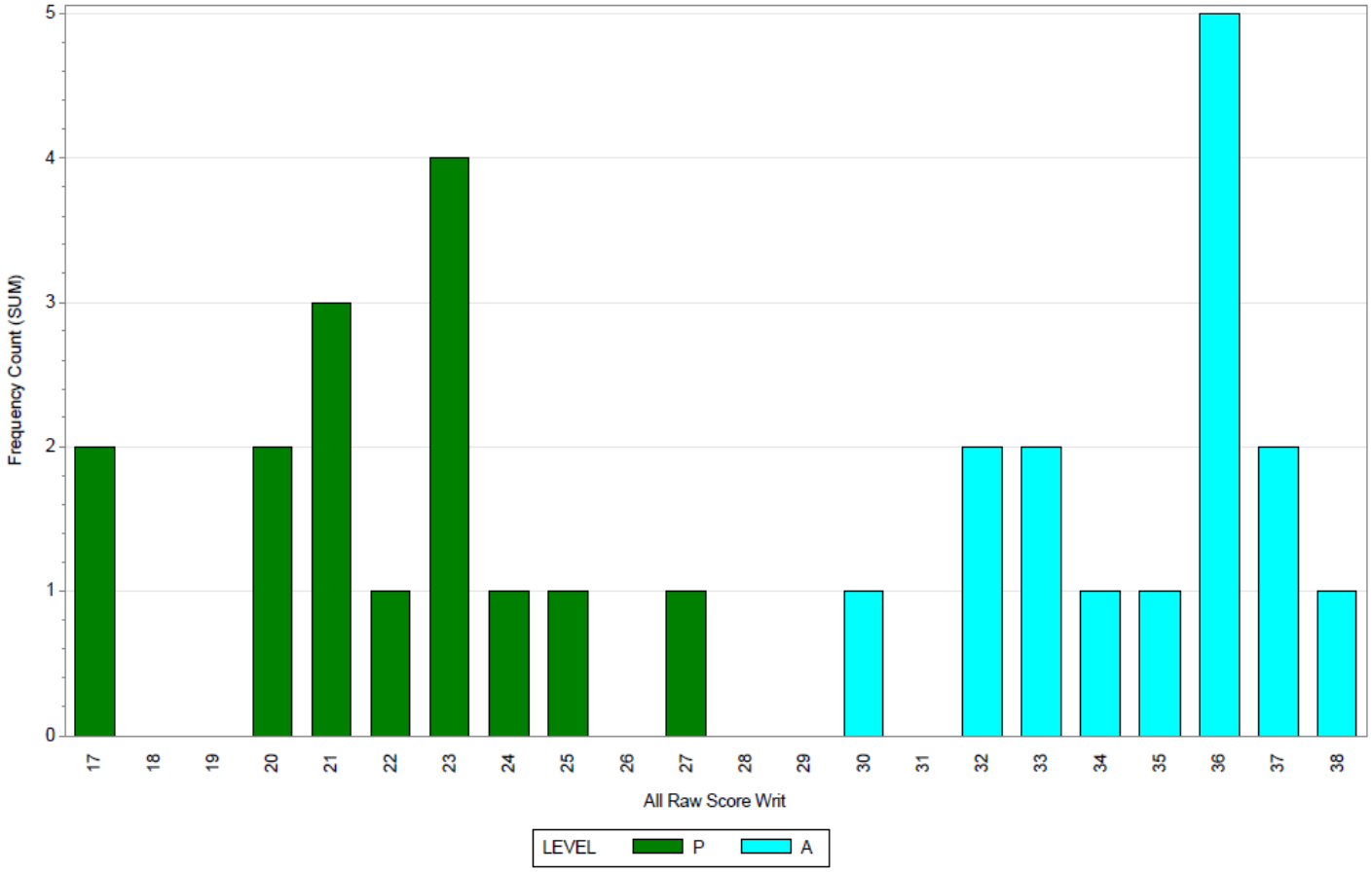
Round 3:



Proficient



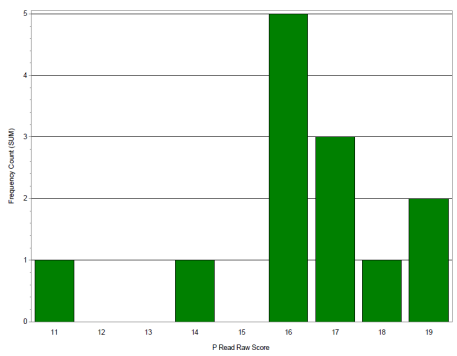
Advanced



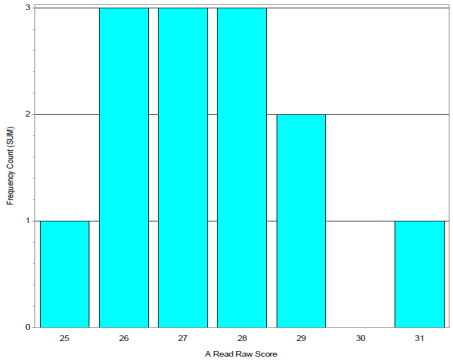
Both Performance Levels Concurrently

ELA Grade 7 - Reading

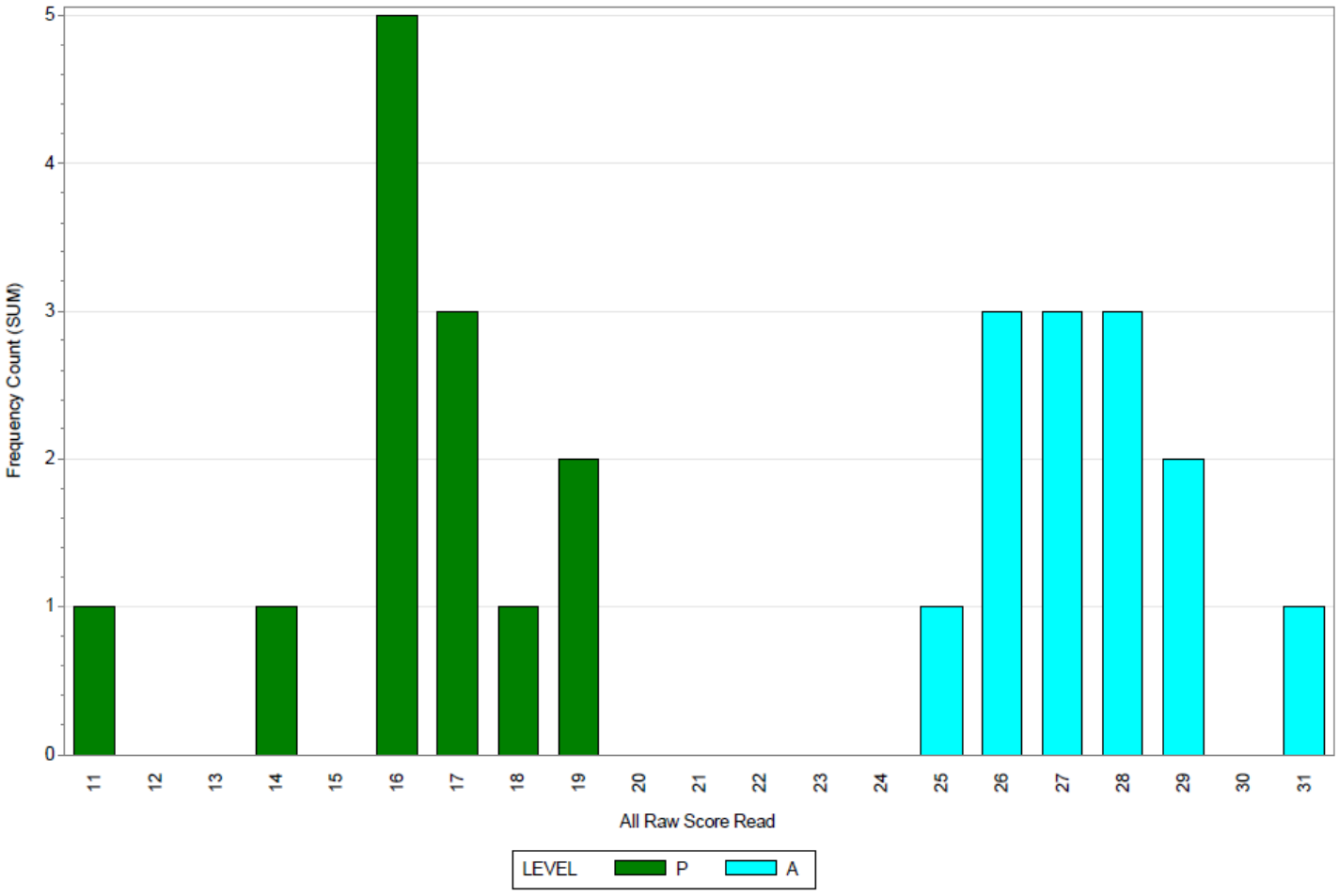
Round 1:



Proficient

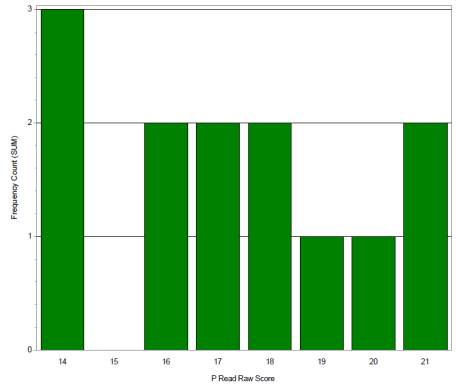


Advanced

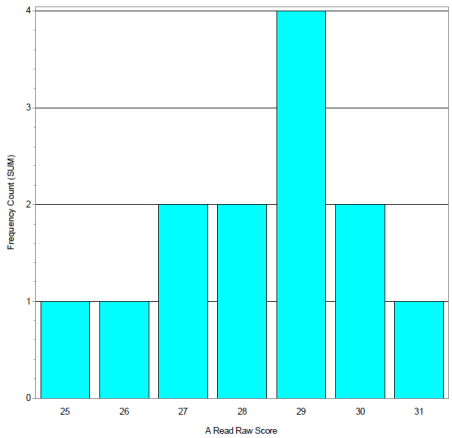


Both Performance Levels Concurrently

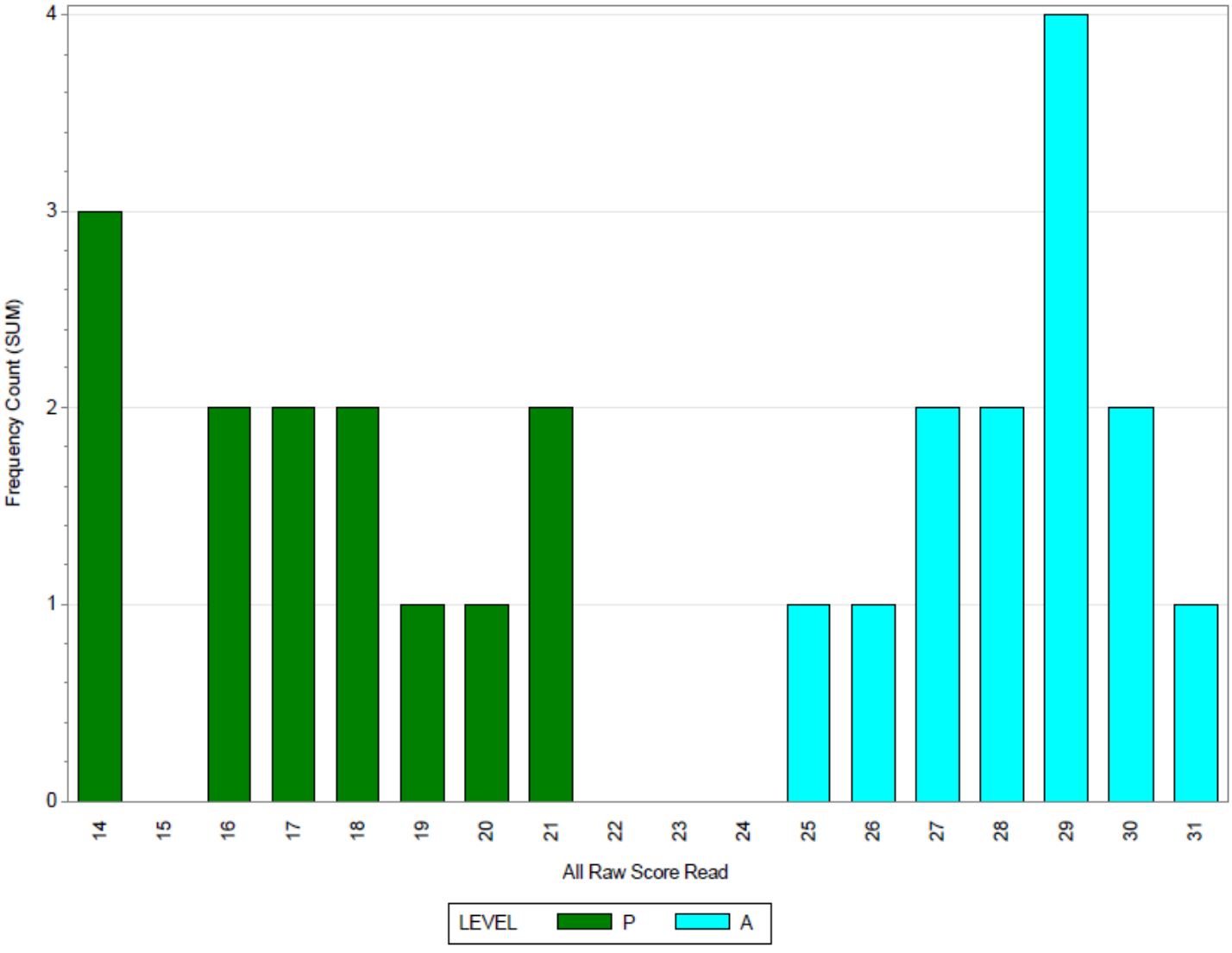
Round 2:



Proficient

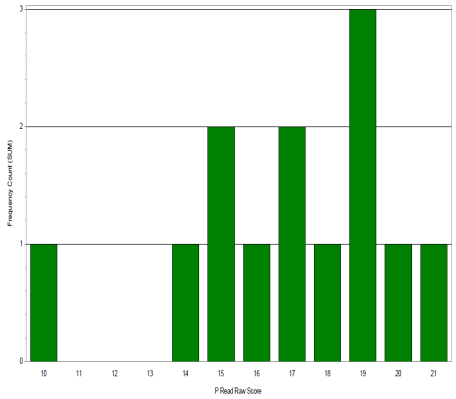


Advanced

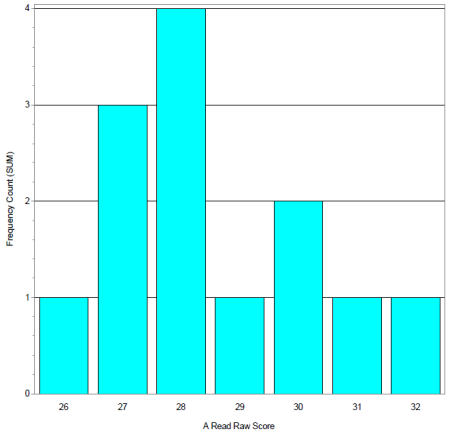


Both Performance Levels Concurrently

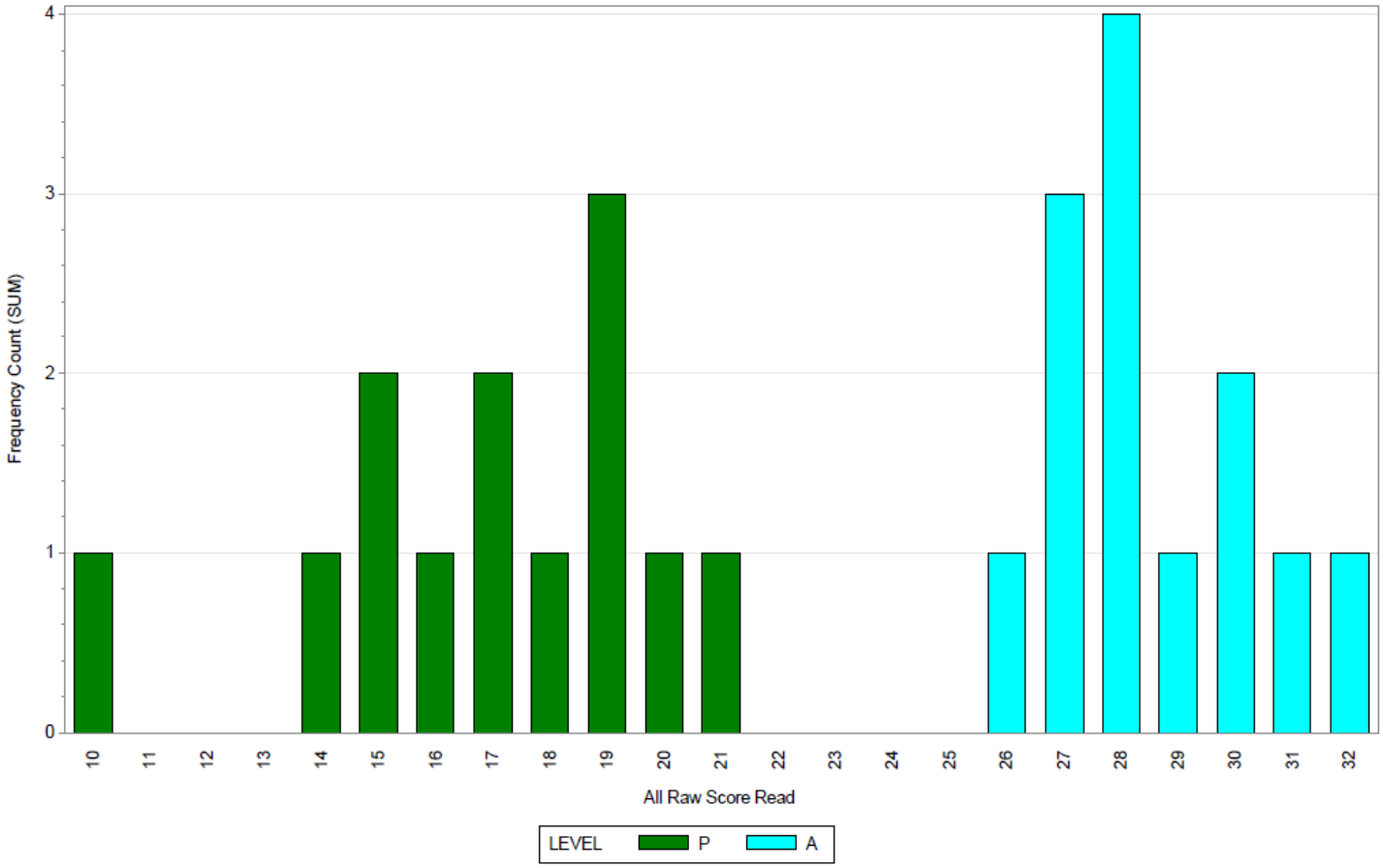
Round 3:



Proficient



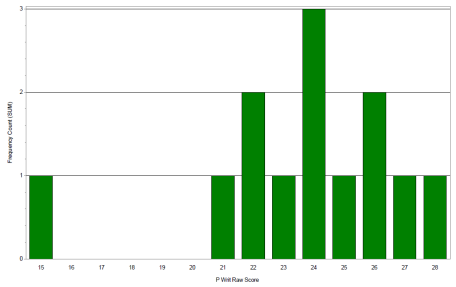
Advanced



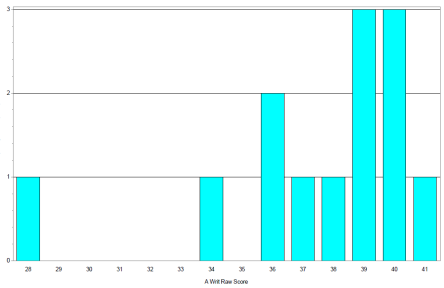
Both Performance Levels Concurrently

ELA Grade 7 - Writing

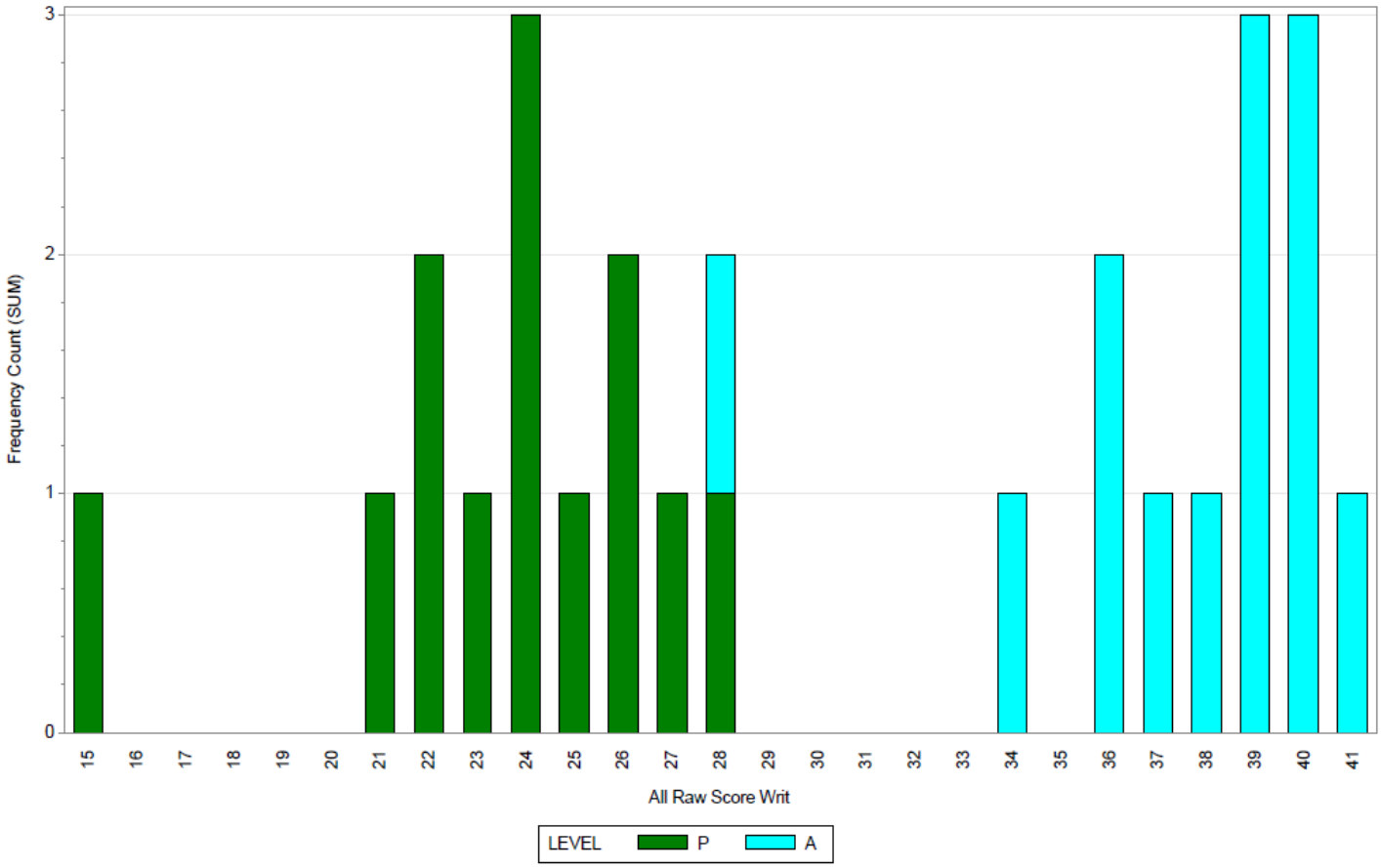
Round 1:



Proficient

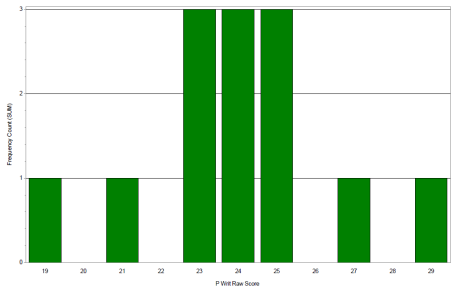


Advanced

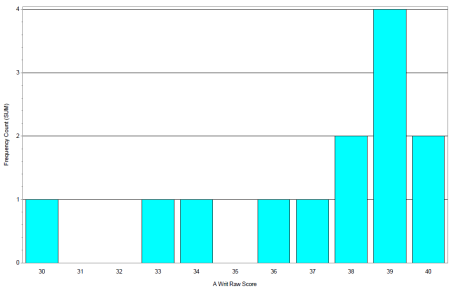


Both Performance Levels Concurrently

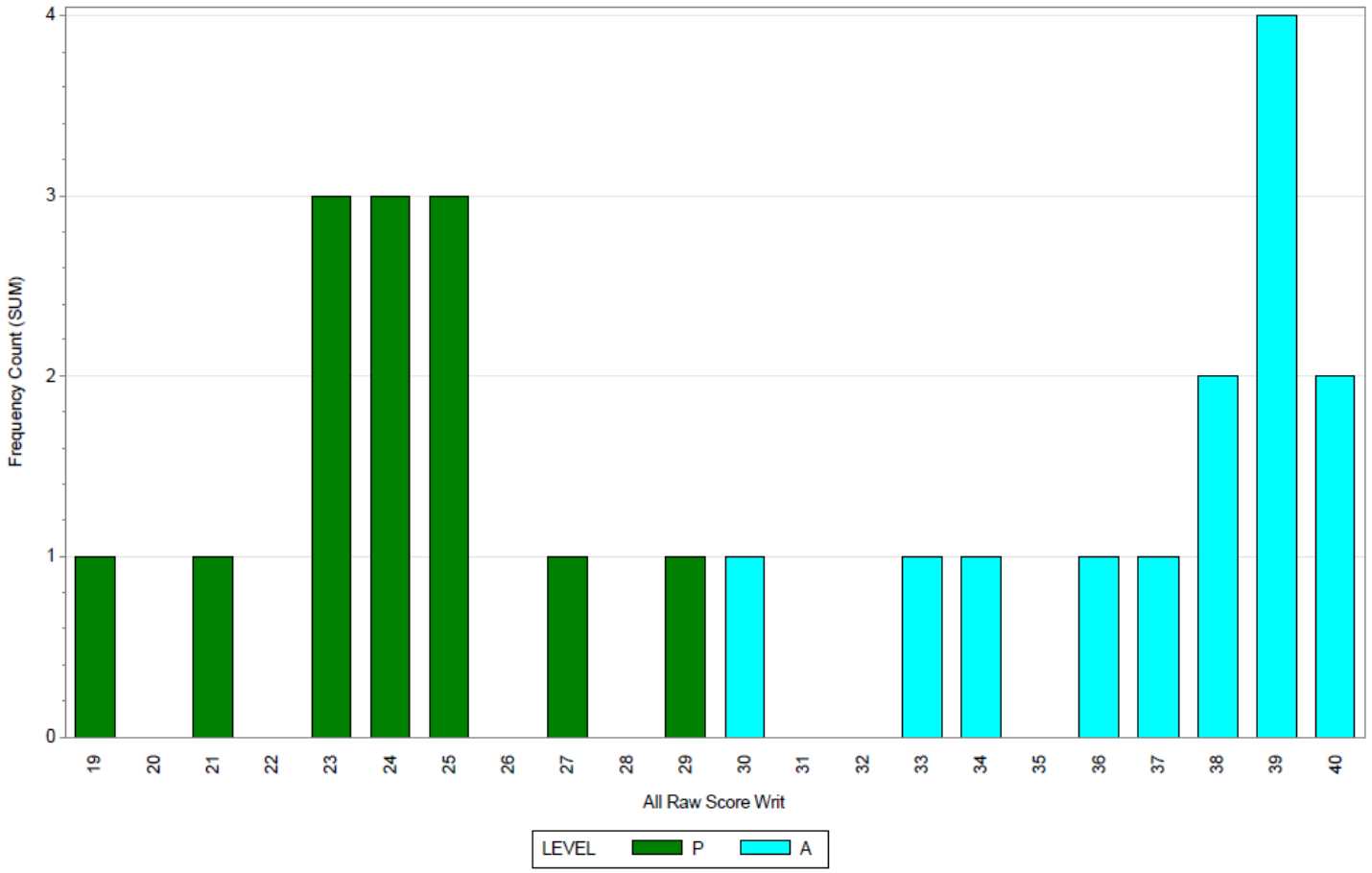
Round 2:



Proficient

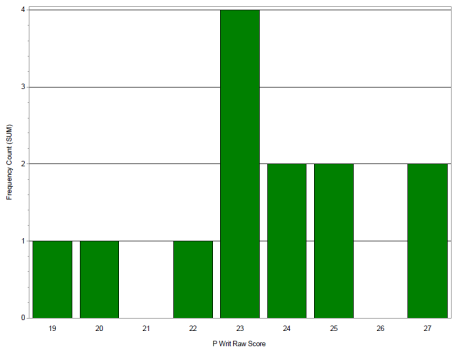


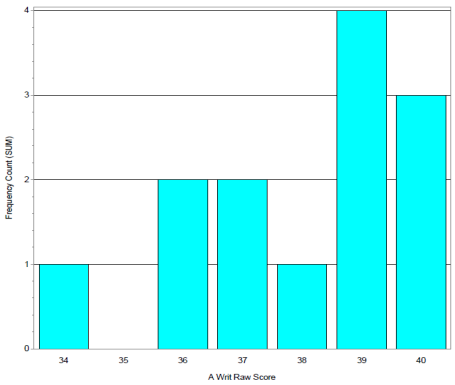
Advanced



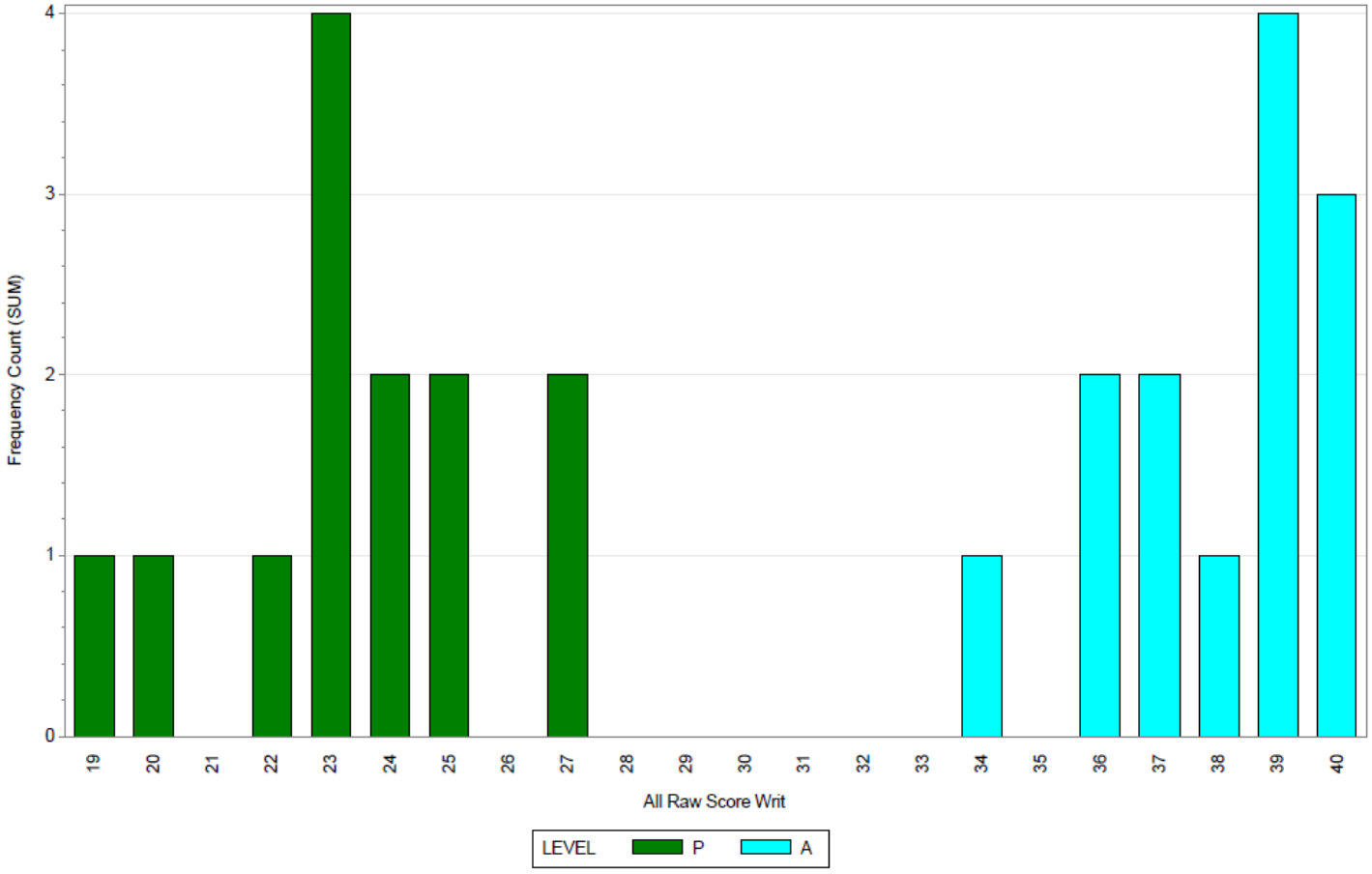
Both Performance Levels Concurrently

Round 3:





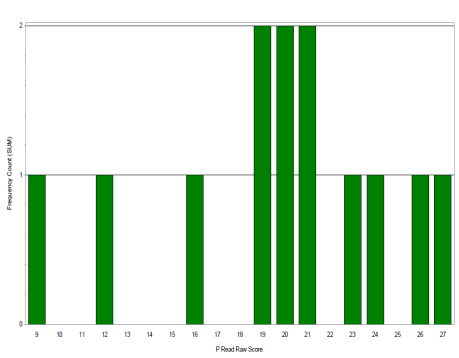
Proficient *Advanced*



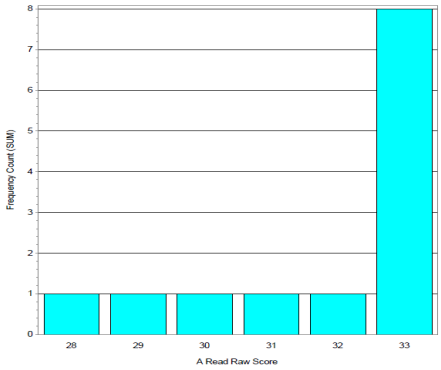
Both Performance Levels Concurrently

ELA Grade 8 - Reading

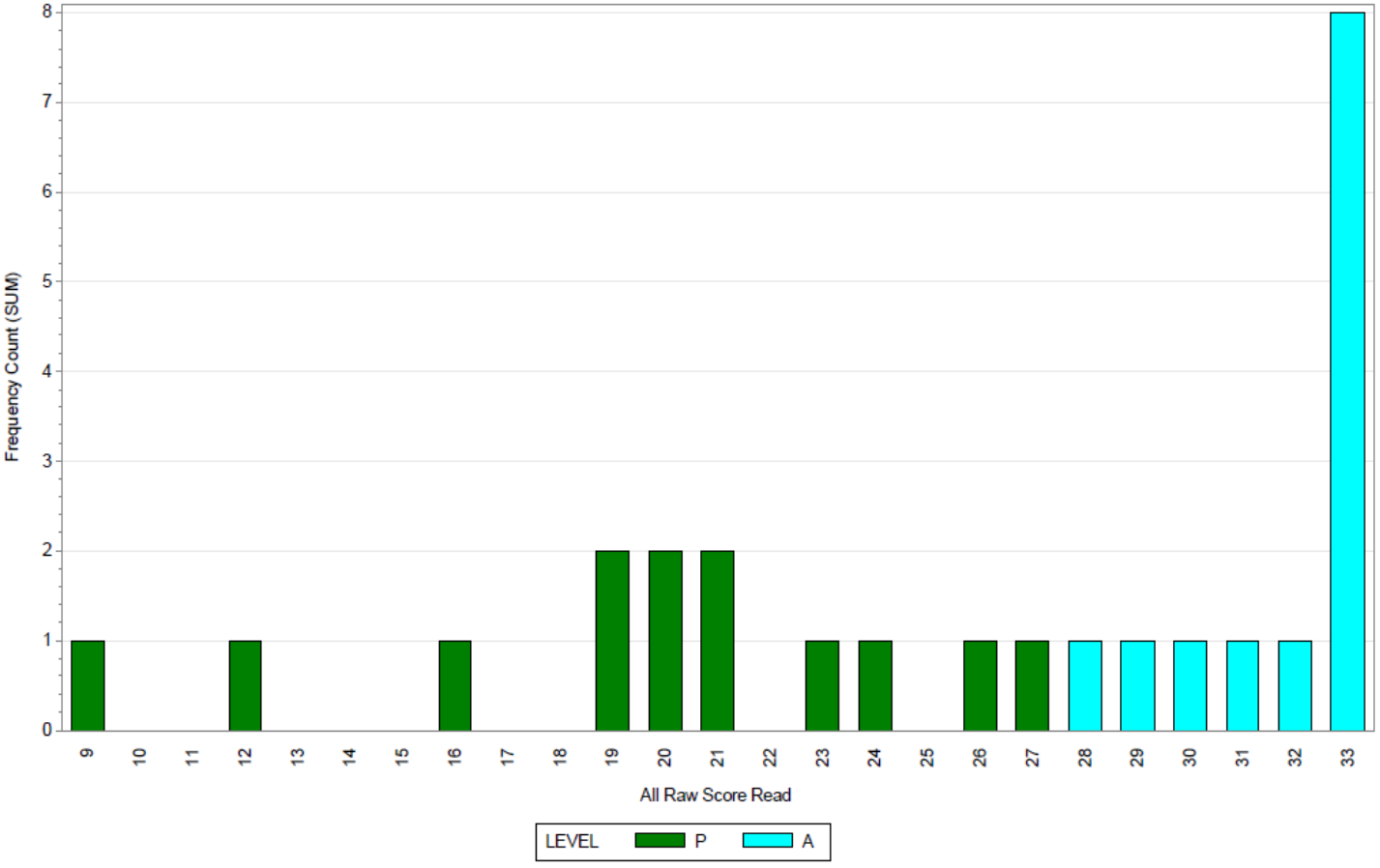
Round 1:



Proficient

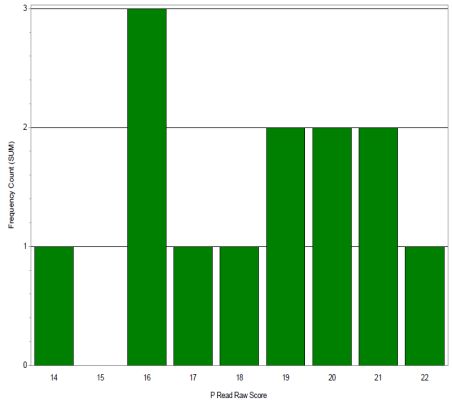


Advanced

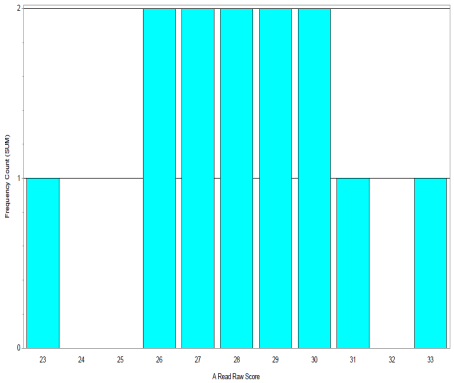


Both Performance Levels Concurrently

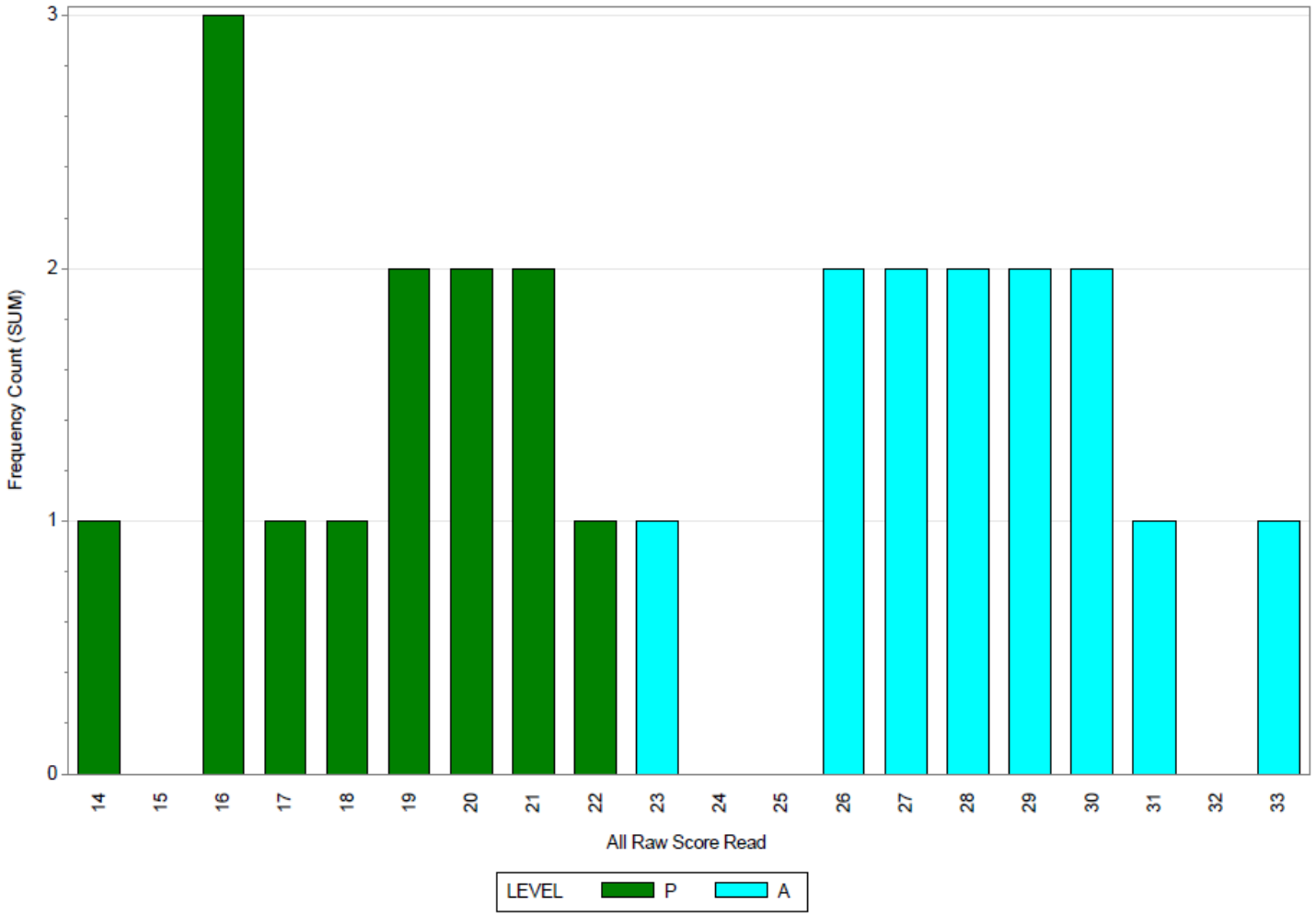
Round 2:



Proficient

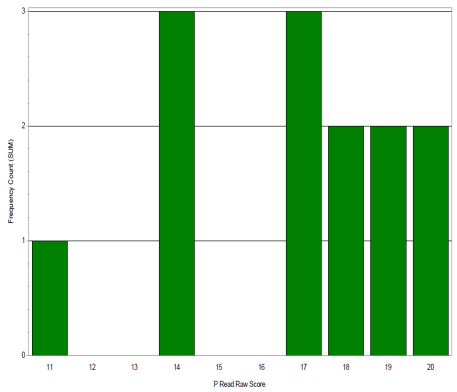


Advanced

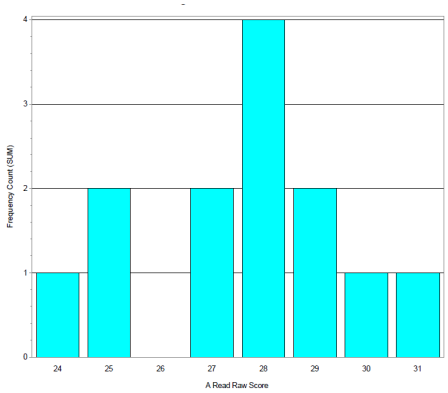


Both Performance Levels Concurrently

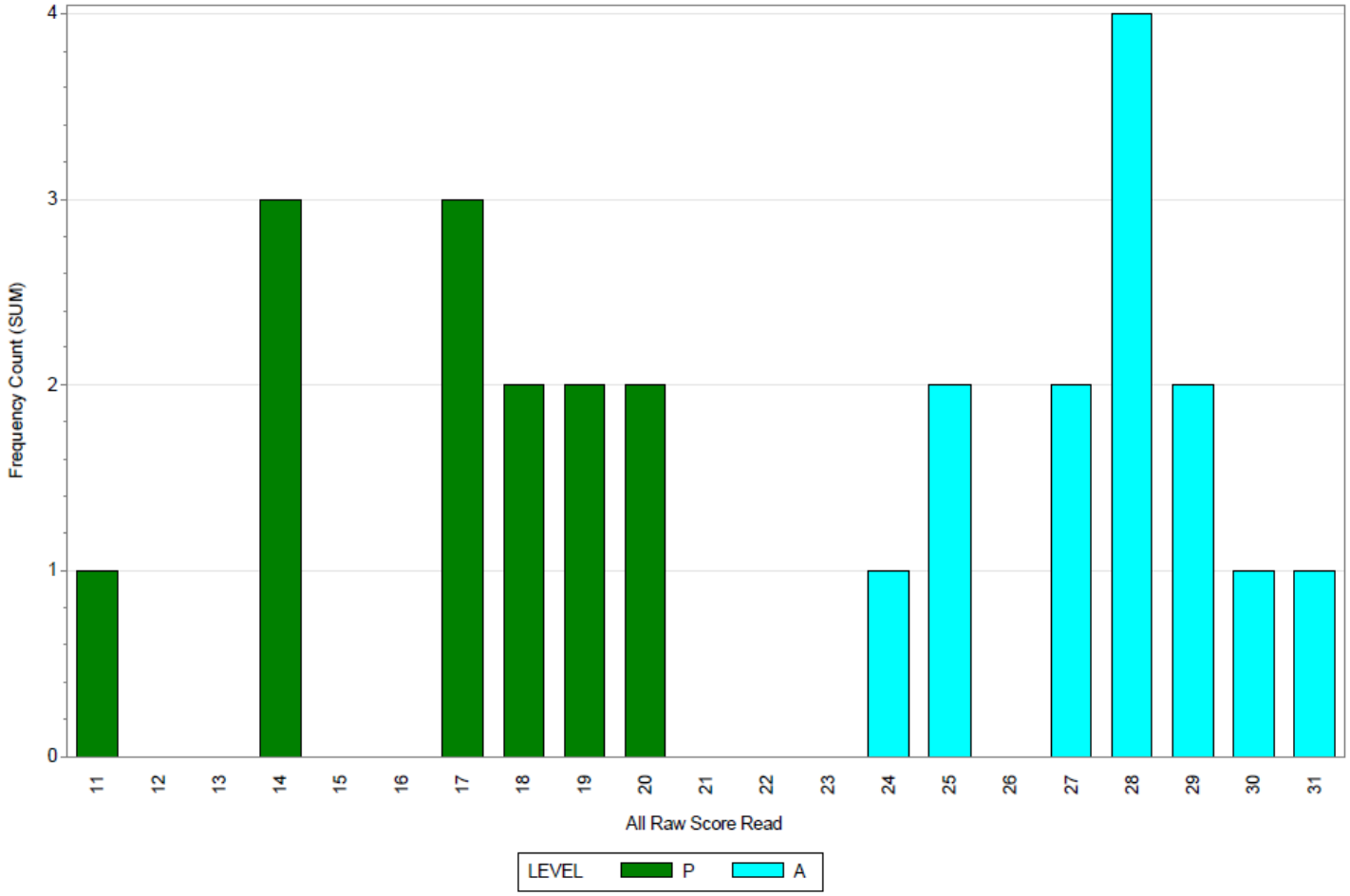
Round 3:



Proficient



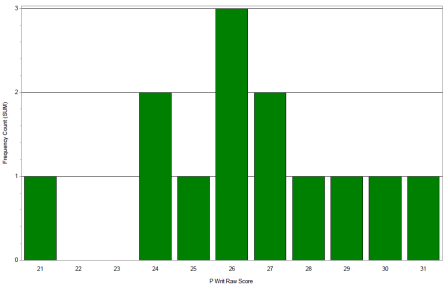
Advanced



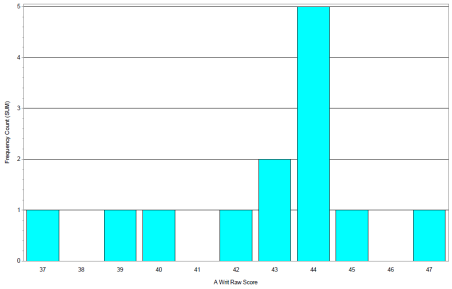
Both Performance Levels Concurrently

ELA Grade 8 - Writing

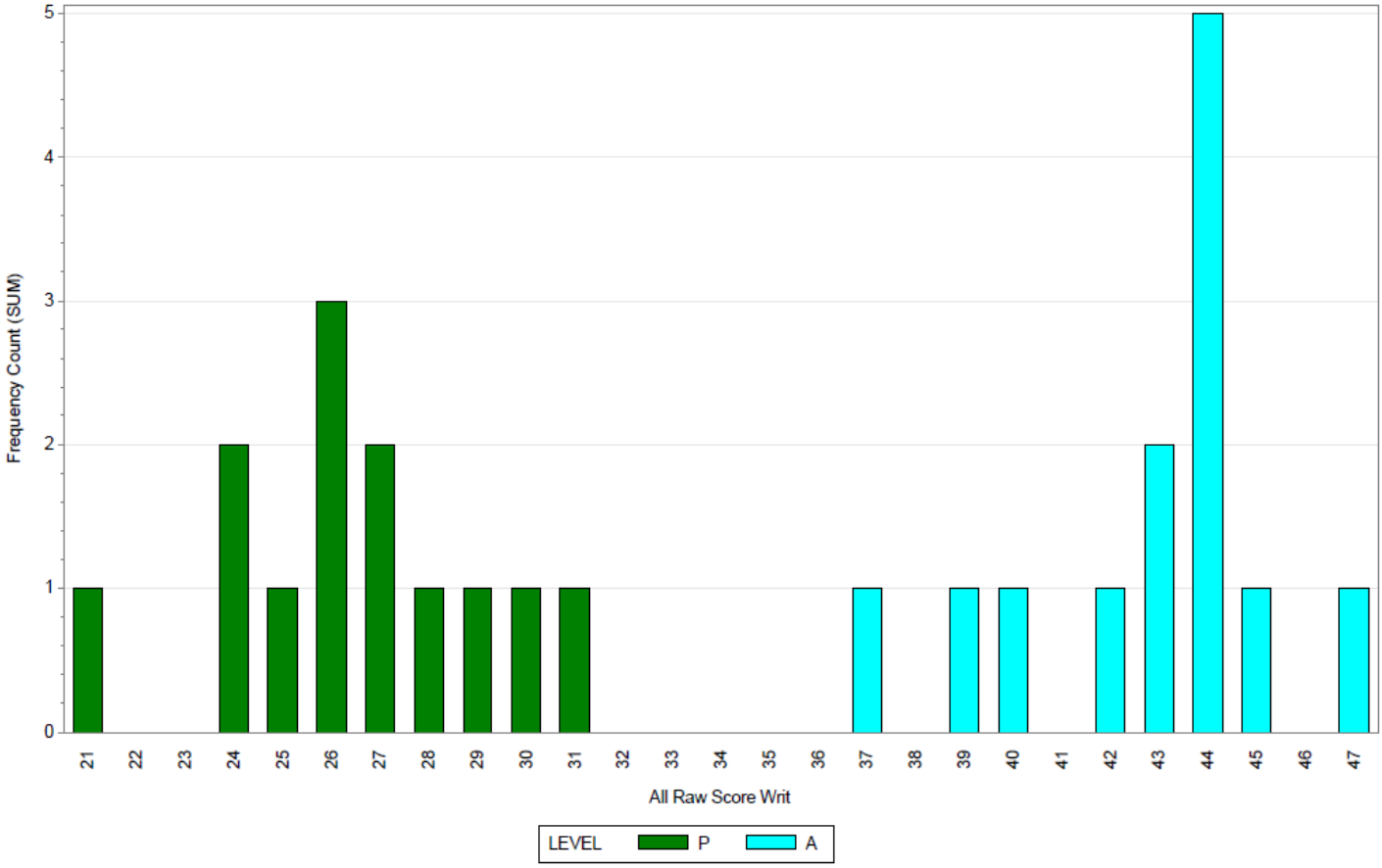
Round 1:



Proficient

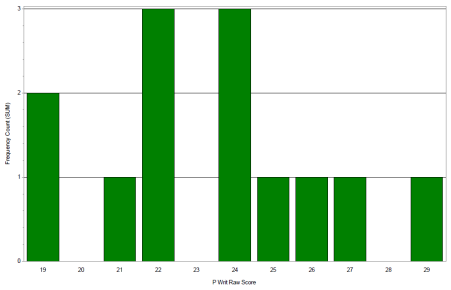


Advanced

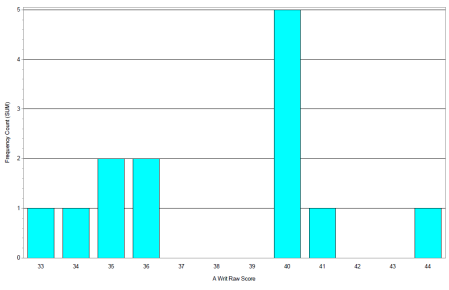


Both Performance Levels Concurrently

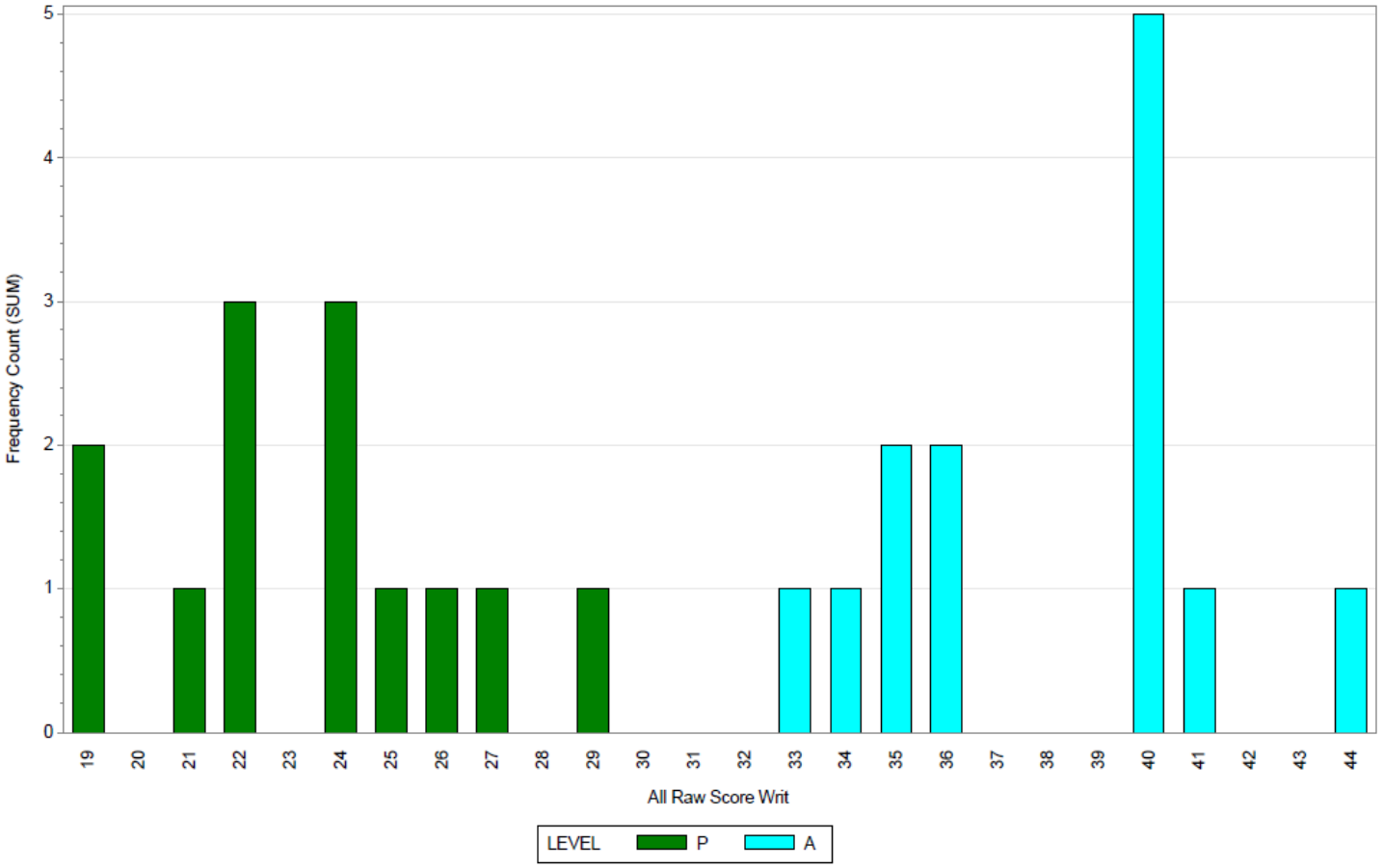
Round 2:



Proficient

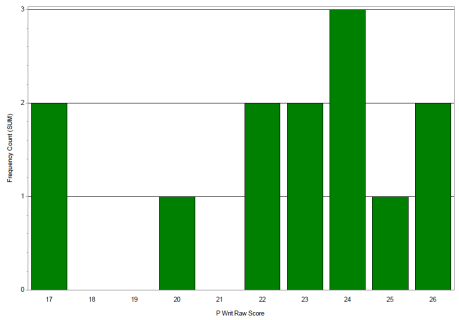


Advanced

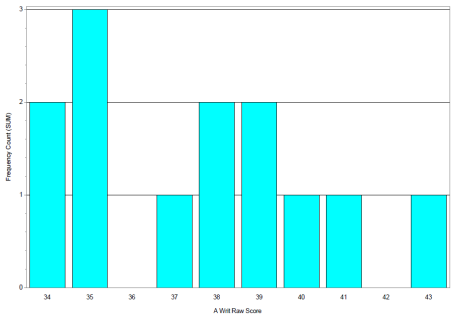


Both Performance Levels Concurrently

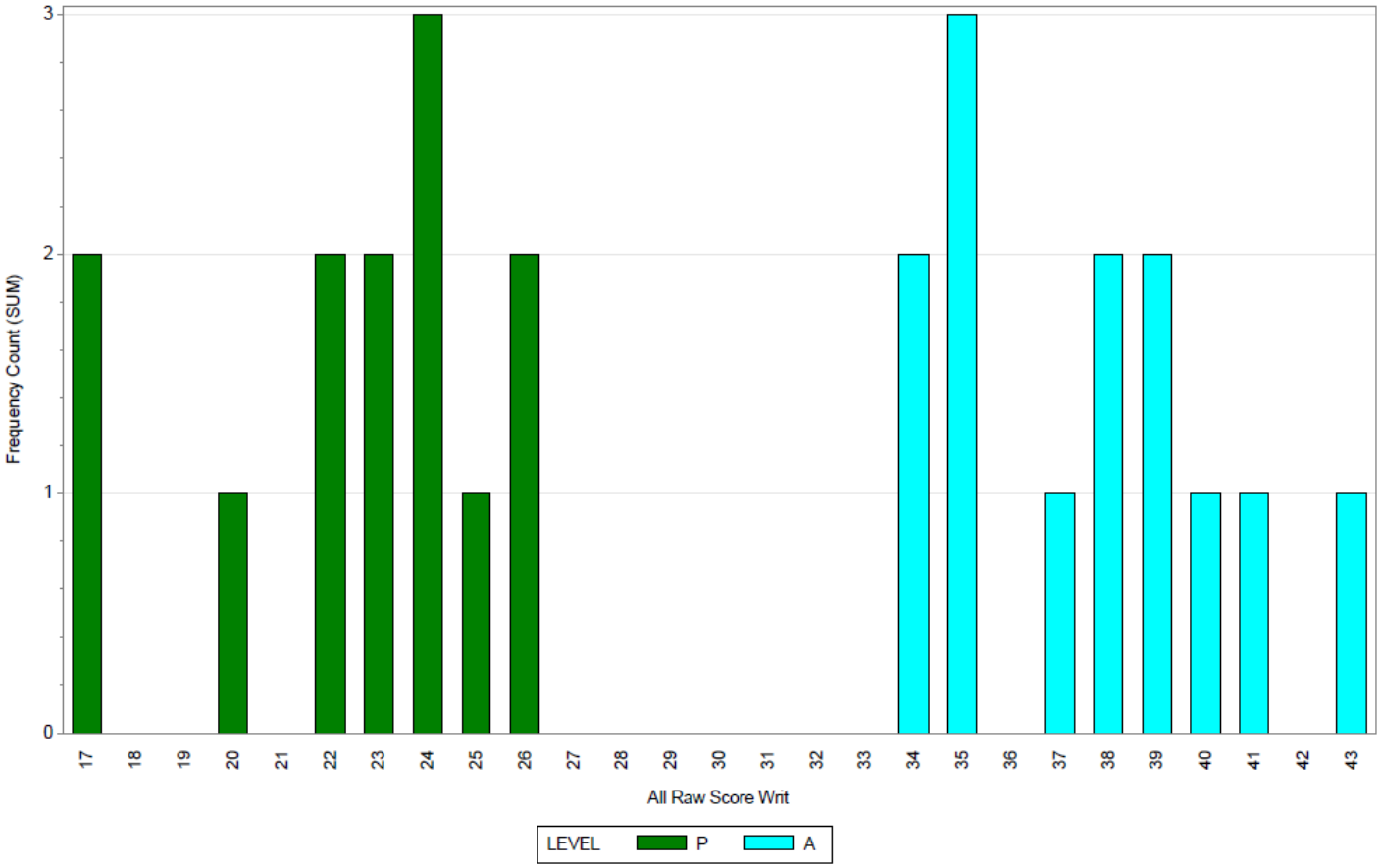
Round 3:



Proficient



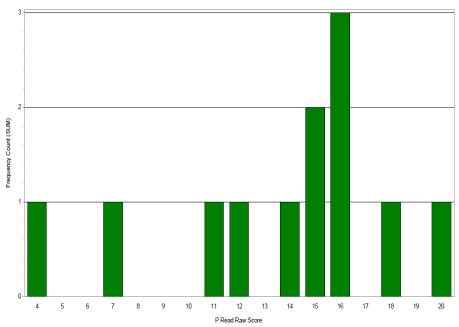
Advanced



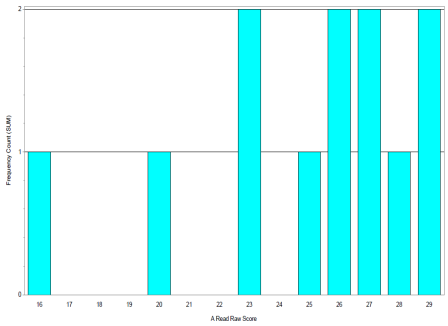
Both Performance Levels Concurrently

ELA Grade 9 - Reading

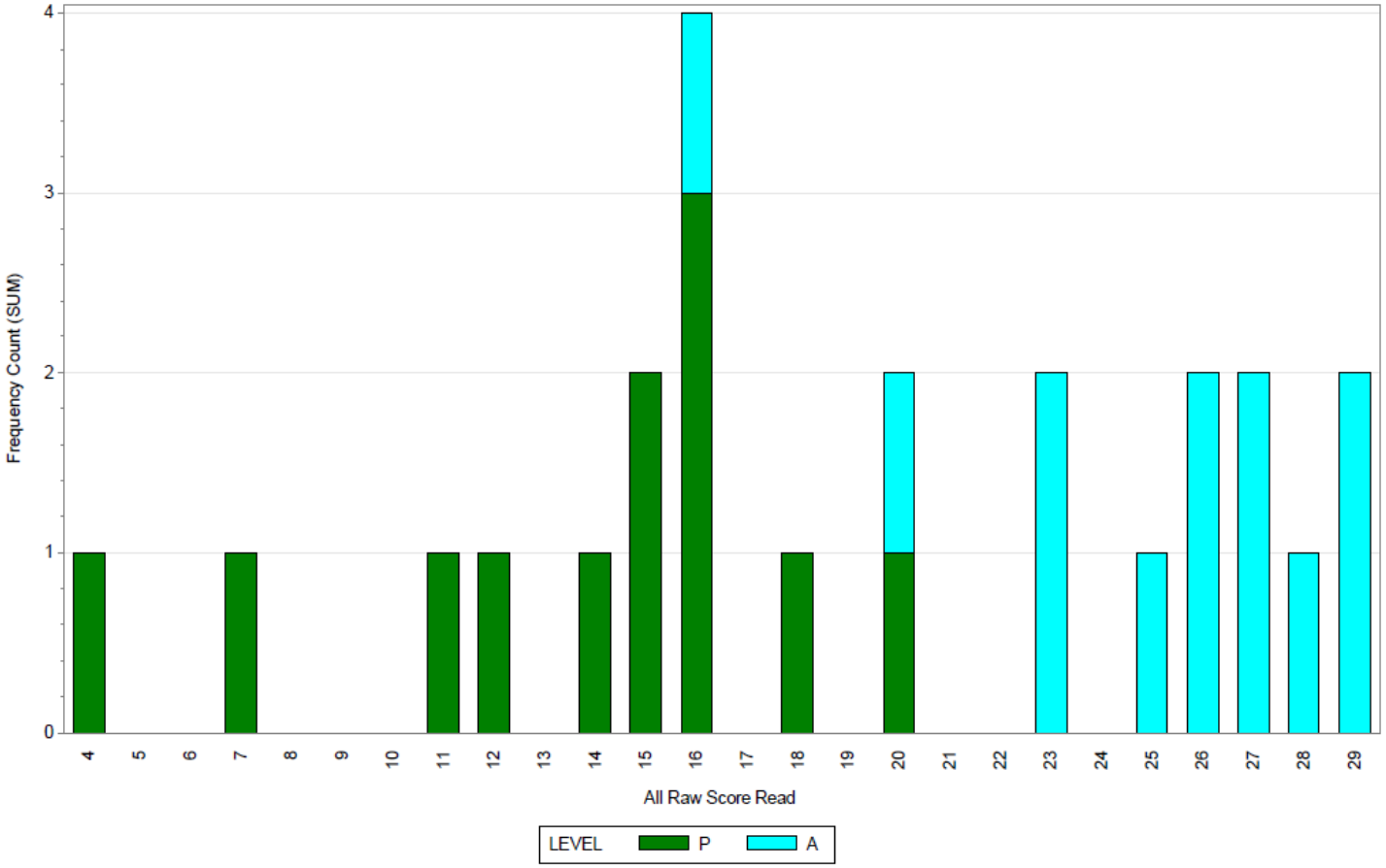
Round 1:



Proficient

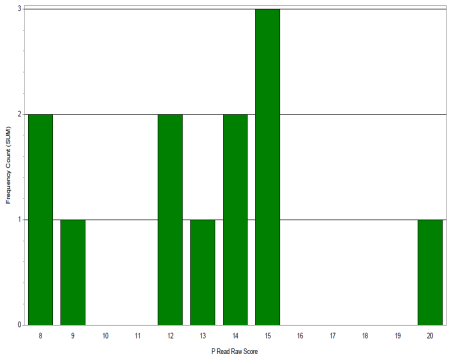


Advanced

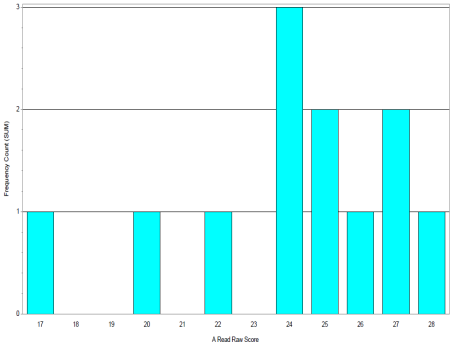


Both Performance Levels Concurrently

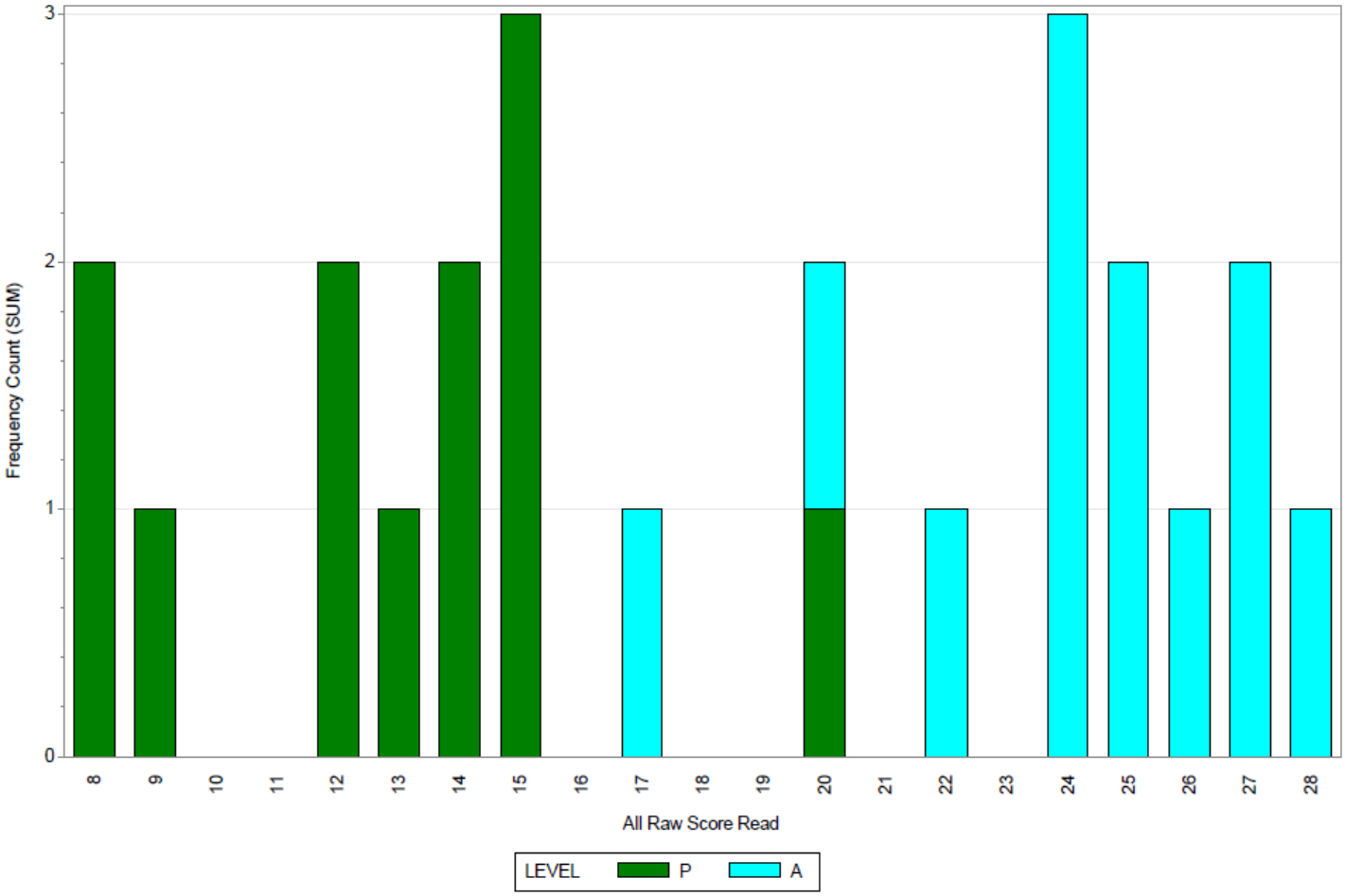
Round 2:



Proficient

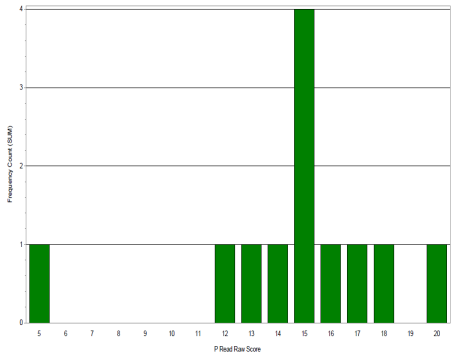


Advanced

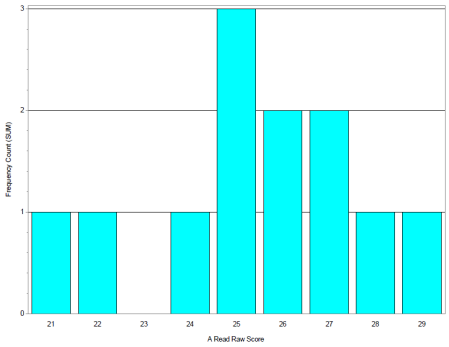


Both Performance Levels Concurrently

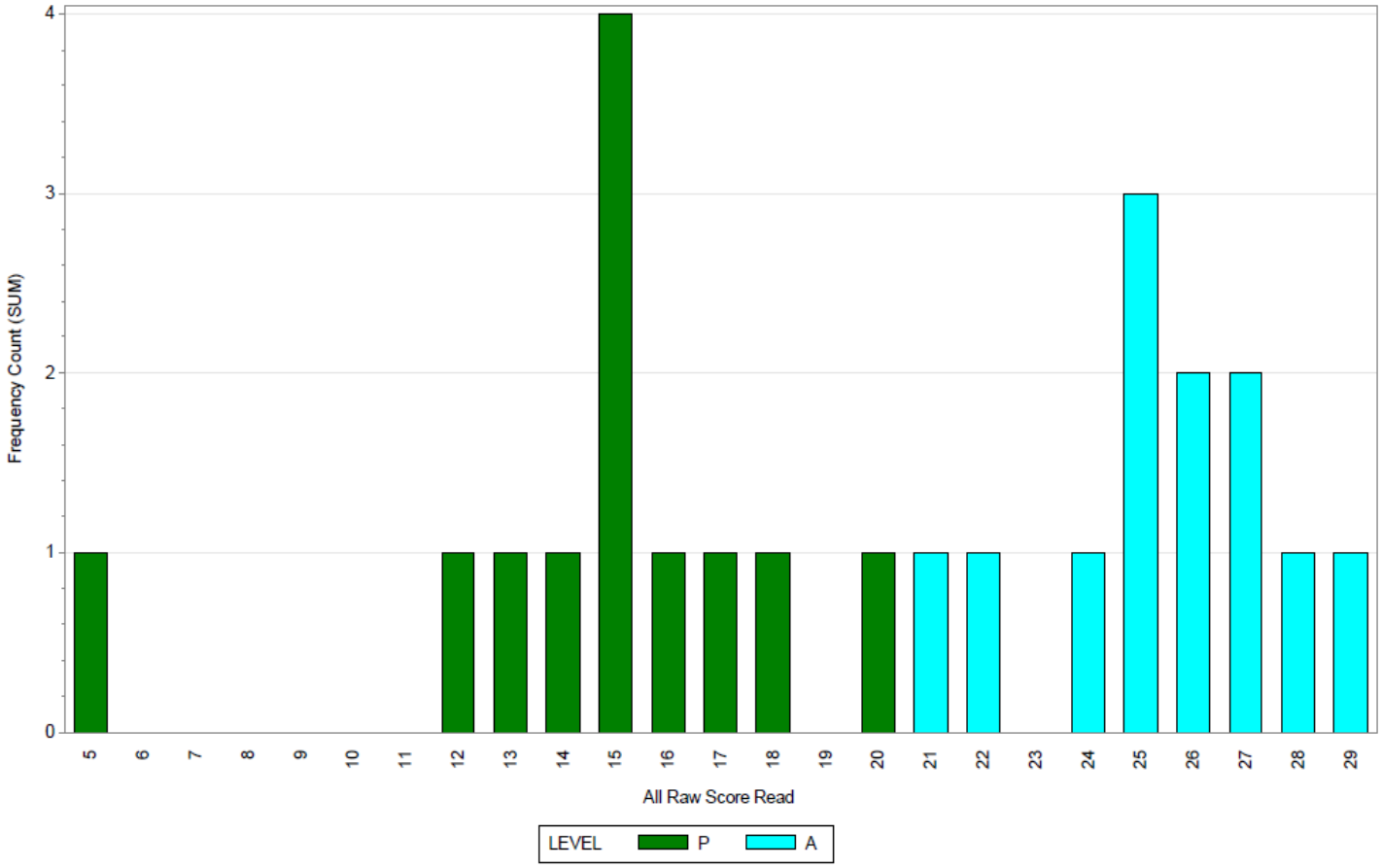
Round 3:



Proficient



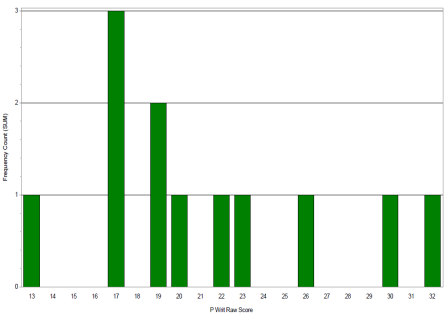
Advanced



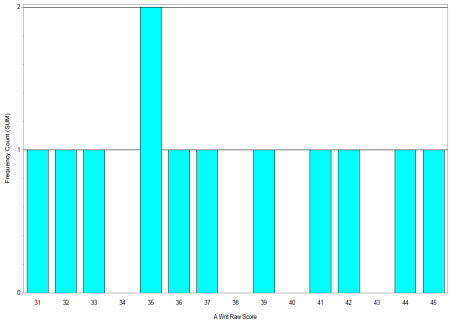
Both Performance Levels Concurrently

ELA Grade 9 - Writing

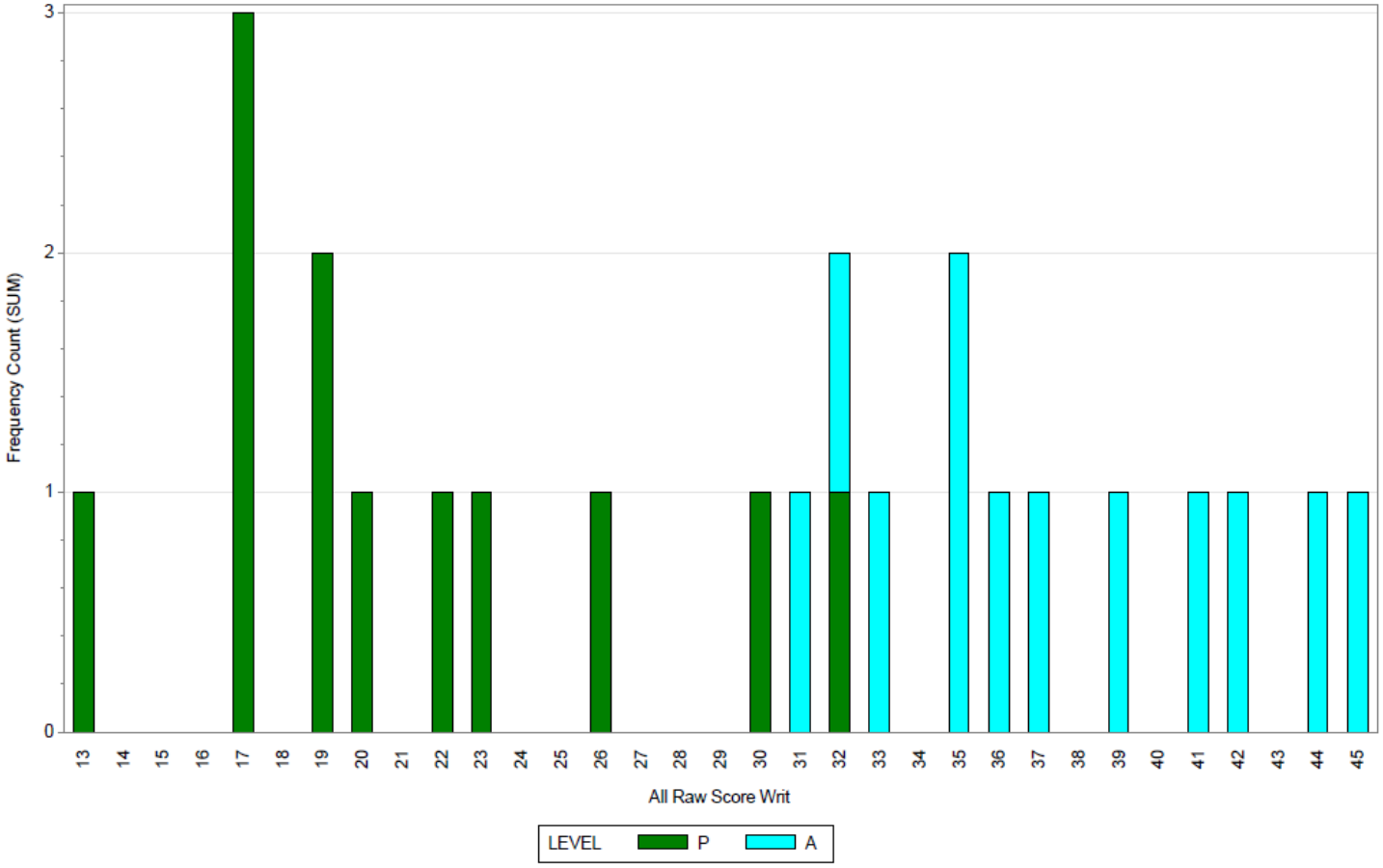
Round 1:



Proficient

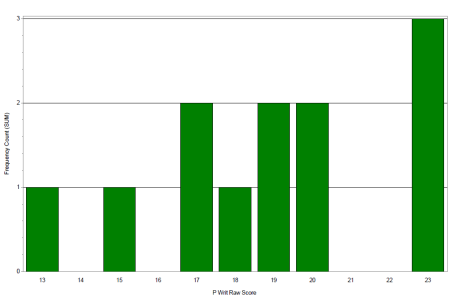


Advanced

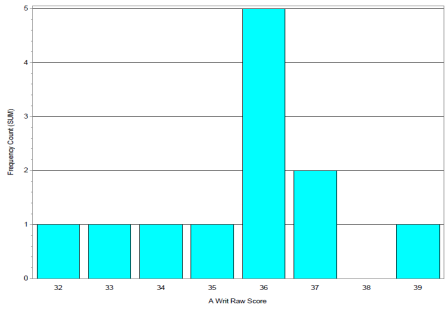


Both Performance Levels Concurrently

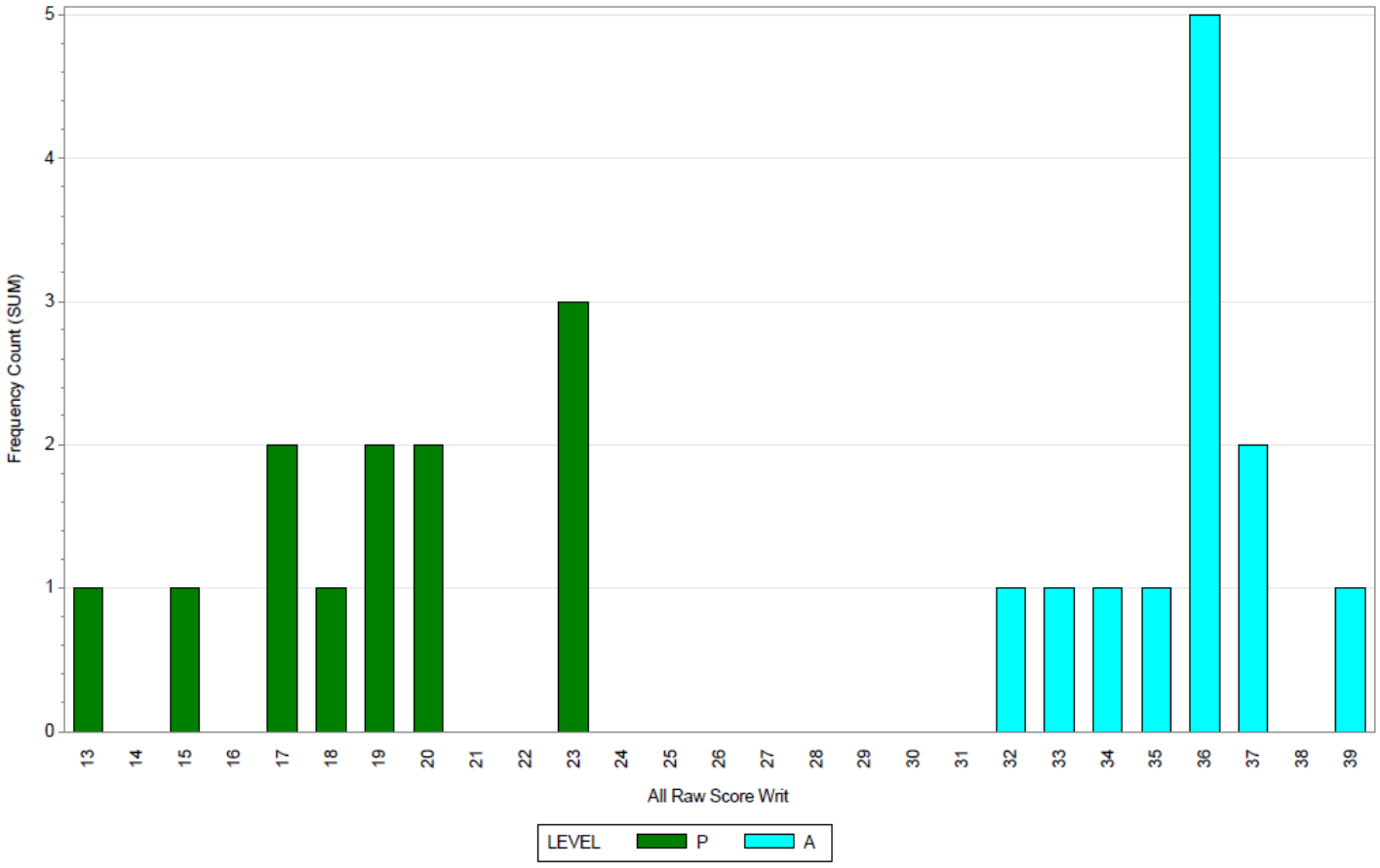
Round 2:



Proficient

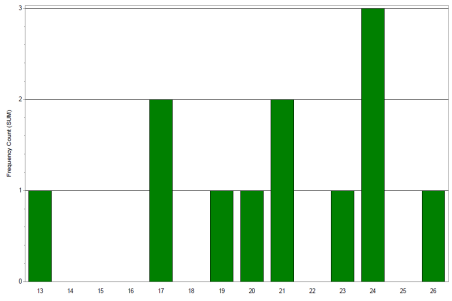


Advanced

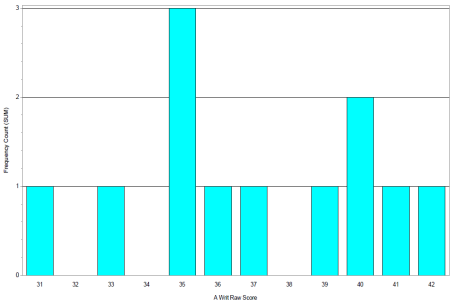


Both Performance Levels Concurrently

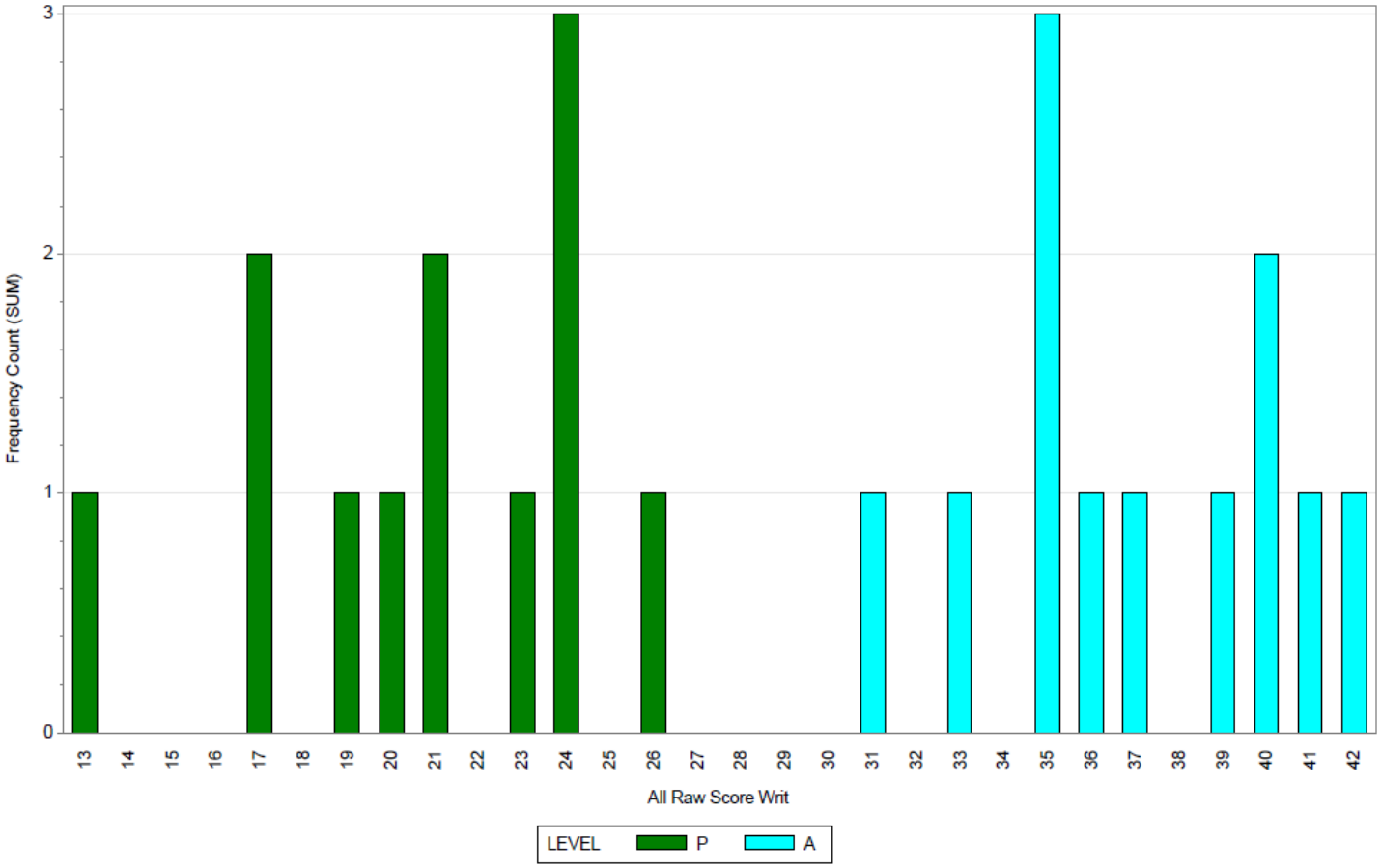
Round 3:



Proficient



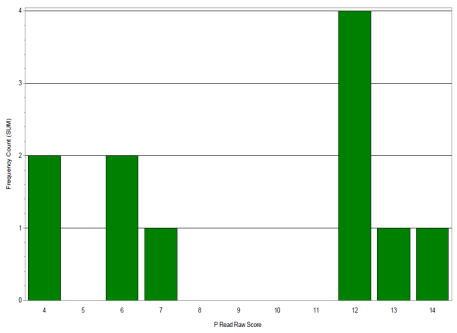
Advanced



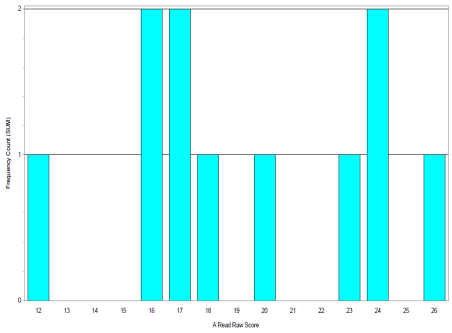
Both Performance Levels Concurrently

ELA Grade 10 - Reading

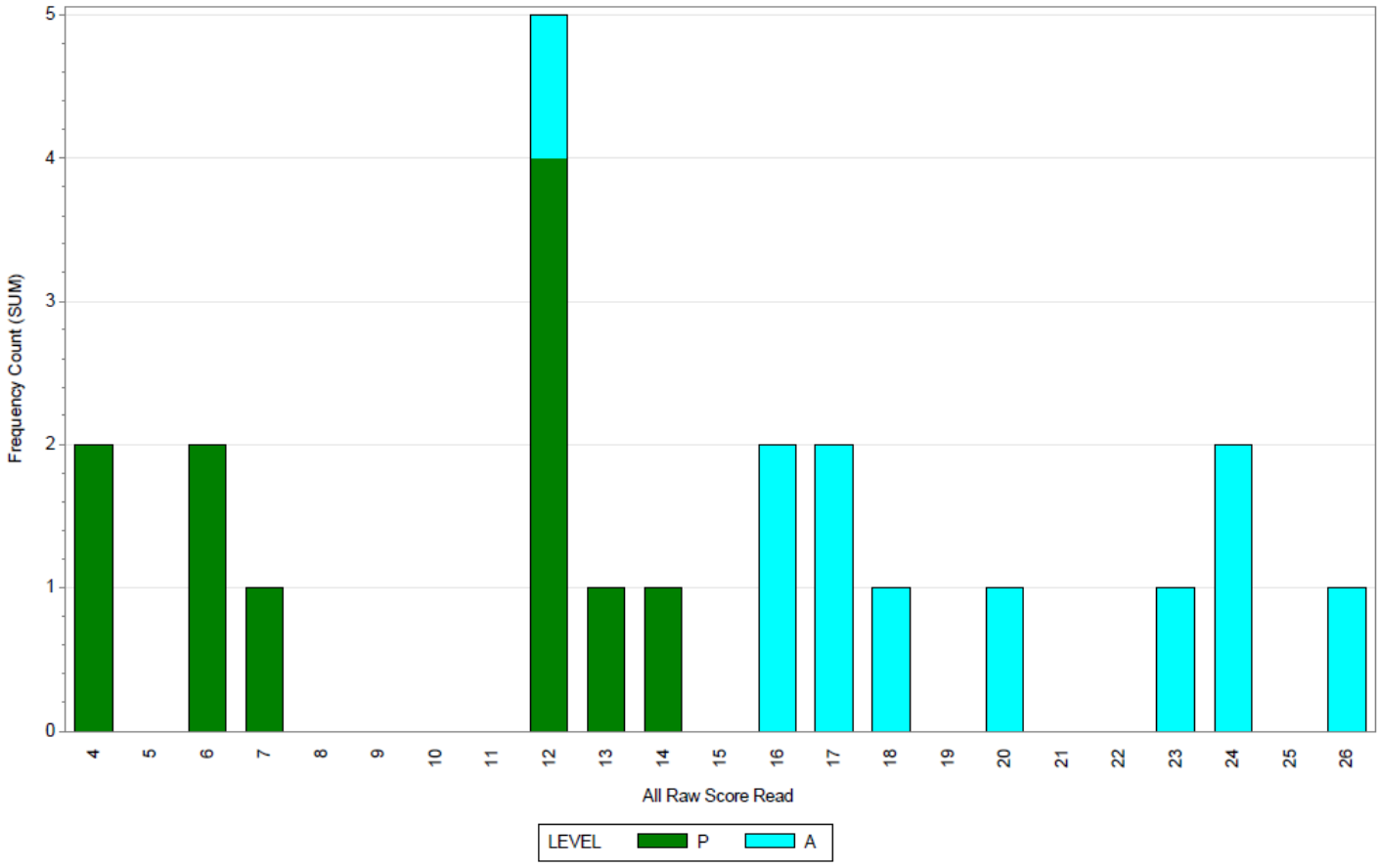
Round 1:



Proficient

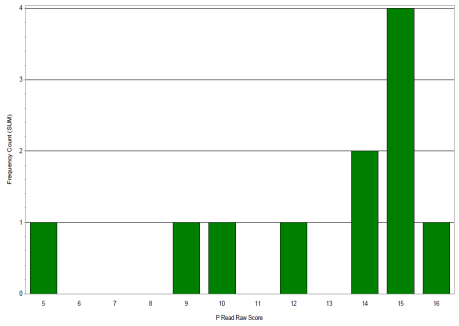


Advanced

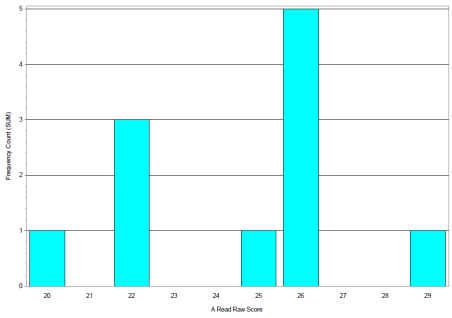


Both Performance Levels Concurrently

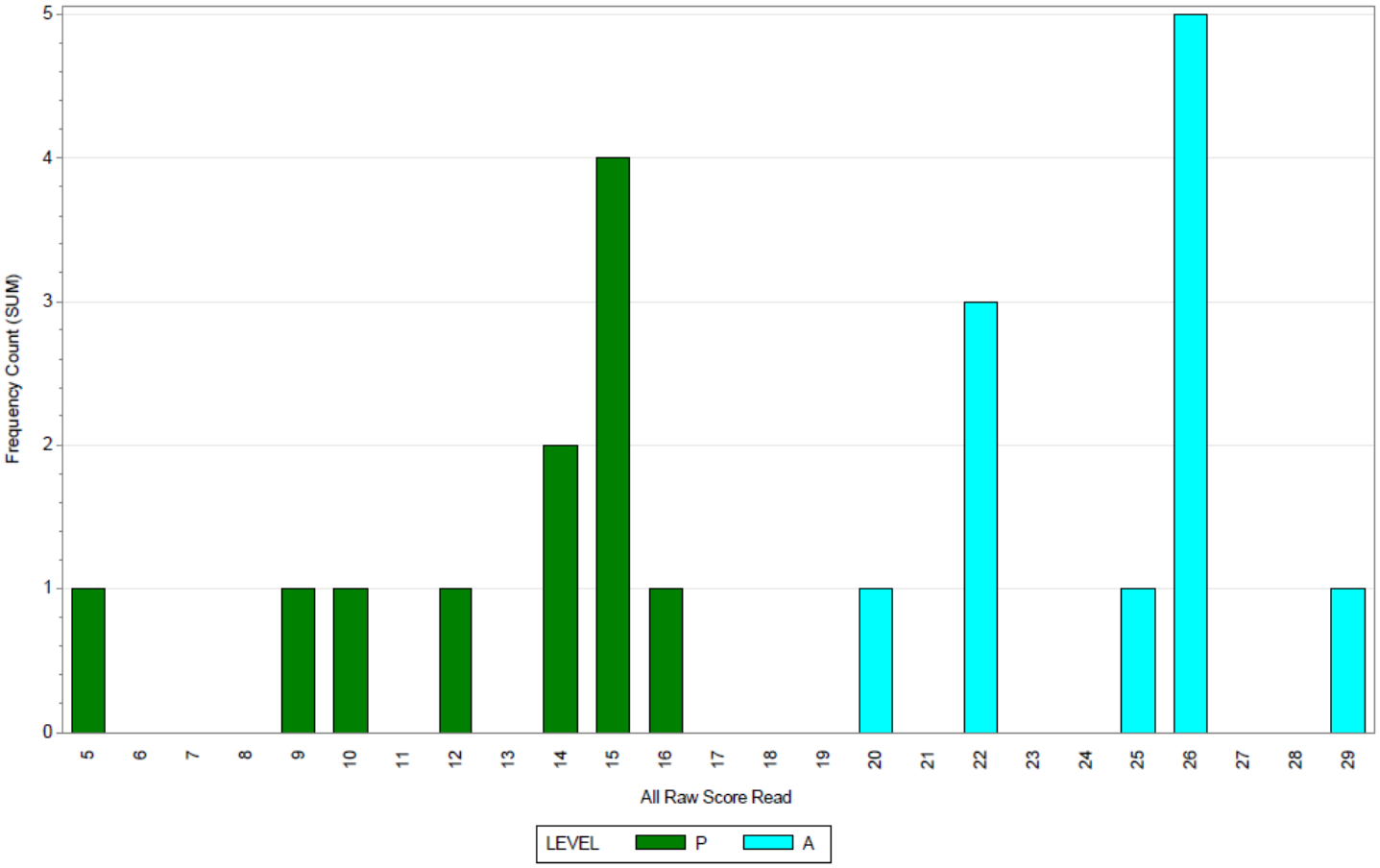
Round 2:



Proficient

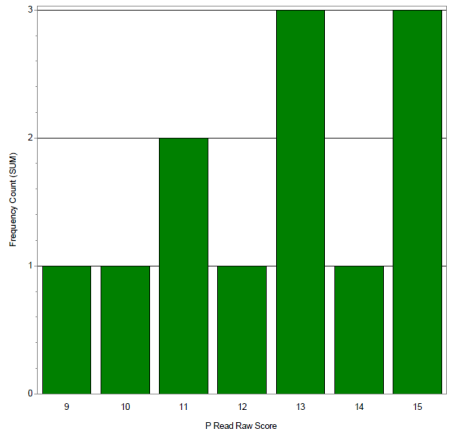


Advanced

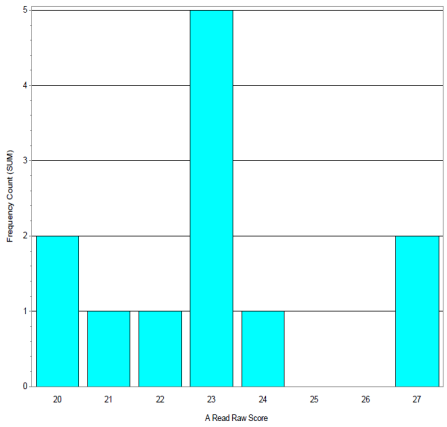


Both Performance Levels Concurrently

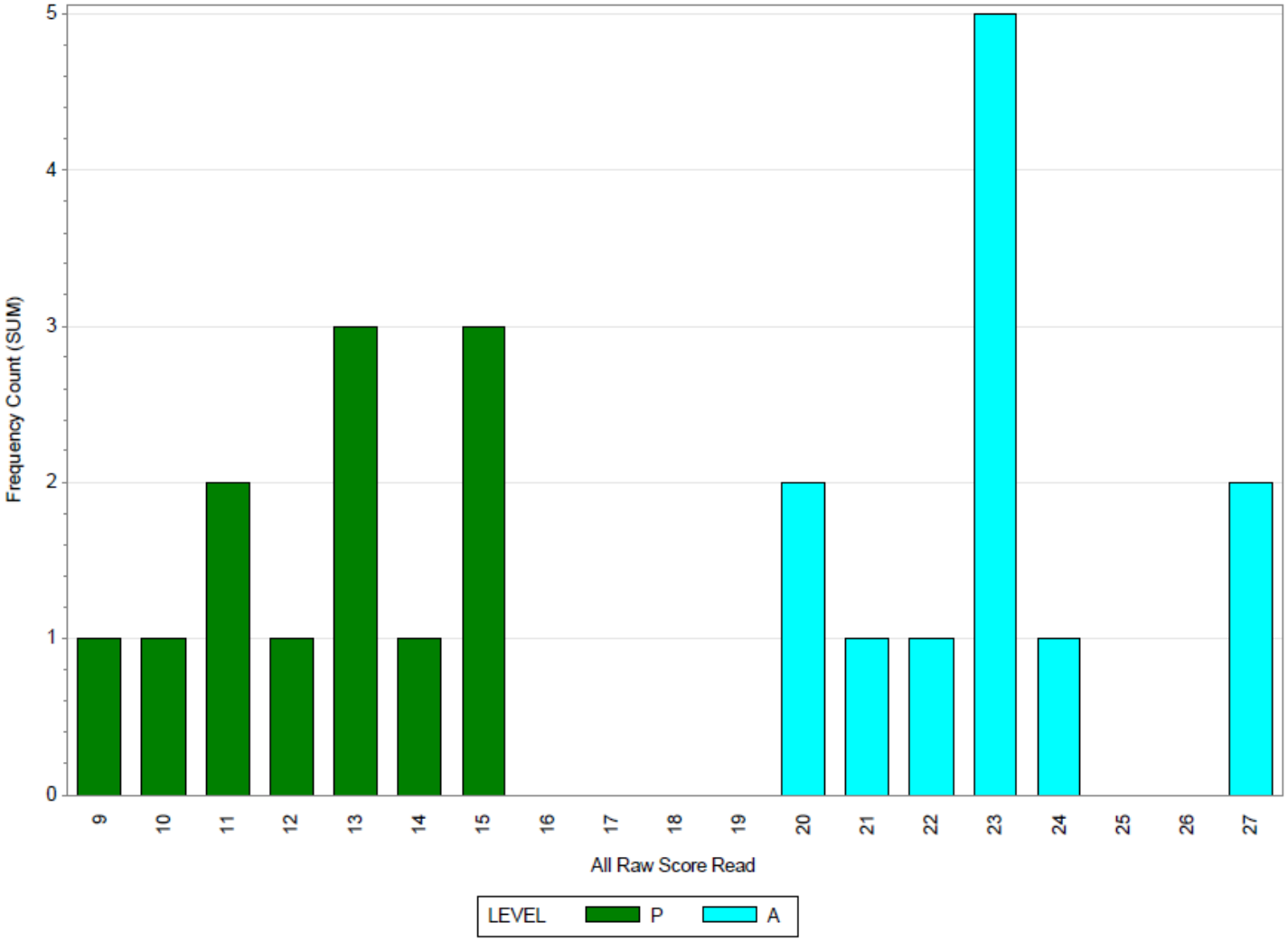
Round 3:



Proficient



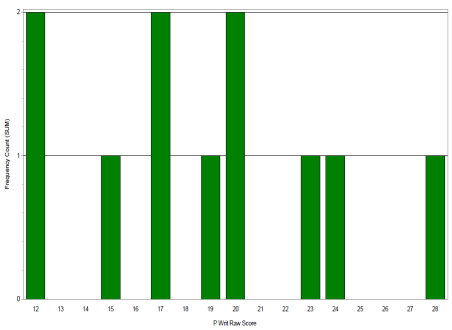
Advanced



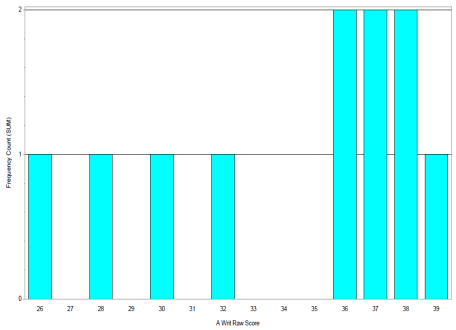
Both Performance Levels Concurrently

ELA Grade 10 - Writing

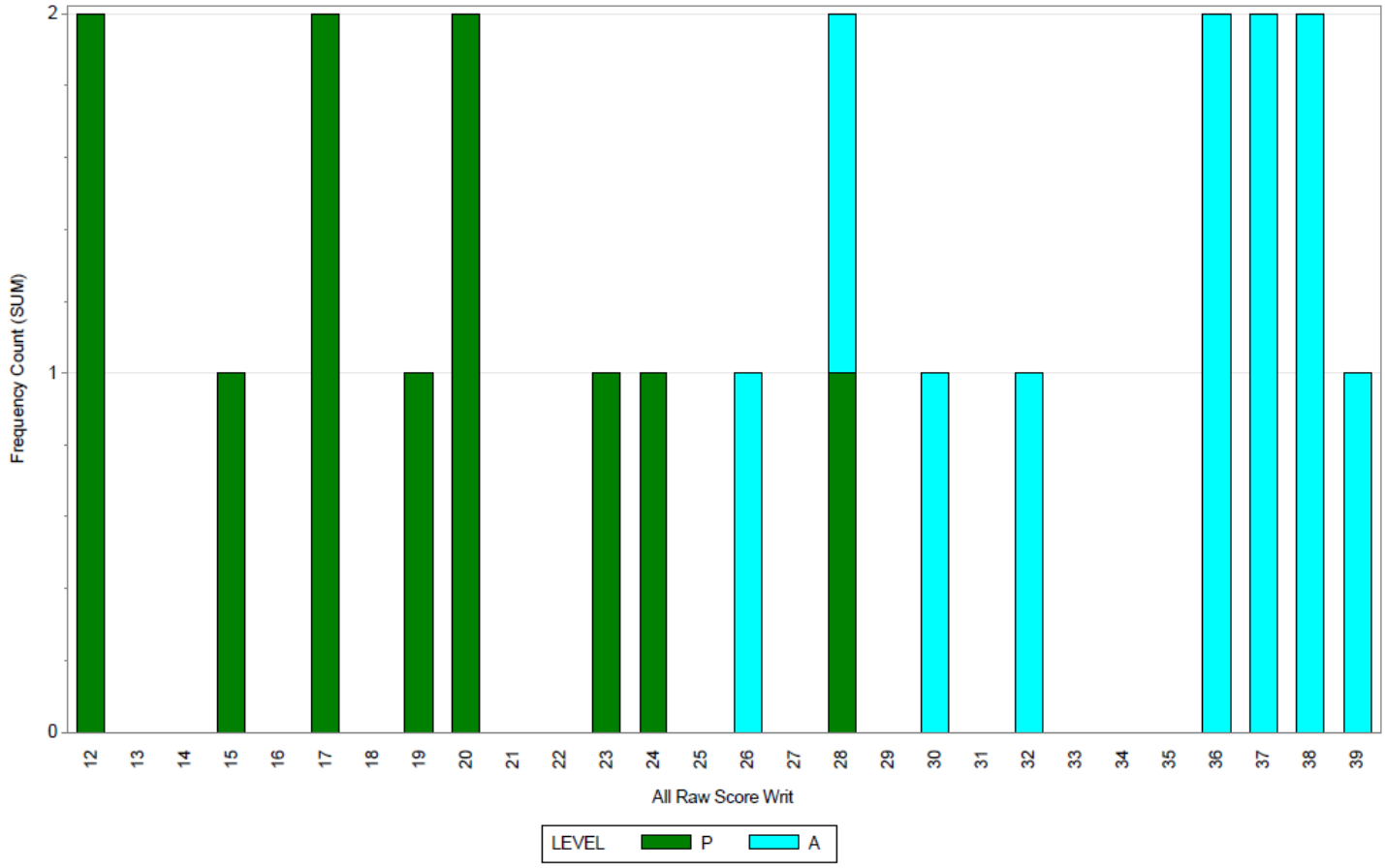
Round 1:



Proficient

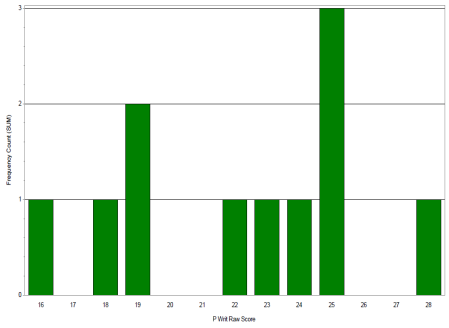


Advanced

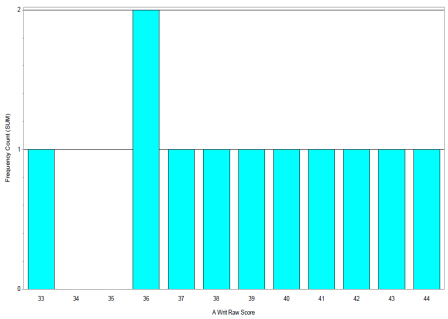


Both Performance Levels Concurrently

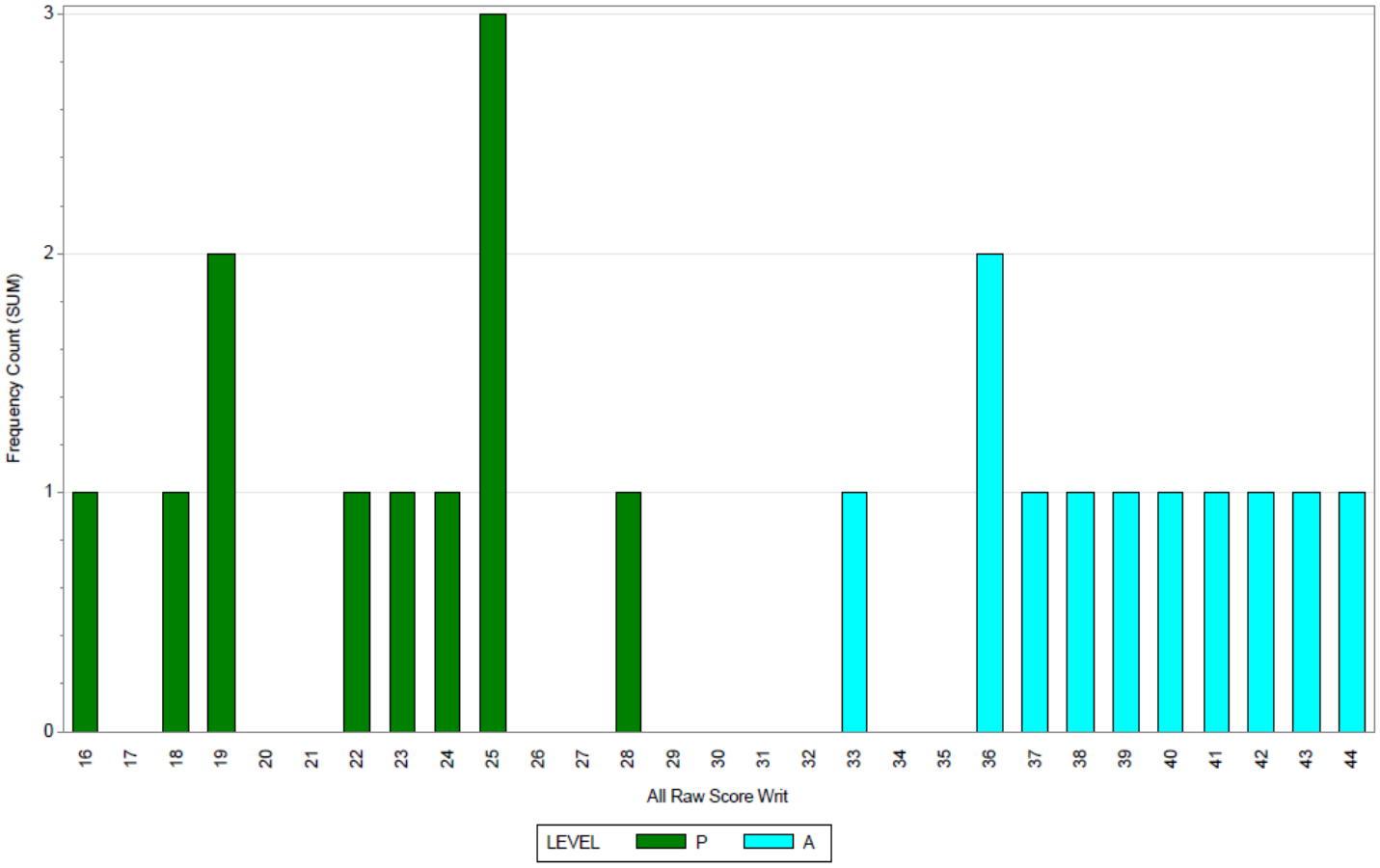
Round 2:



Proficient

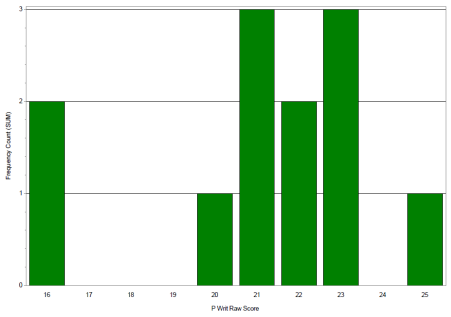


Advanced

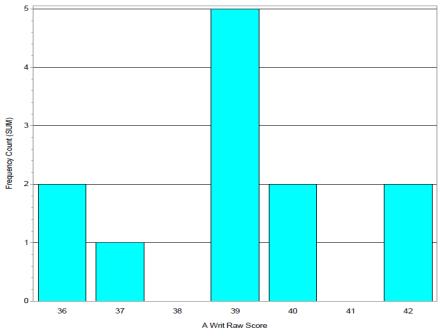


Both Performance Levels Concurrently

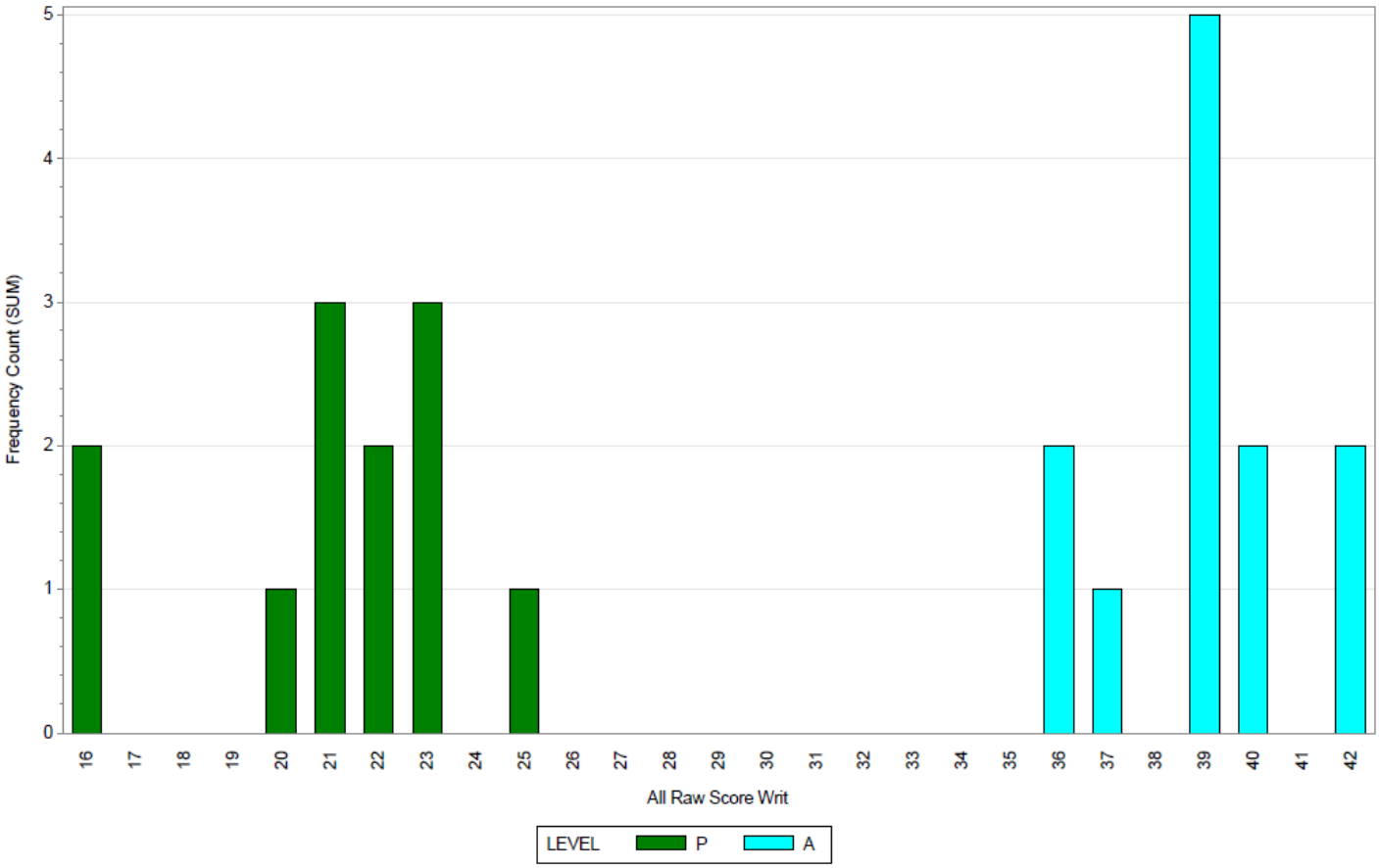
Round 3:



Proficient



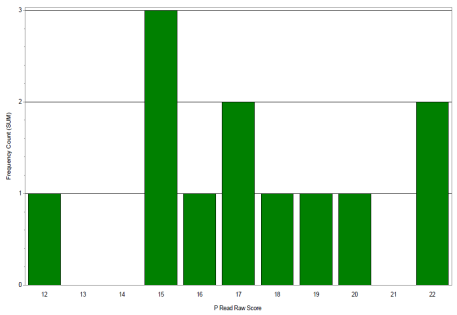
Advanced



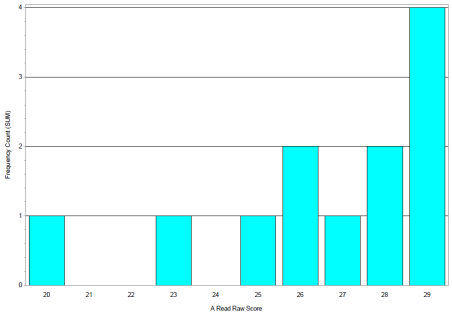
Both Performance Levels Concurrently

ELA Grade 11 - Reading

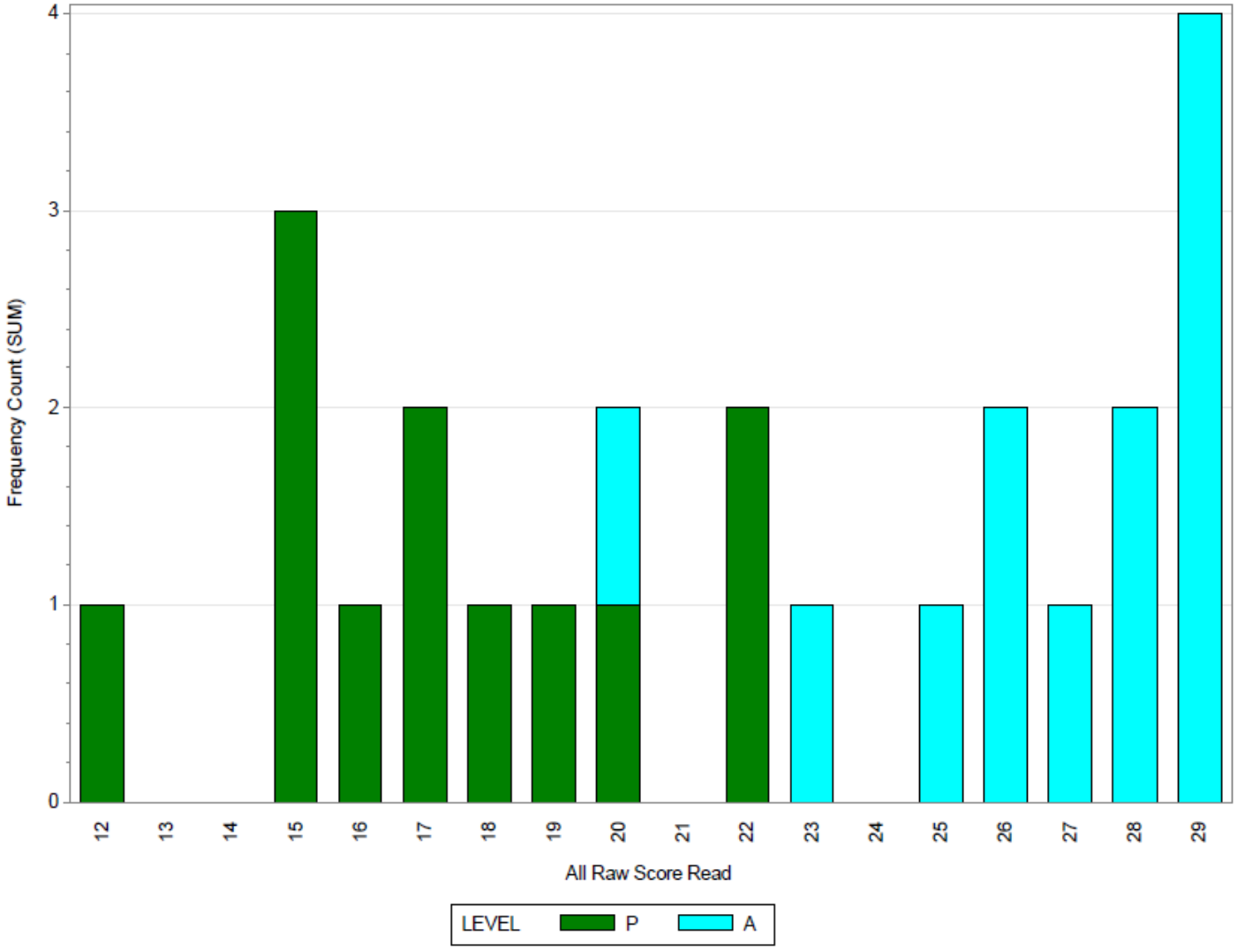
Round 1:



Proficient

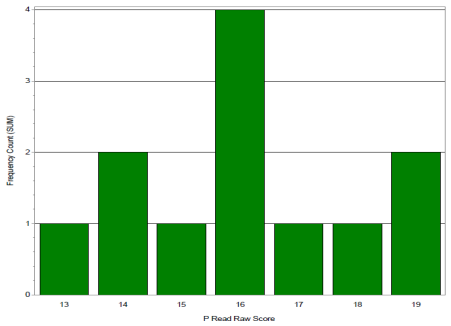


Advanced

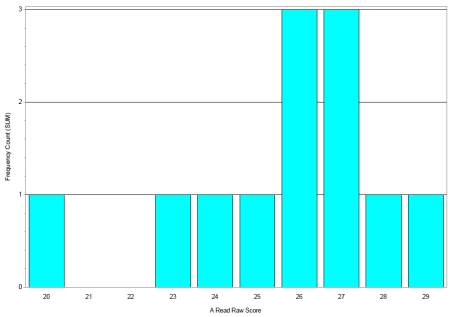


Both Performance Levels Concurrently

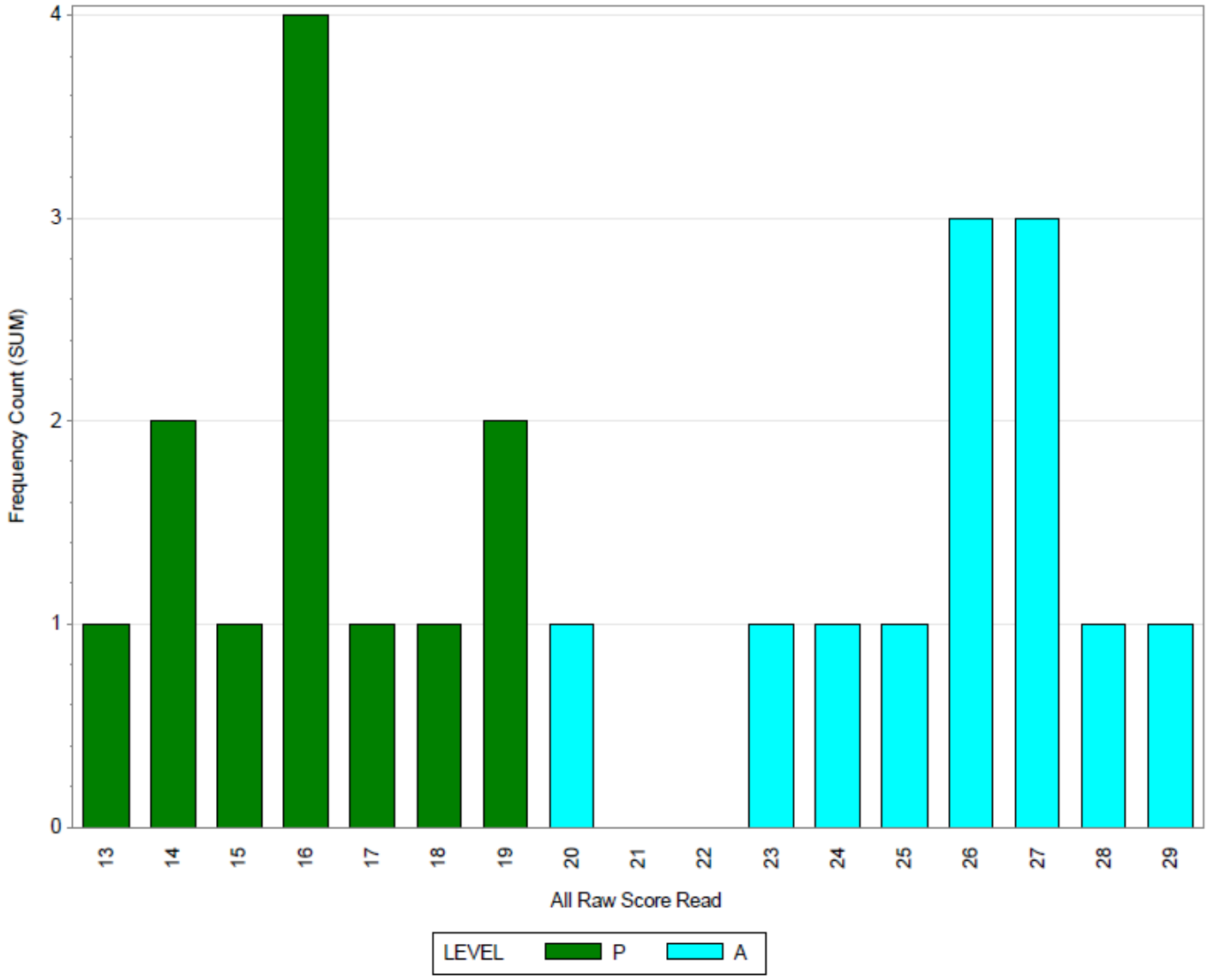
Round 2:



Proficient

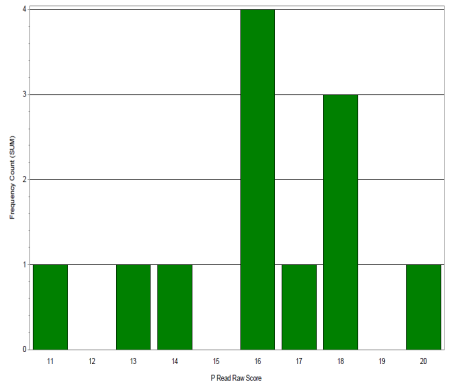


Advanced

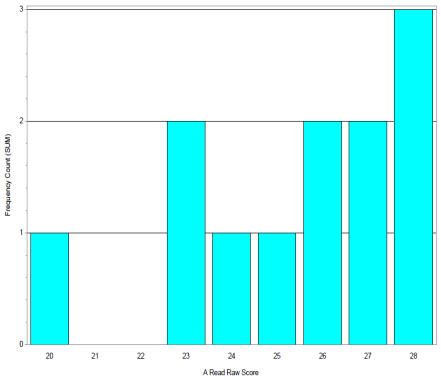


Both Performance Levels Concurrently

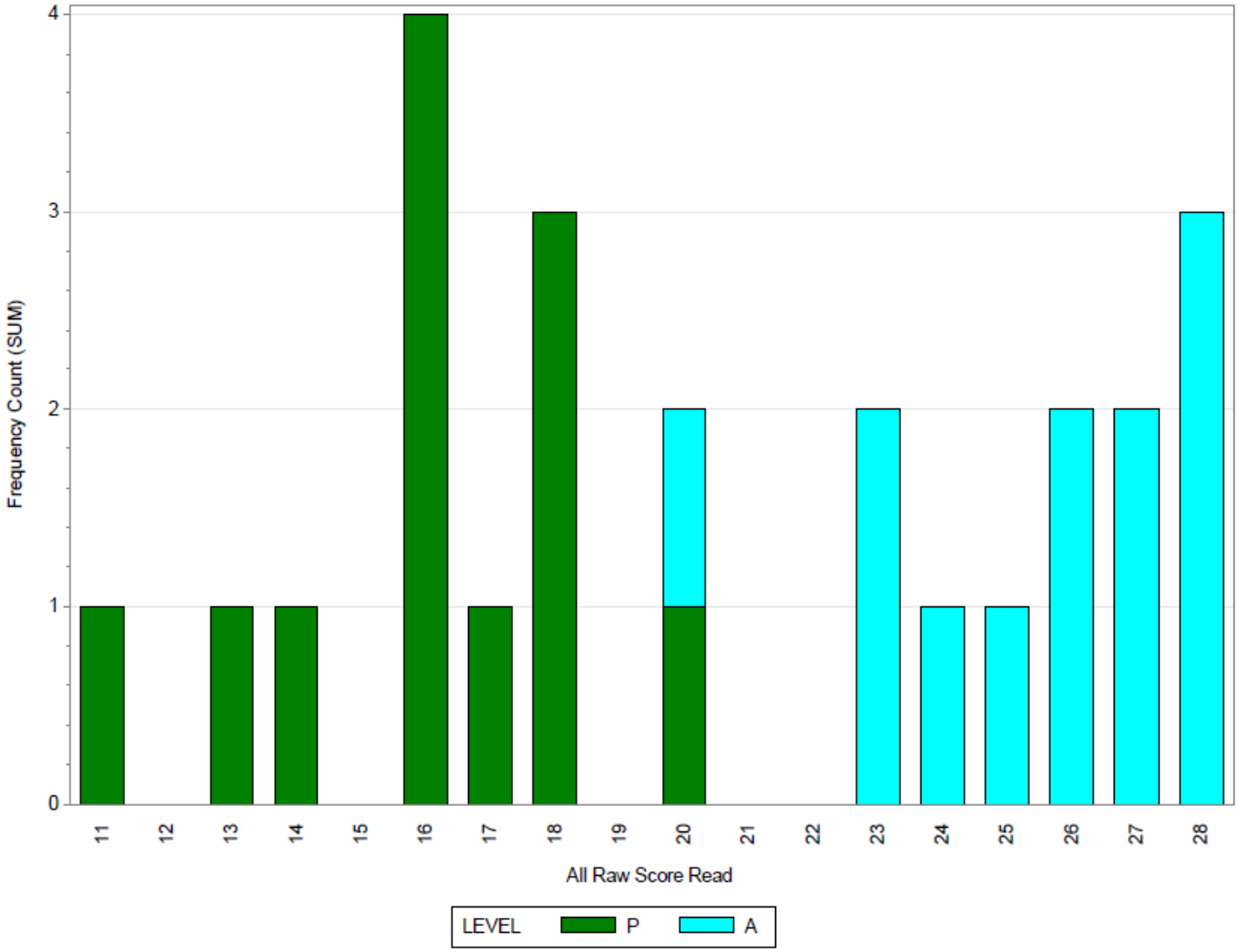
Round 3:



Proficient



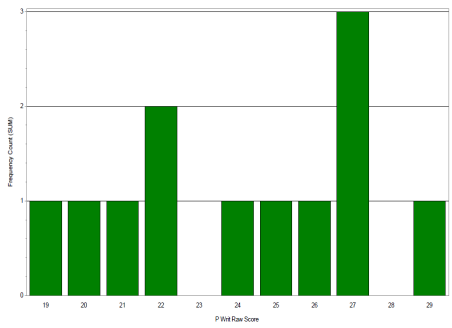
Advanced



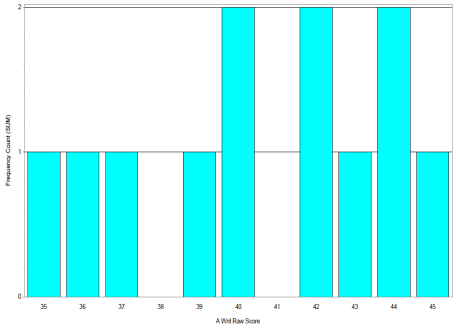
Both Performance Levels Concurrently

ELA Grade 11 - Writing

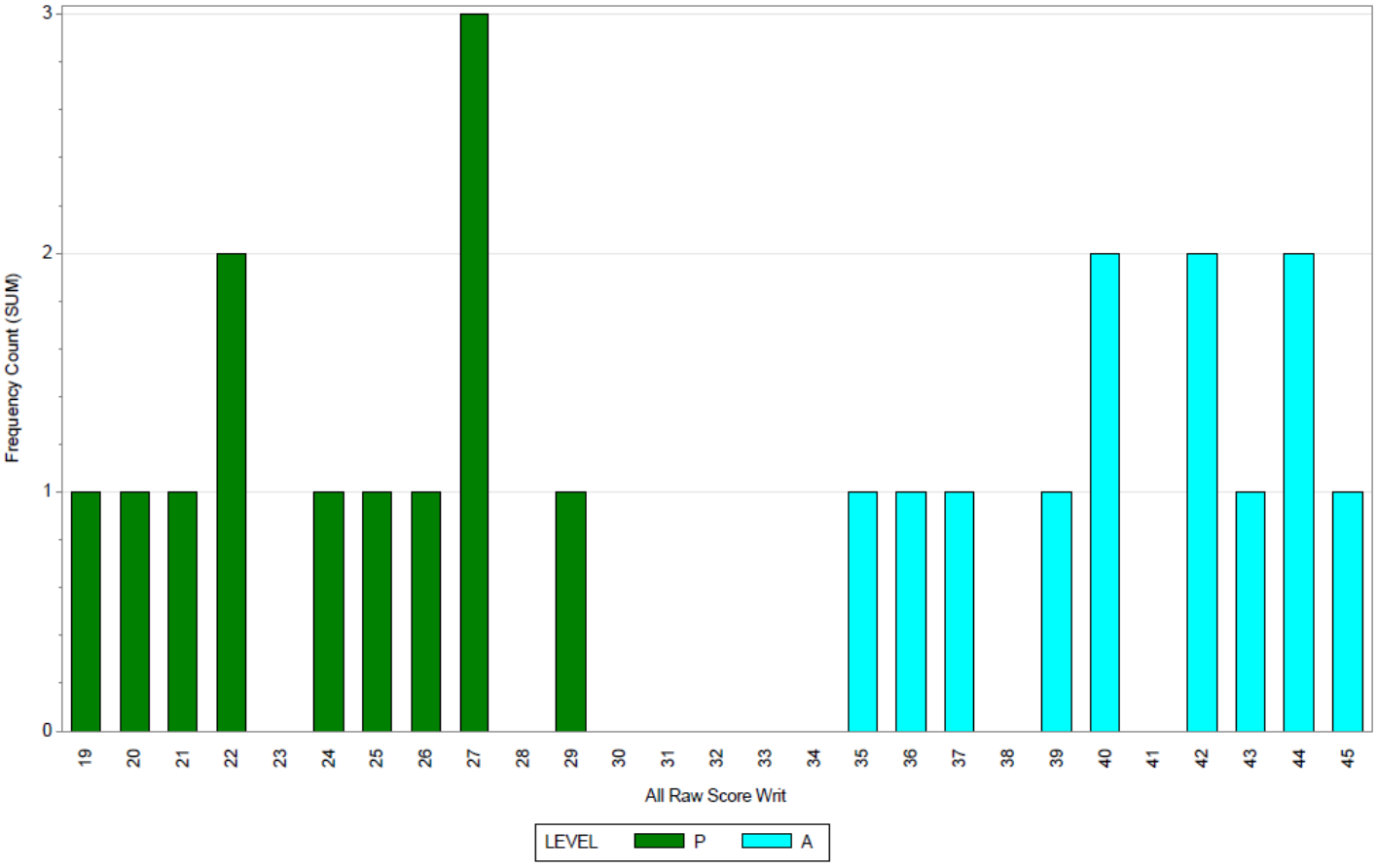
Round 1:



Proficient

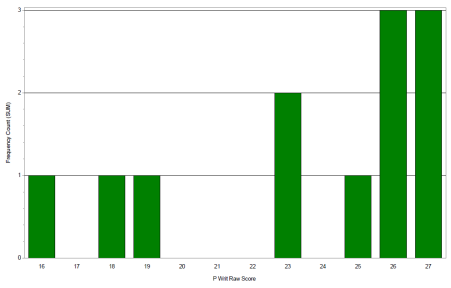


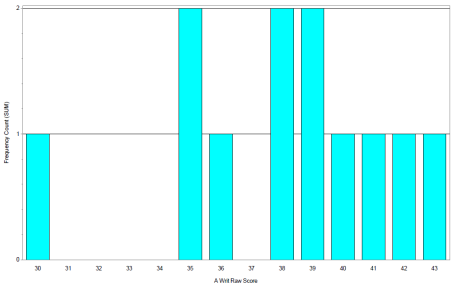
Advanced



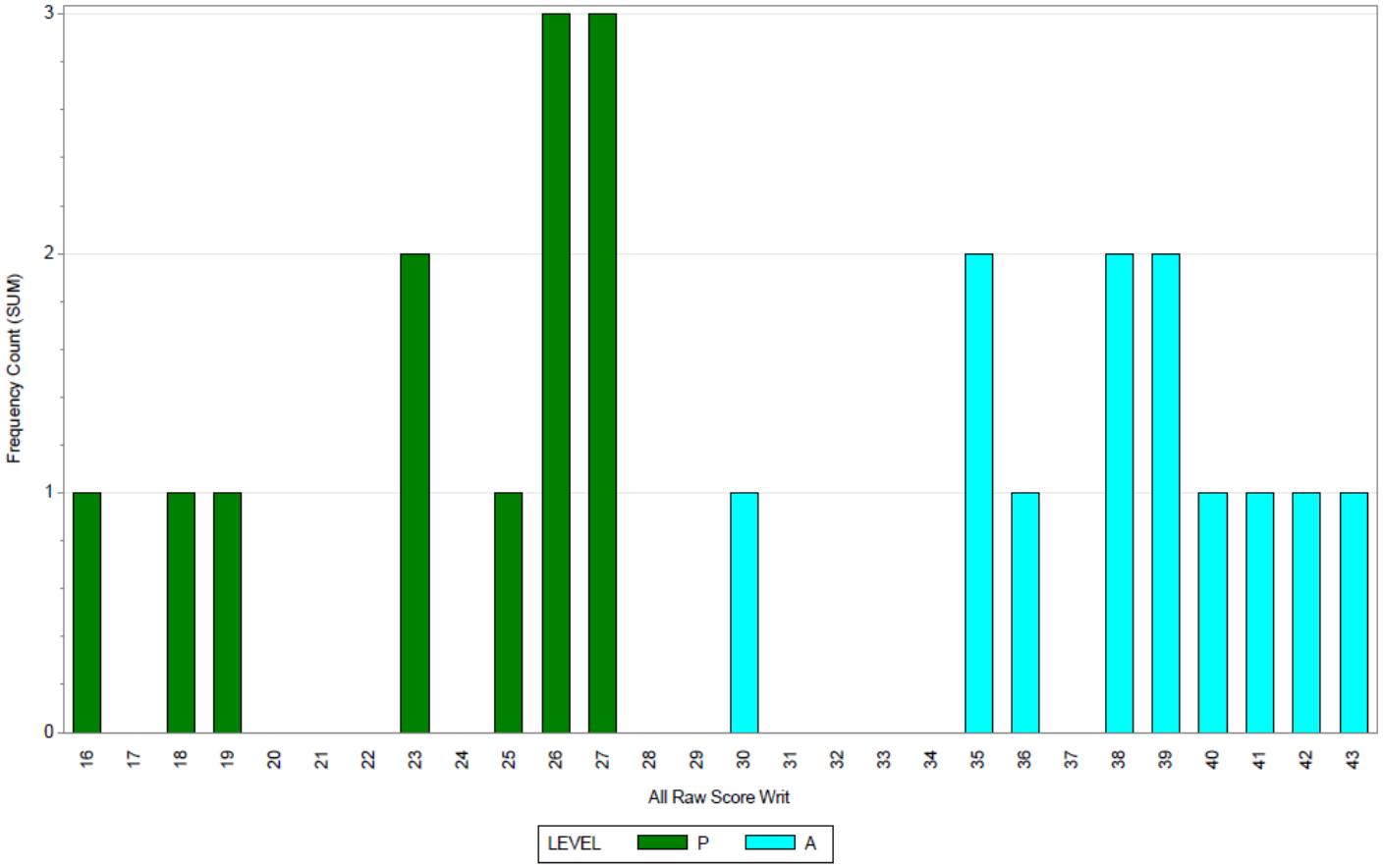
Both Performance Levels Concurrently

Round 2:



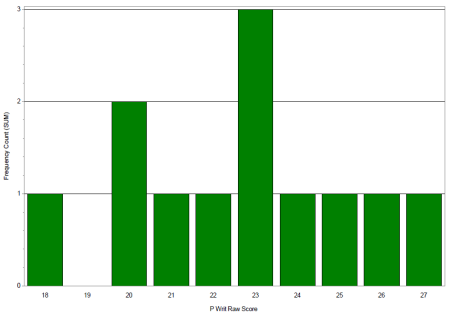


Proficient *Advanced*

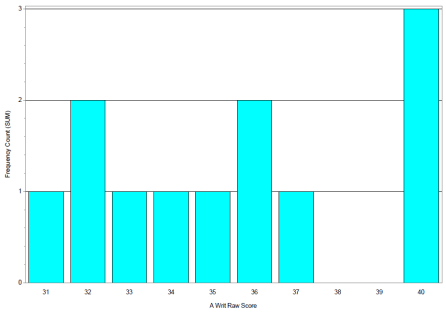


Both Performance Levels Concurrently

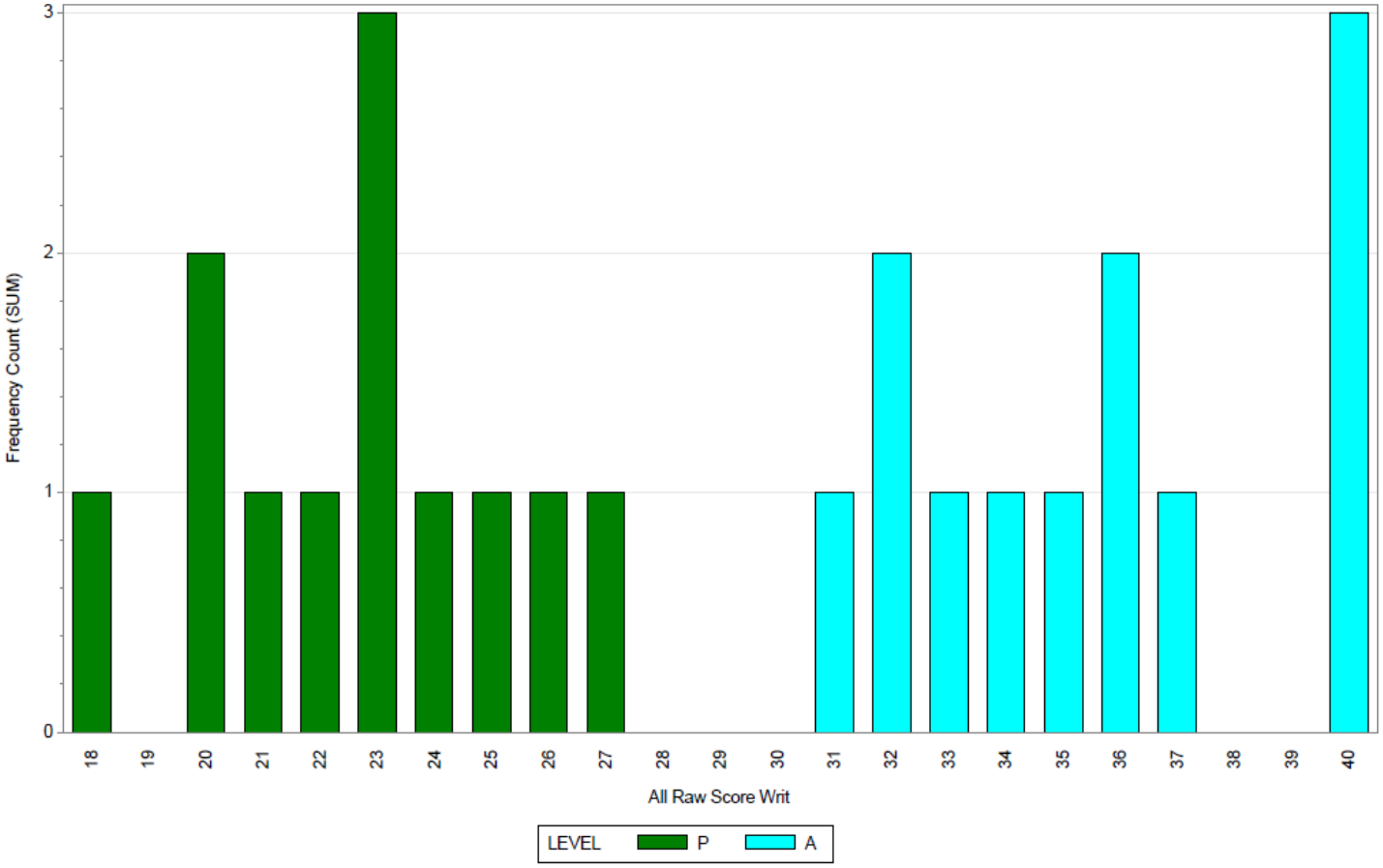
Round 3:



Proficient



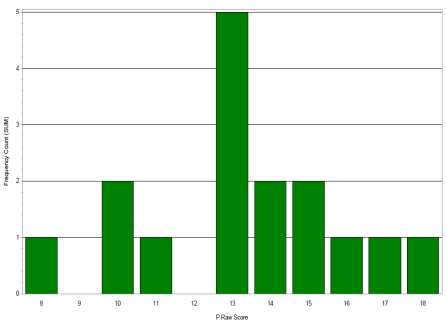
Advanced



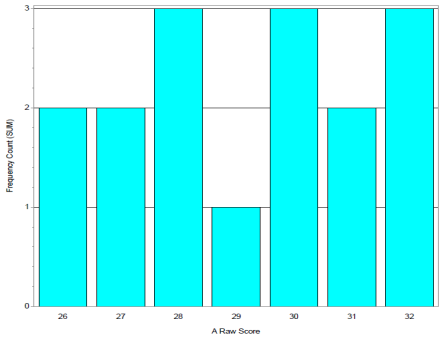
Both Performance Levels Concurrently

Mathematics Grade 3

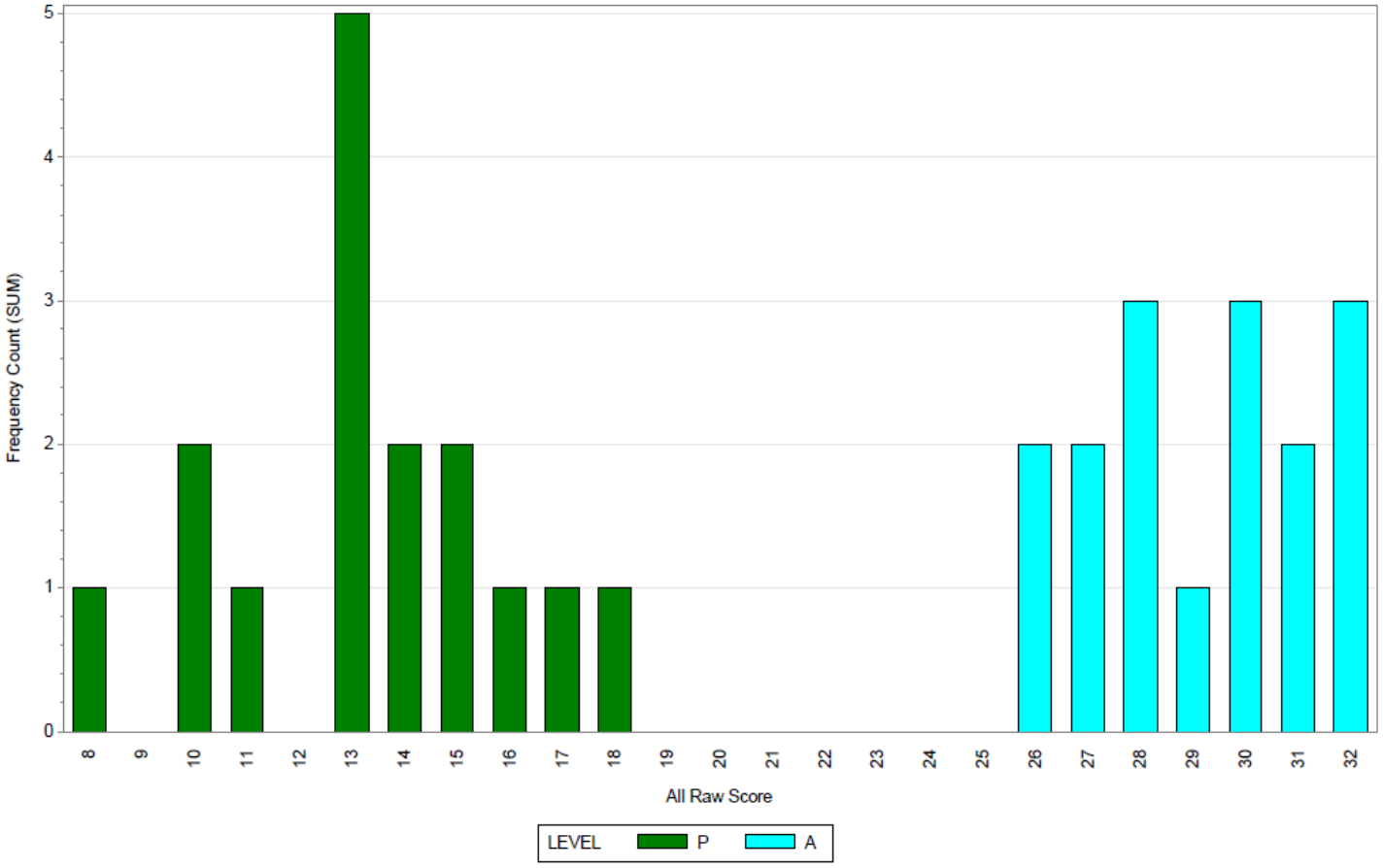
Round 1:



Proficient

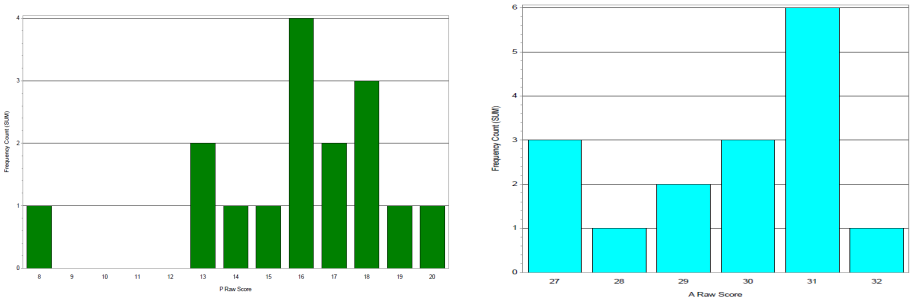


Advanced

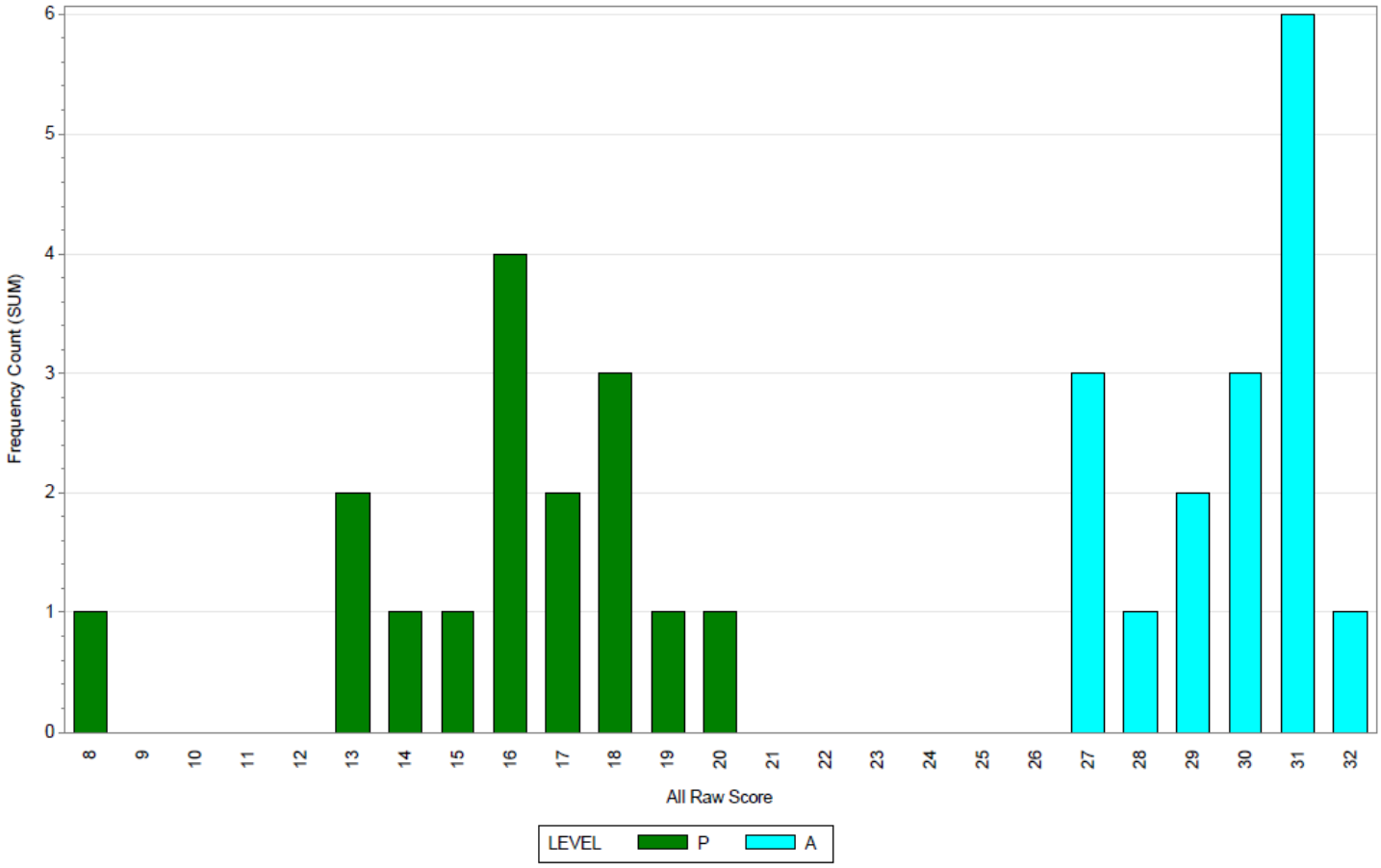


Both Performance Levels Concurrently

Round 2:

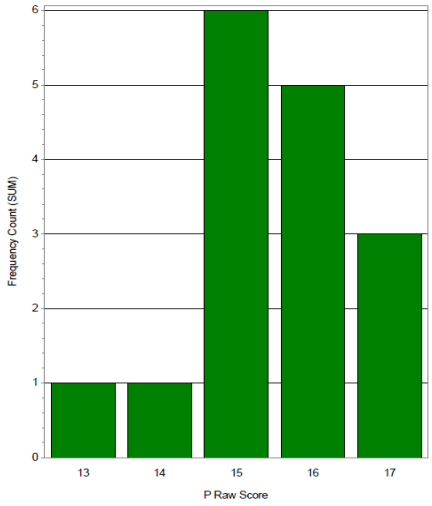


Proficient *Advanced*

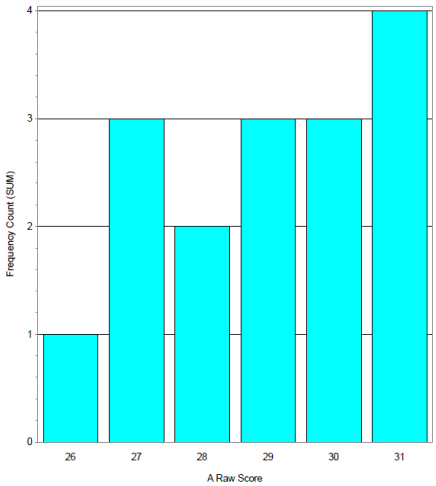


Both Performance Levels Concurrently

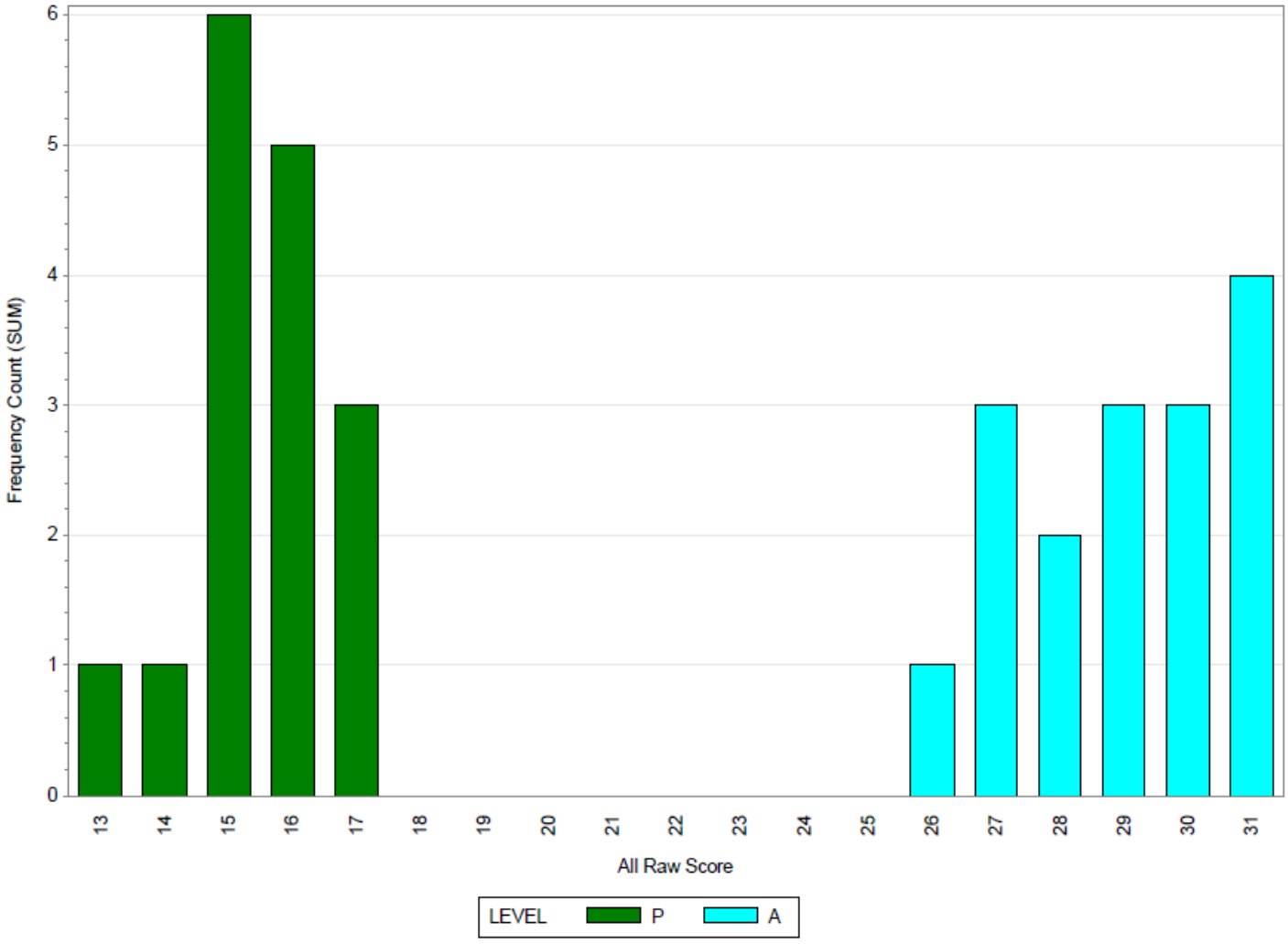
Round 3:



Proficient



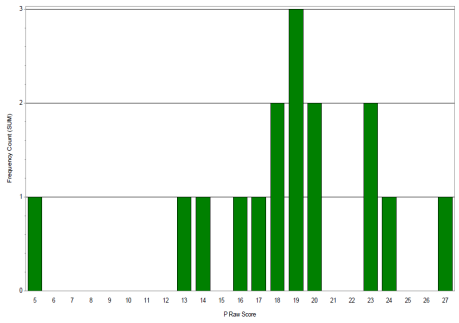
Advanced



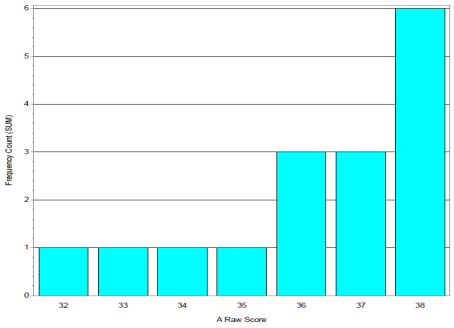
Both Performance Levels Concurrently

Mathematics Grade 4

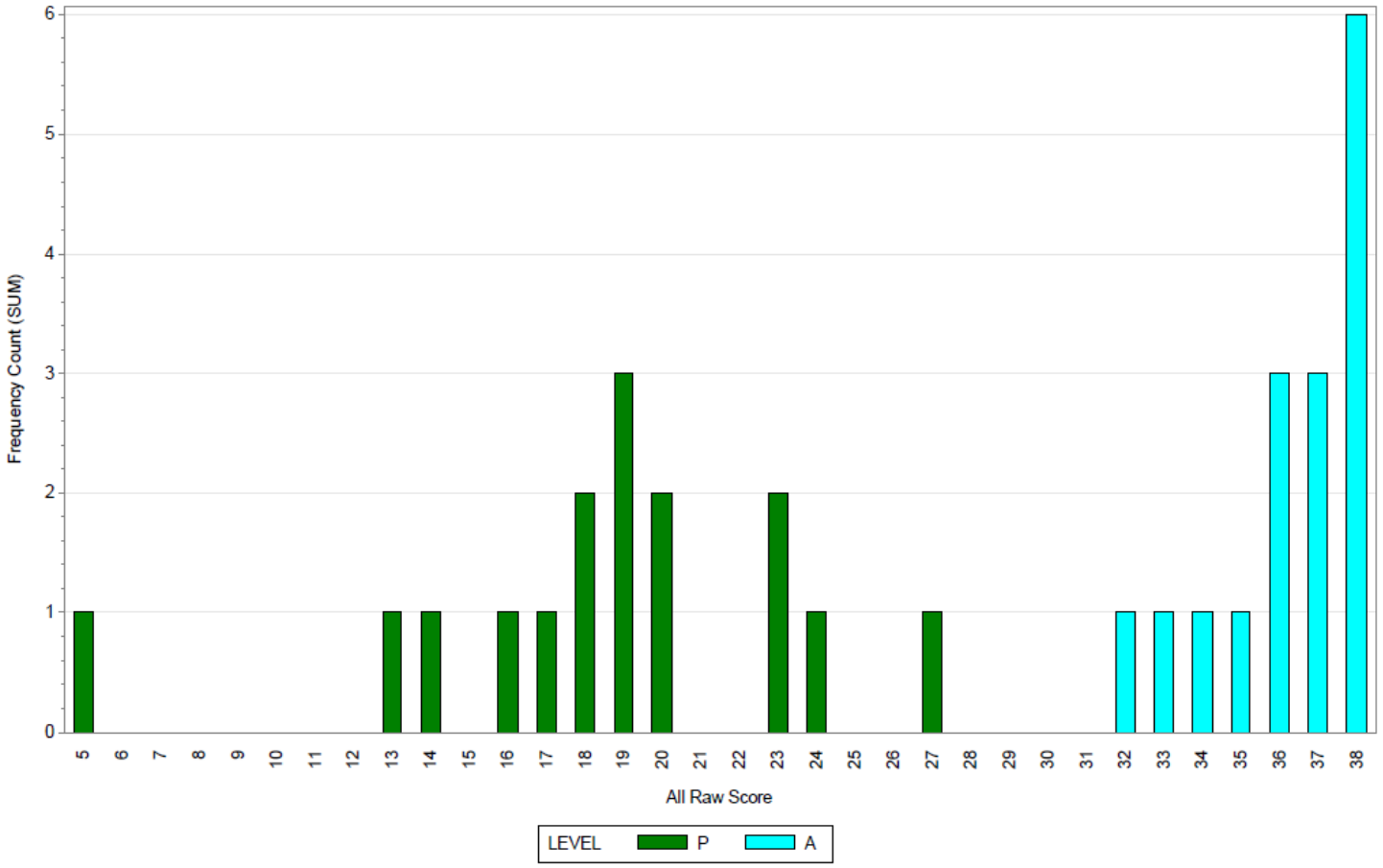
Round 1:



Proficient

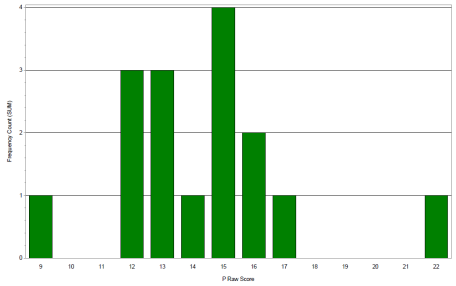


Advanced

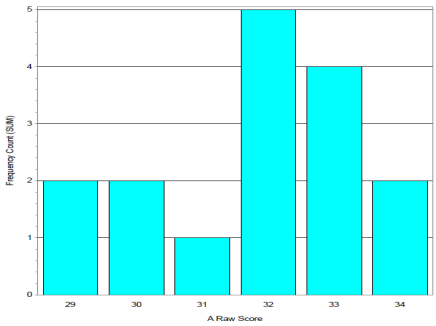


Both Performance Levels Concurrently

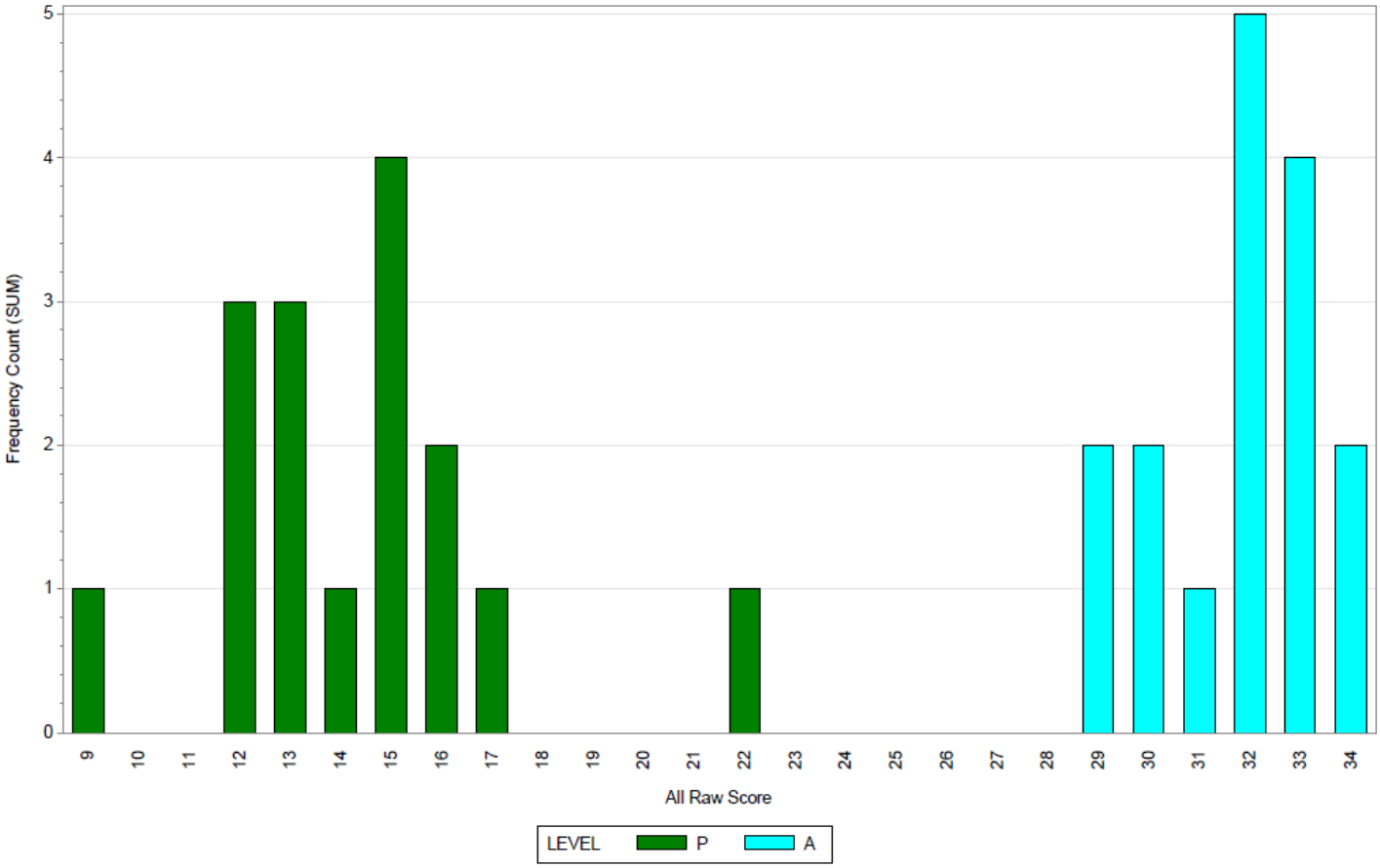
Round 2:



Proficient

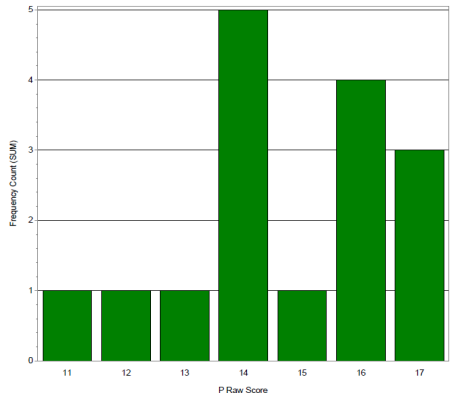


Advanced

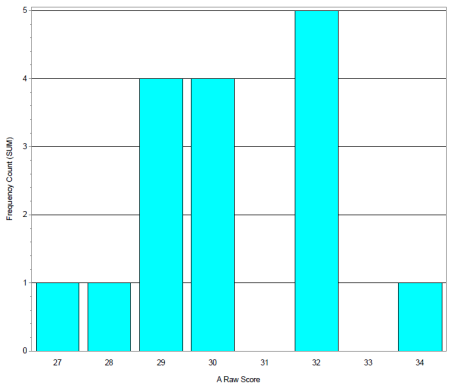


Both Performance Levels Concurrently

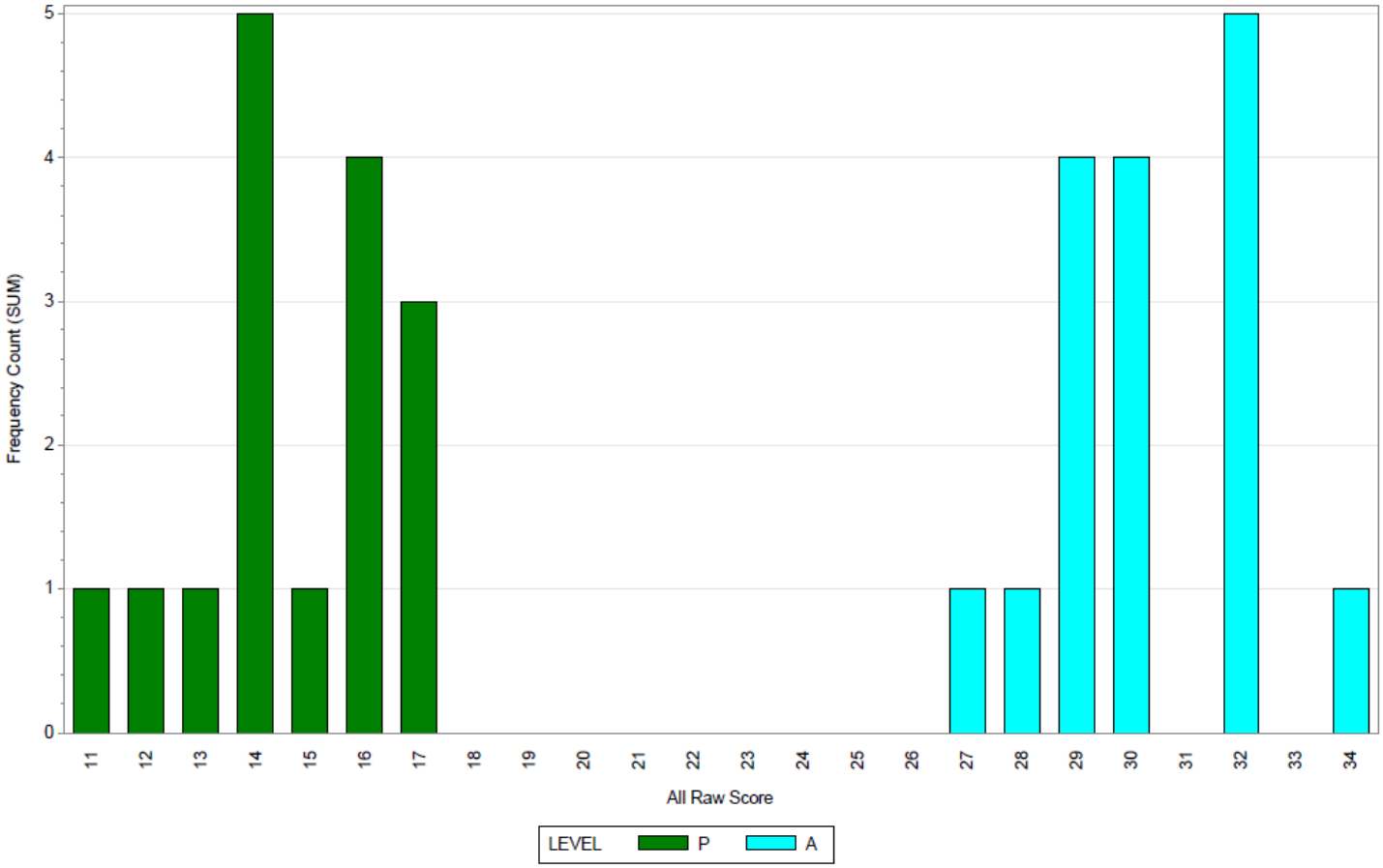
Round 3:



Proficient



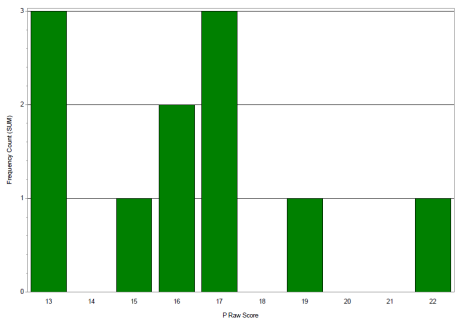
Advanced



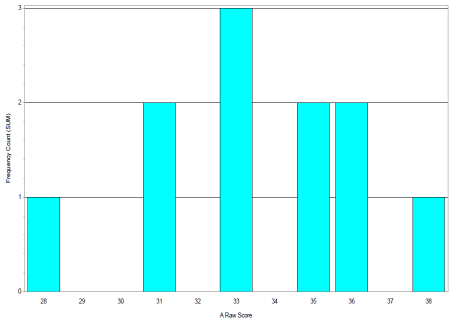
Both Performance Levels Concurrently

Mathematics Grade 5

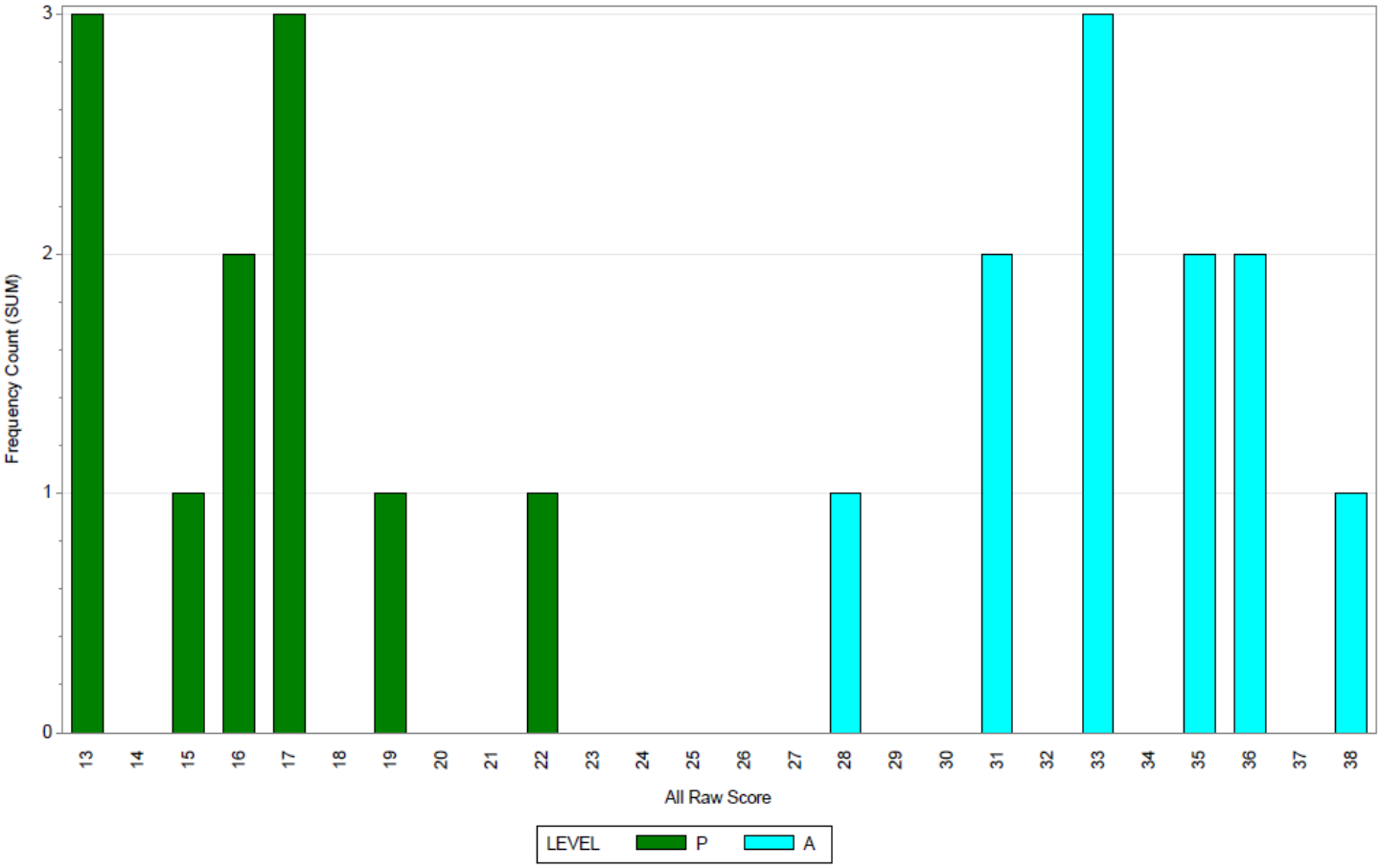
Round 1:



Proficient

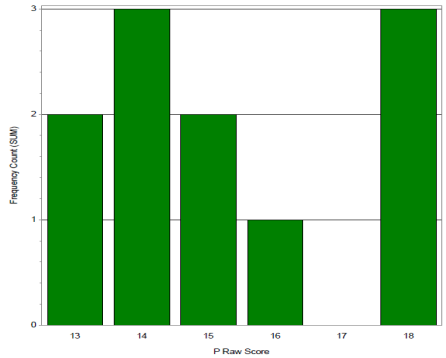


Advanced

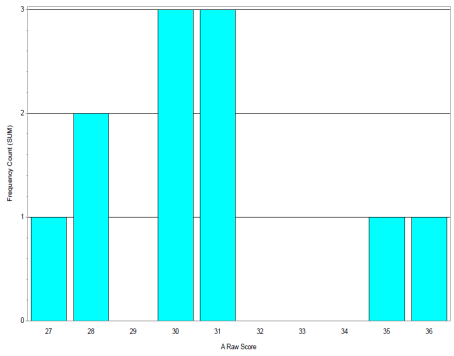


Both Performance Levels Concurrently

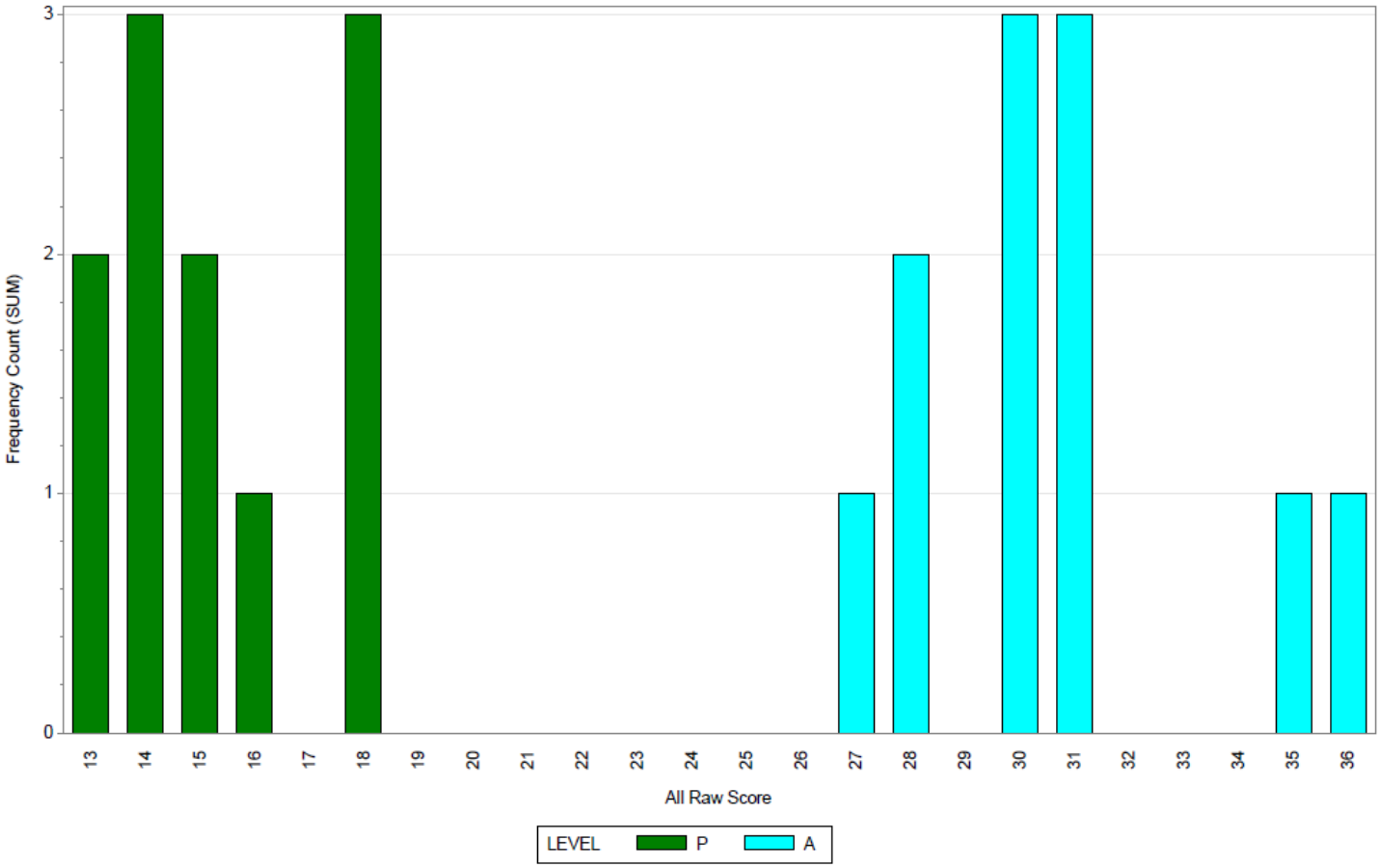
Round 2:



Proficient

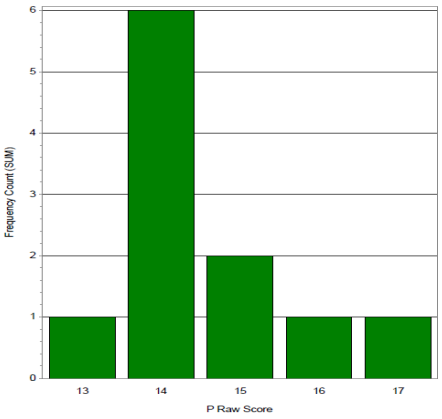


Advanced

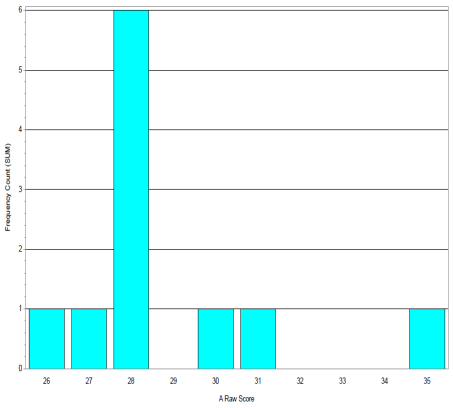


Both Performance Levels Concurrently

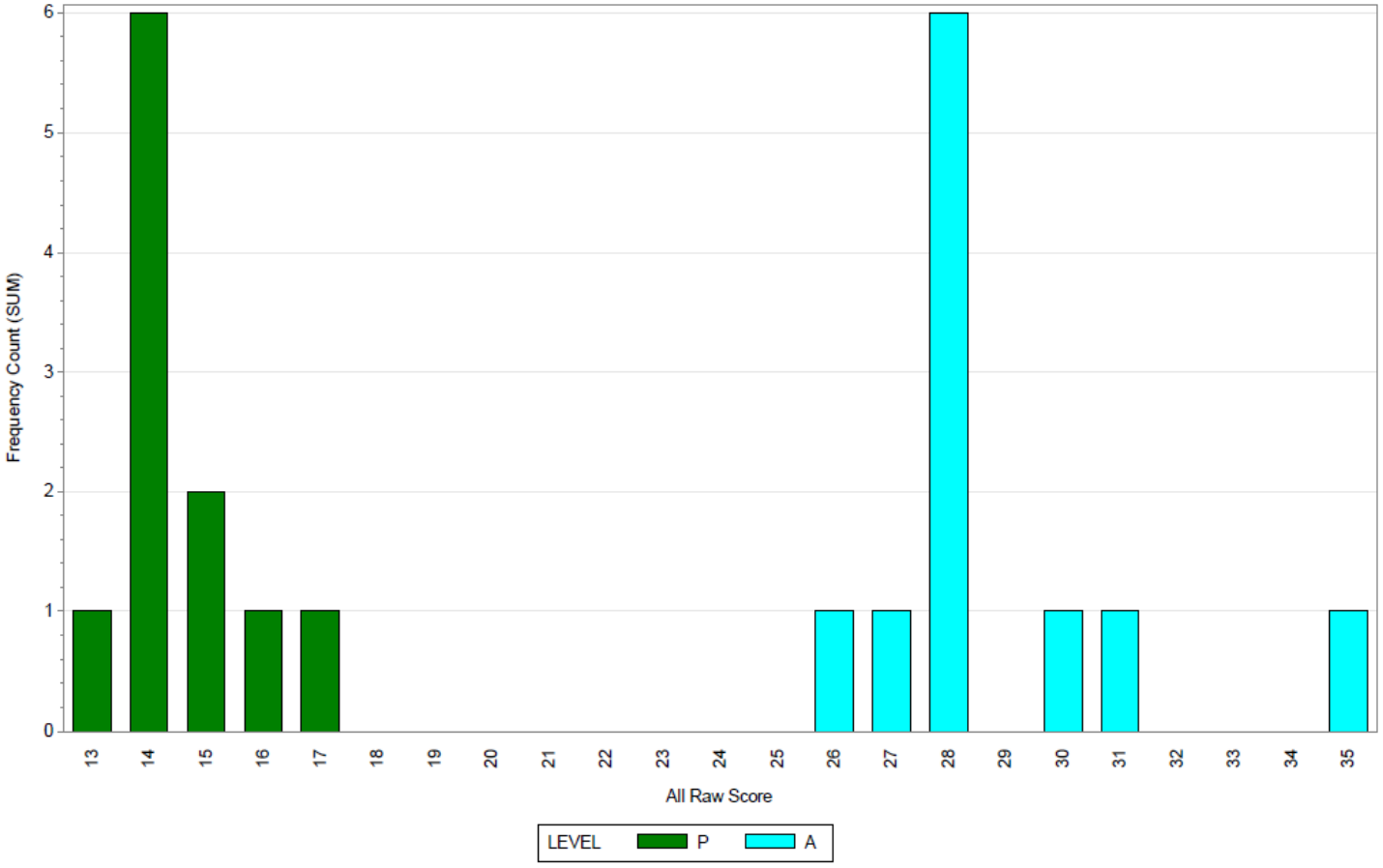
Round 3:



Proficient

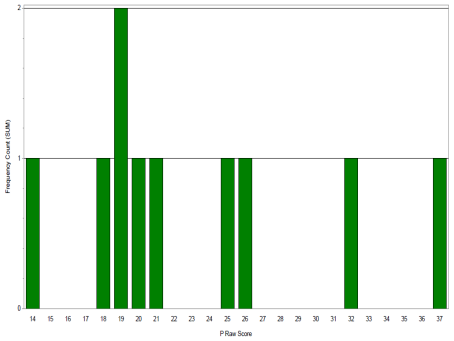


Advanced

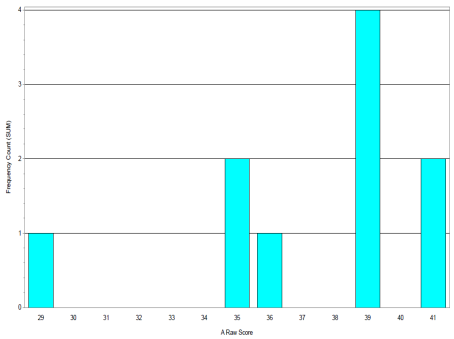


Both Performance Levels Concurrently

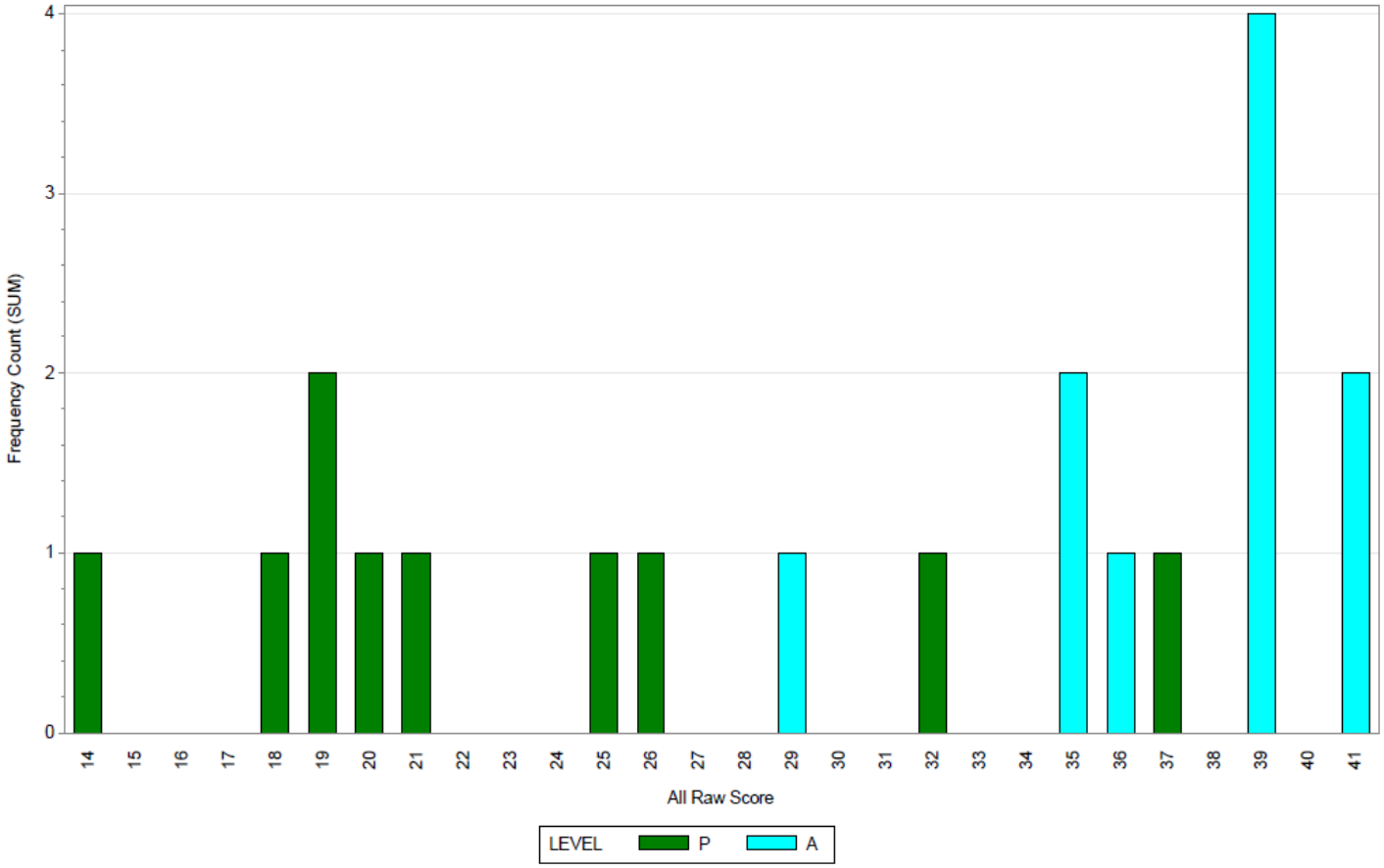
Round 1:



Proficient

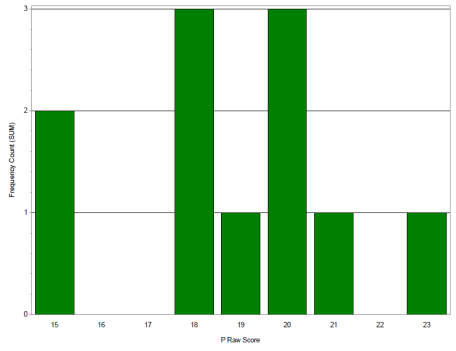


Advanced

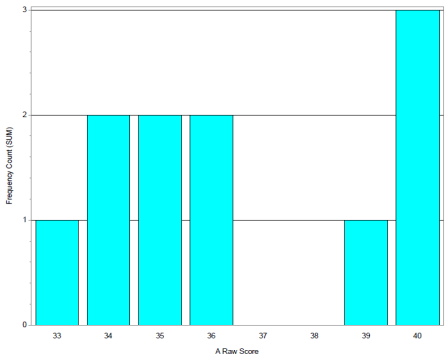


Both Performance Levels Concurrently

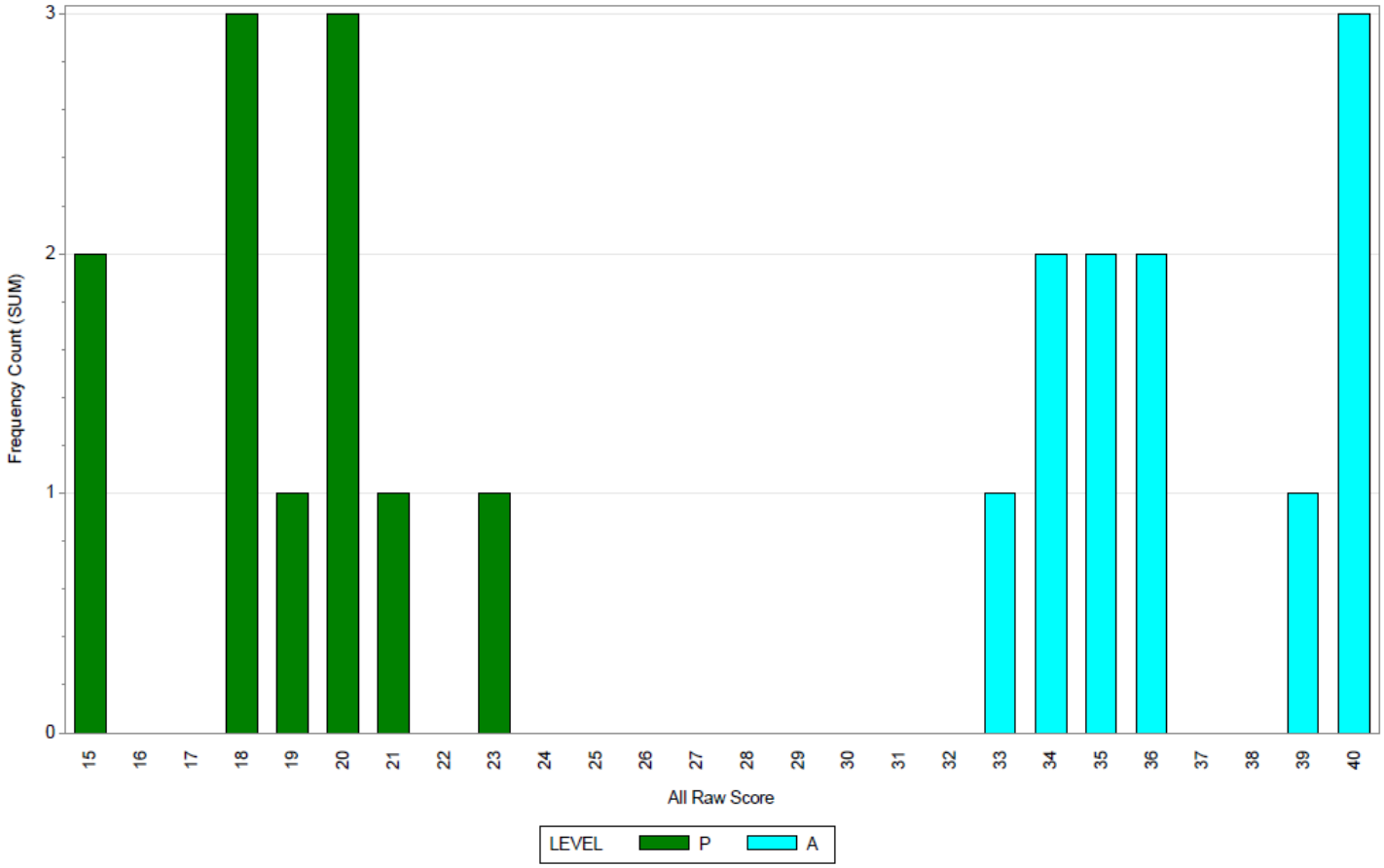
Round 2:



Proficient

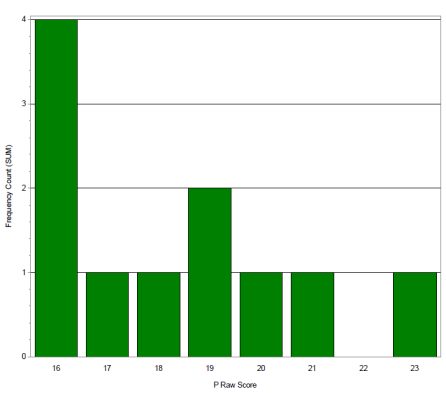


Advanced

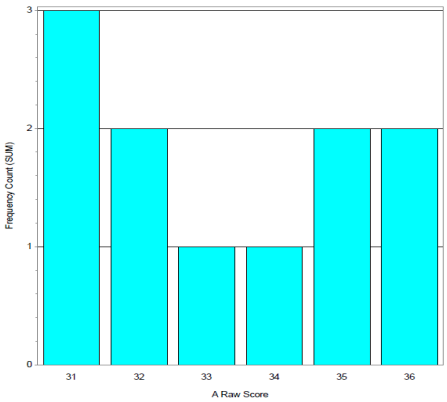


Both Performance Levels Concurrently

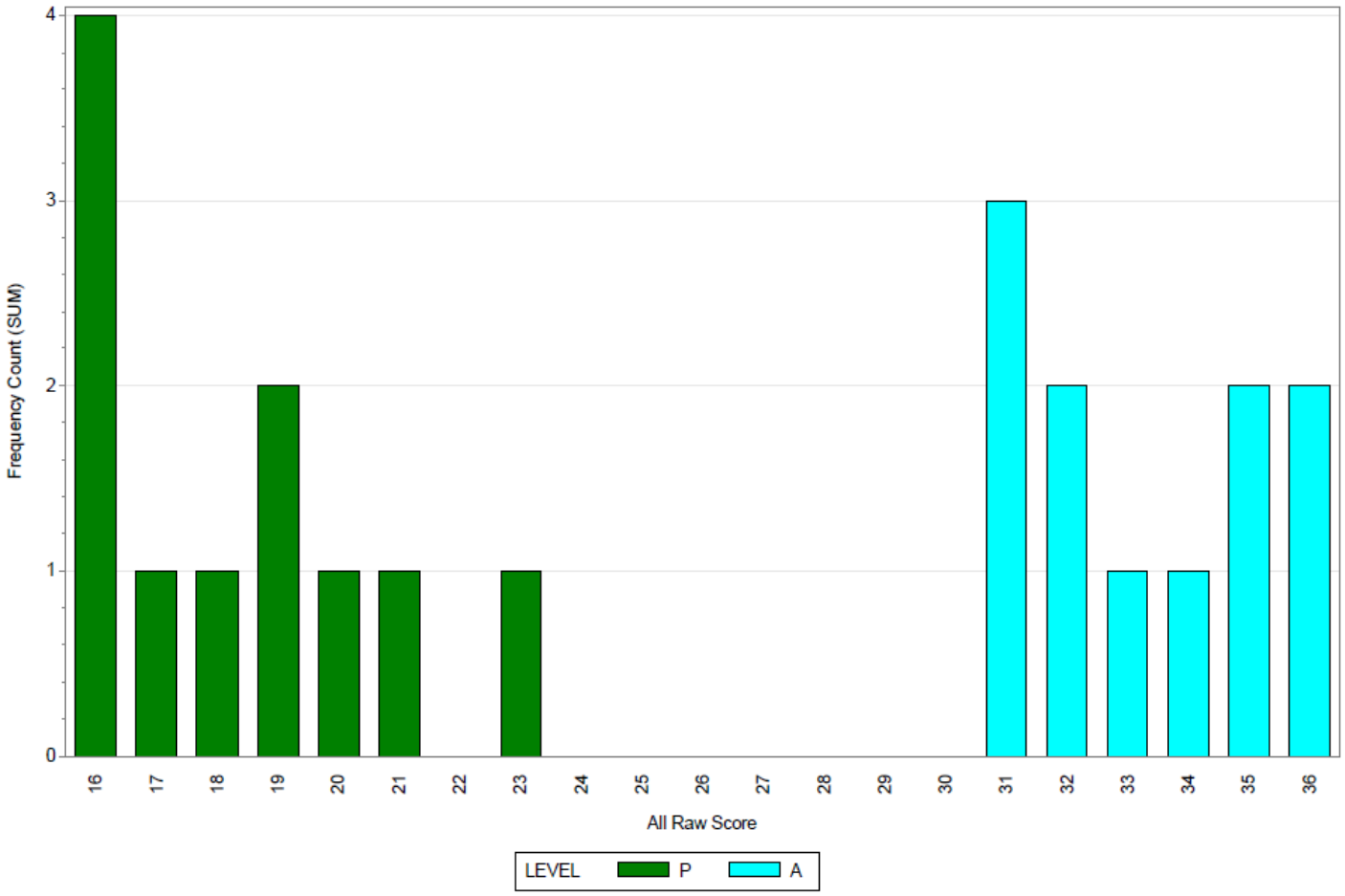
Round 3:



Proficient



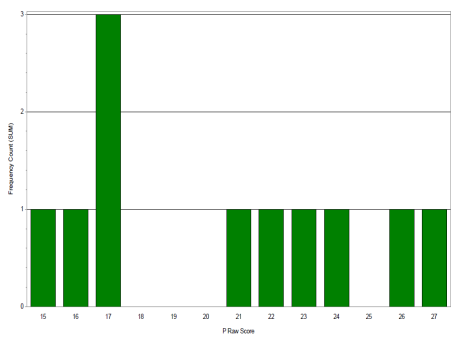
Advanced



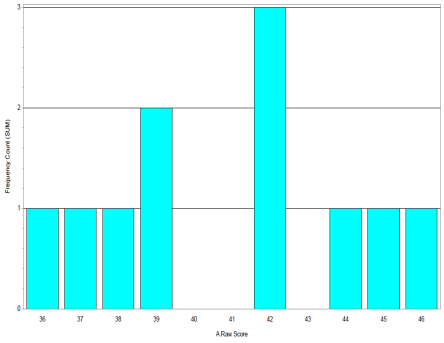
Both Performance Levels Concurrently

Mathematics Grade 7

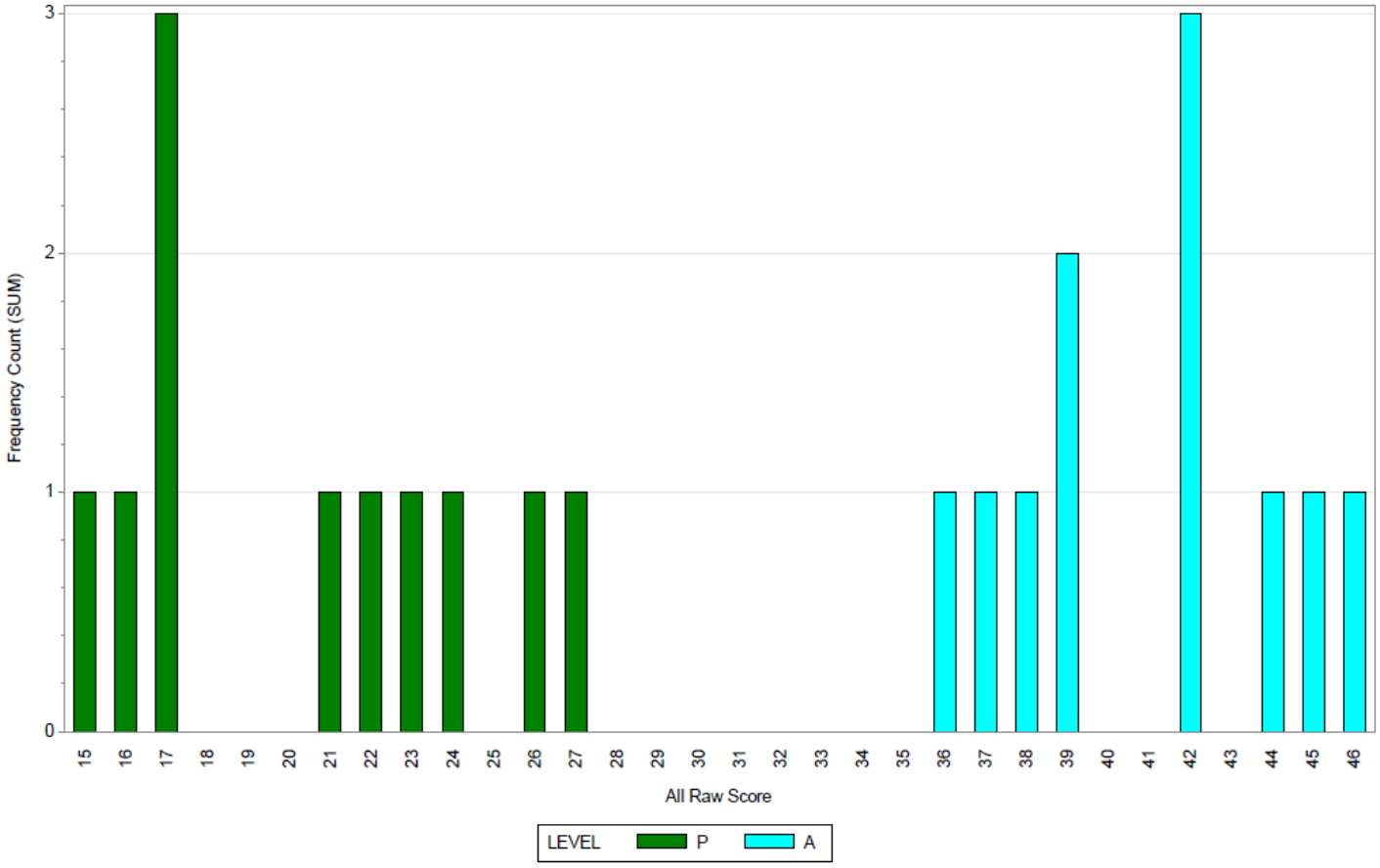
Round 1:



Proficient

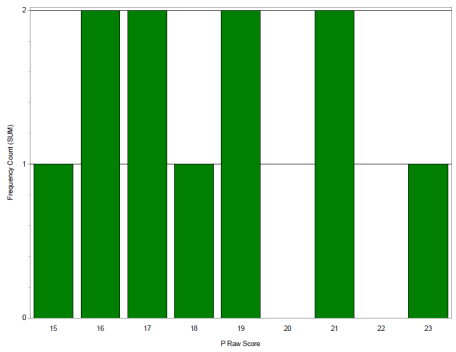


Advanced

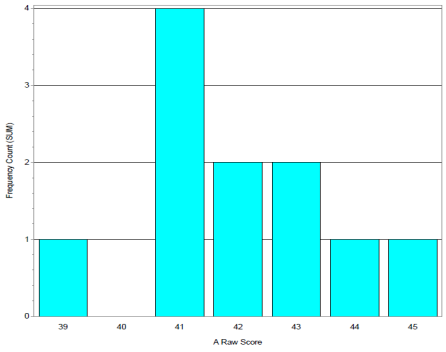


Both Performance Levels Concurrently

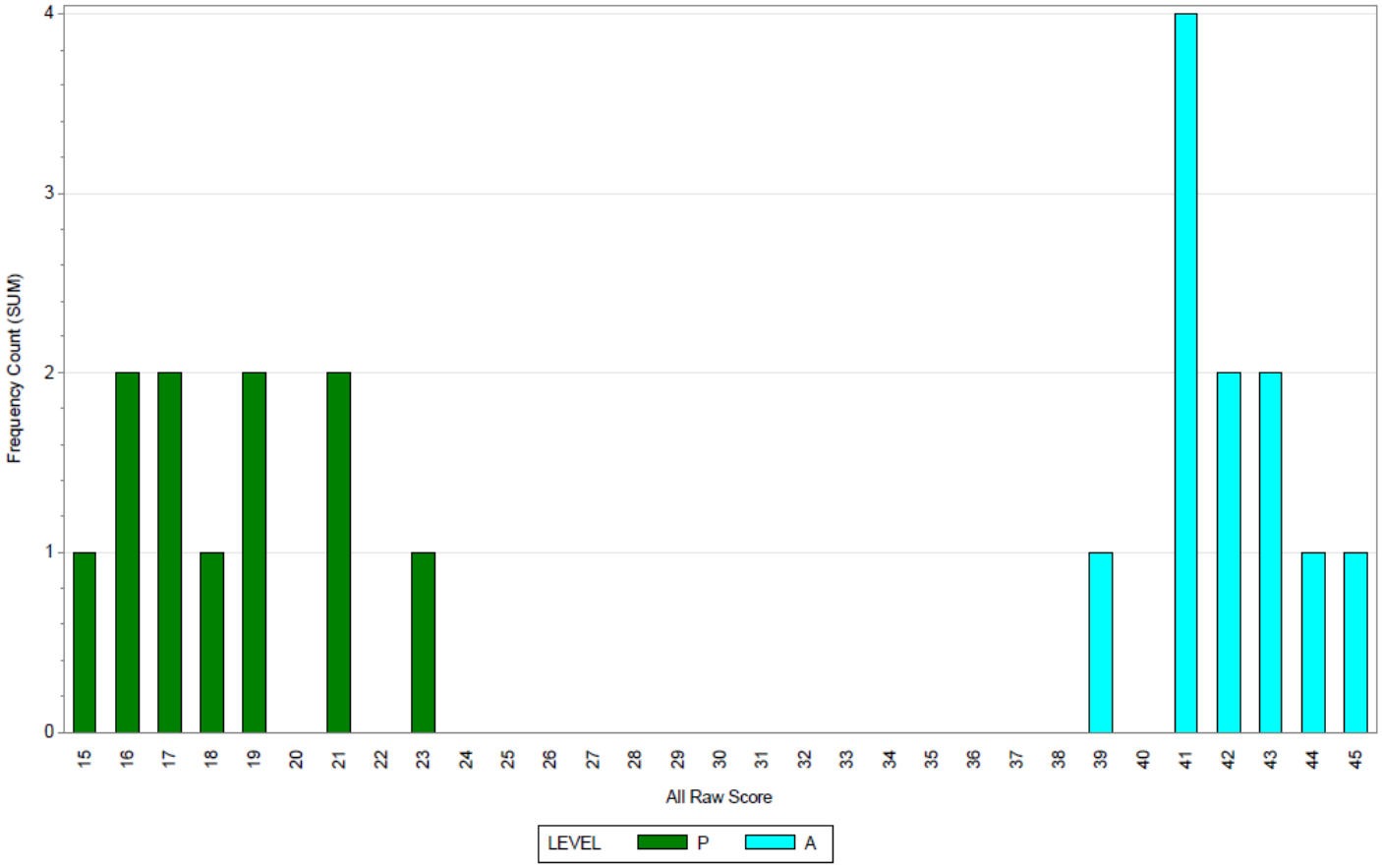
Round 2:



Proficient

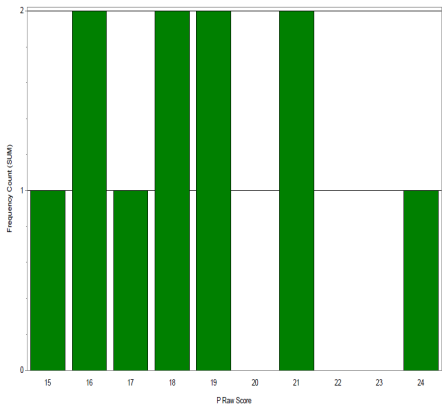


Advanced

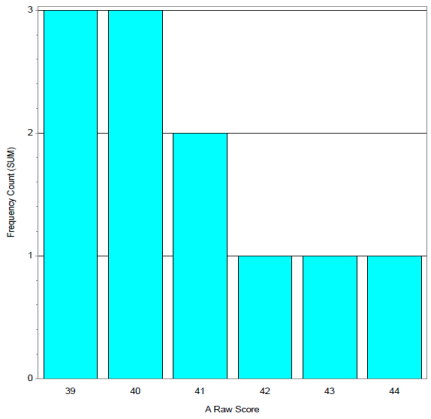


Both Performance Levels Concurrently

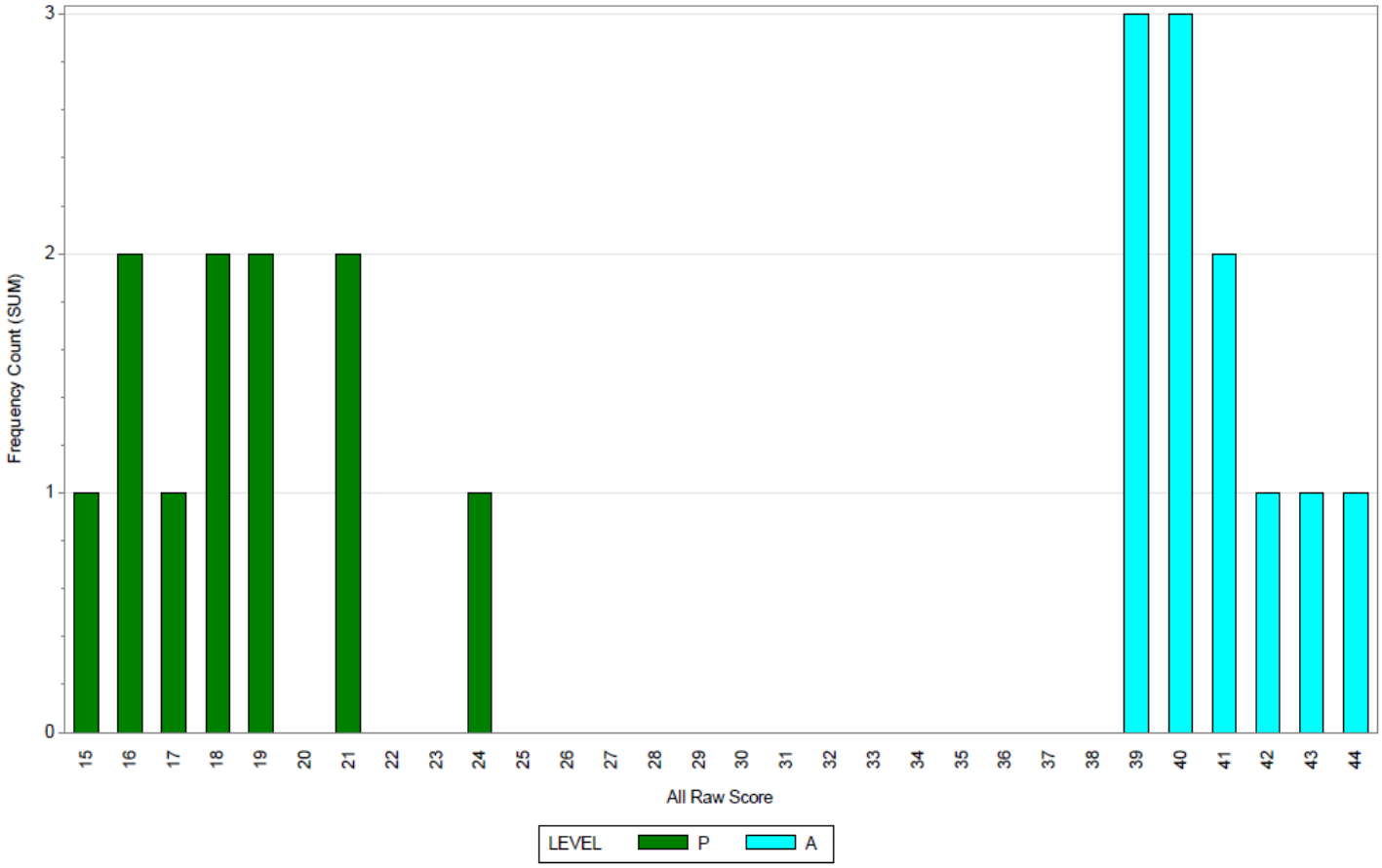
Round 3:



Proficient



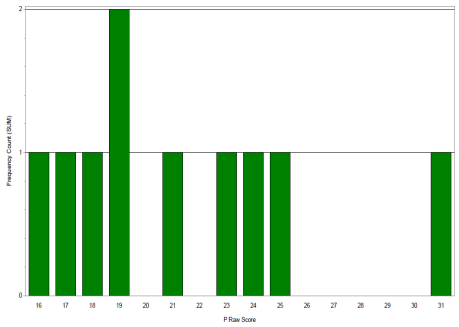
Advanced



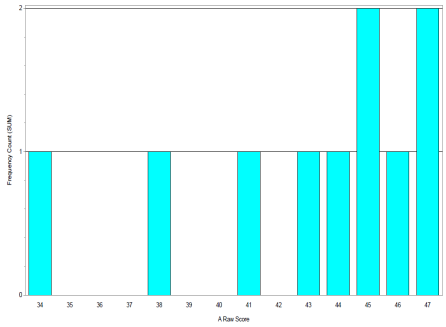
Both Performance Levels Concurrently

Mathematics Grade 8

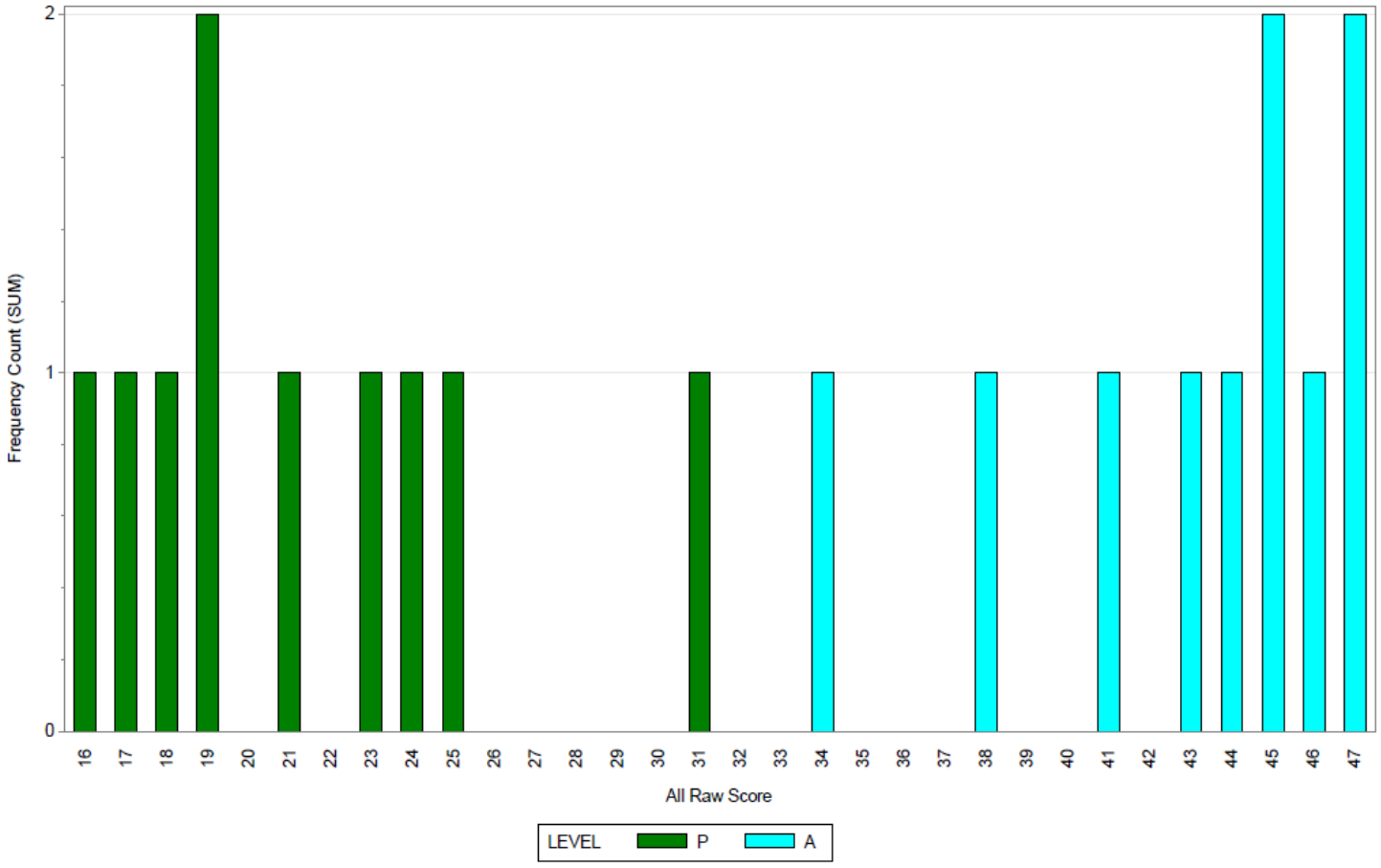
Round 1:



Proficient

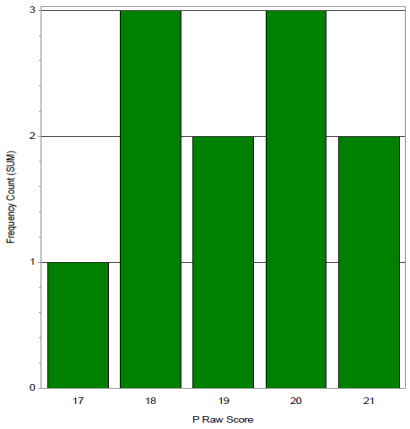


Advanced

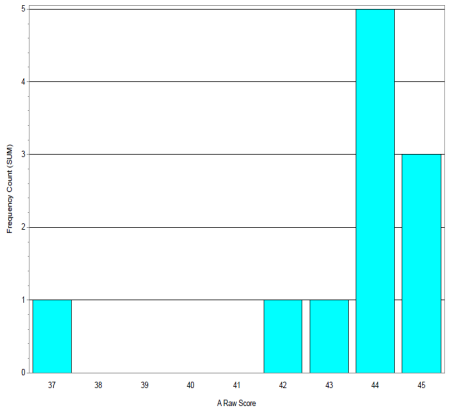


Both Performance Levels Concurrently

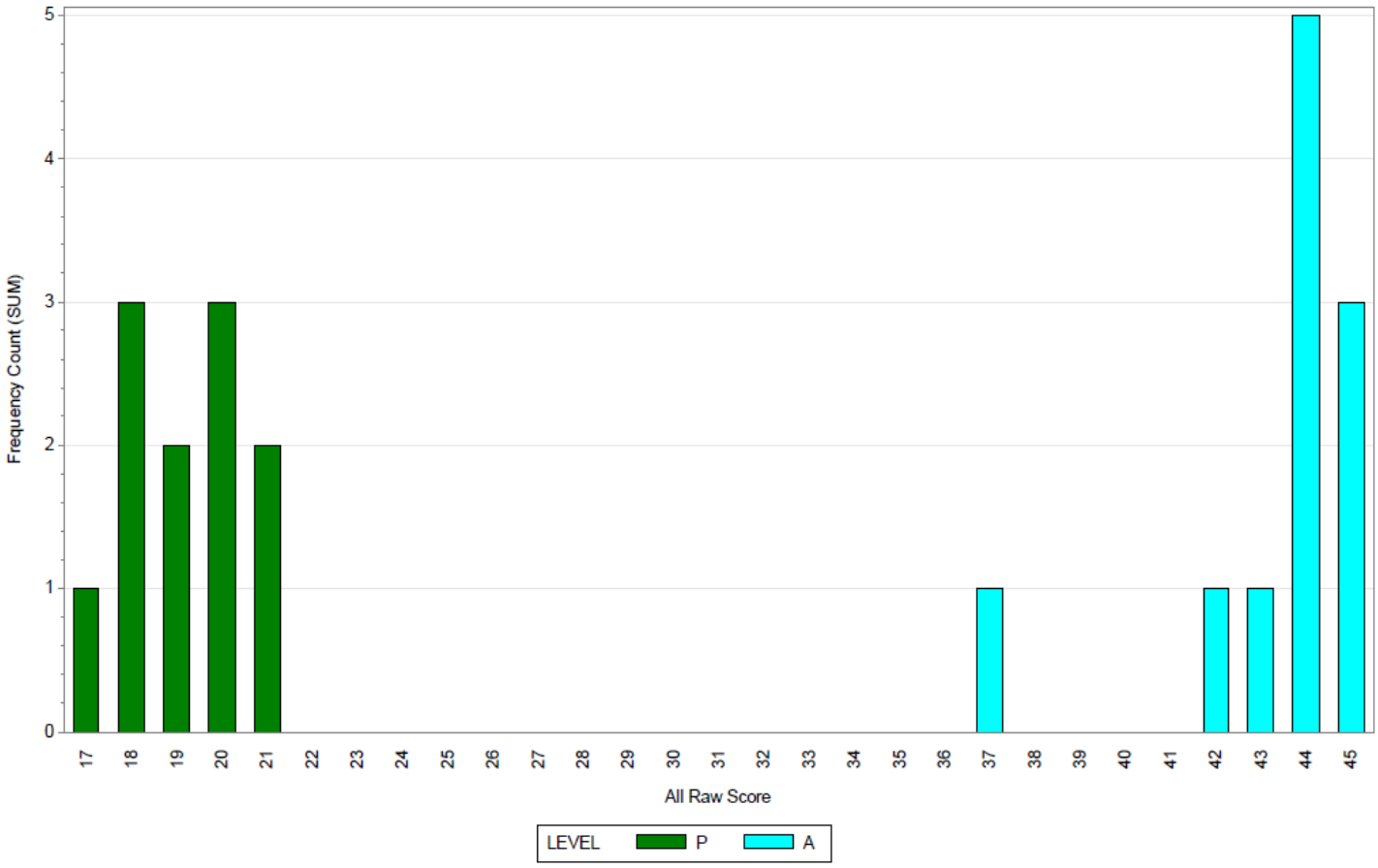
Round 2:



Proficient

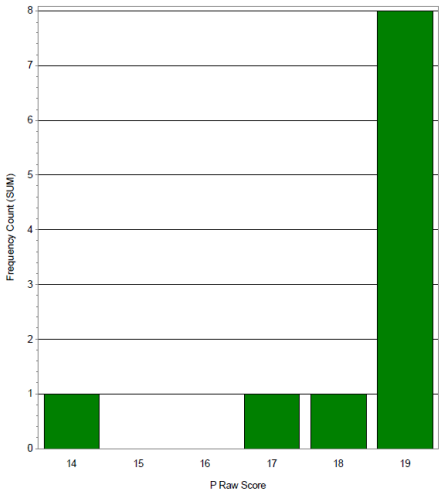


Advanced

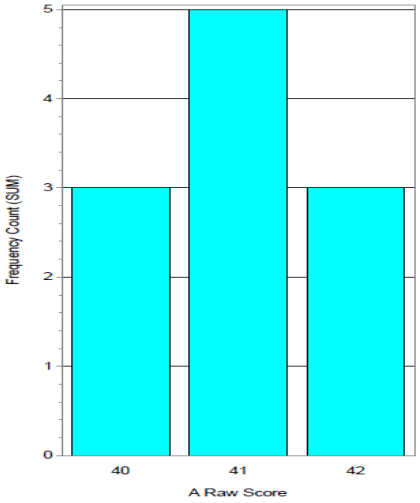


Both Performance Levels Concurrently

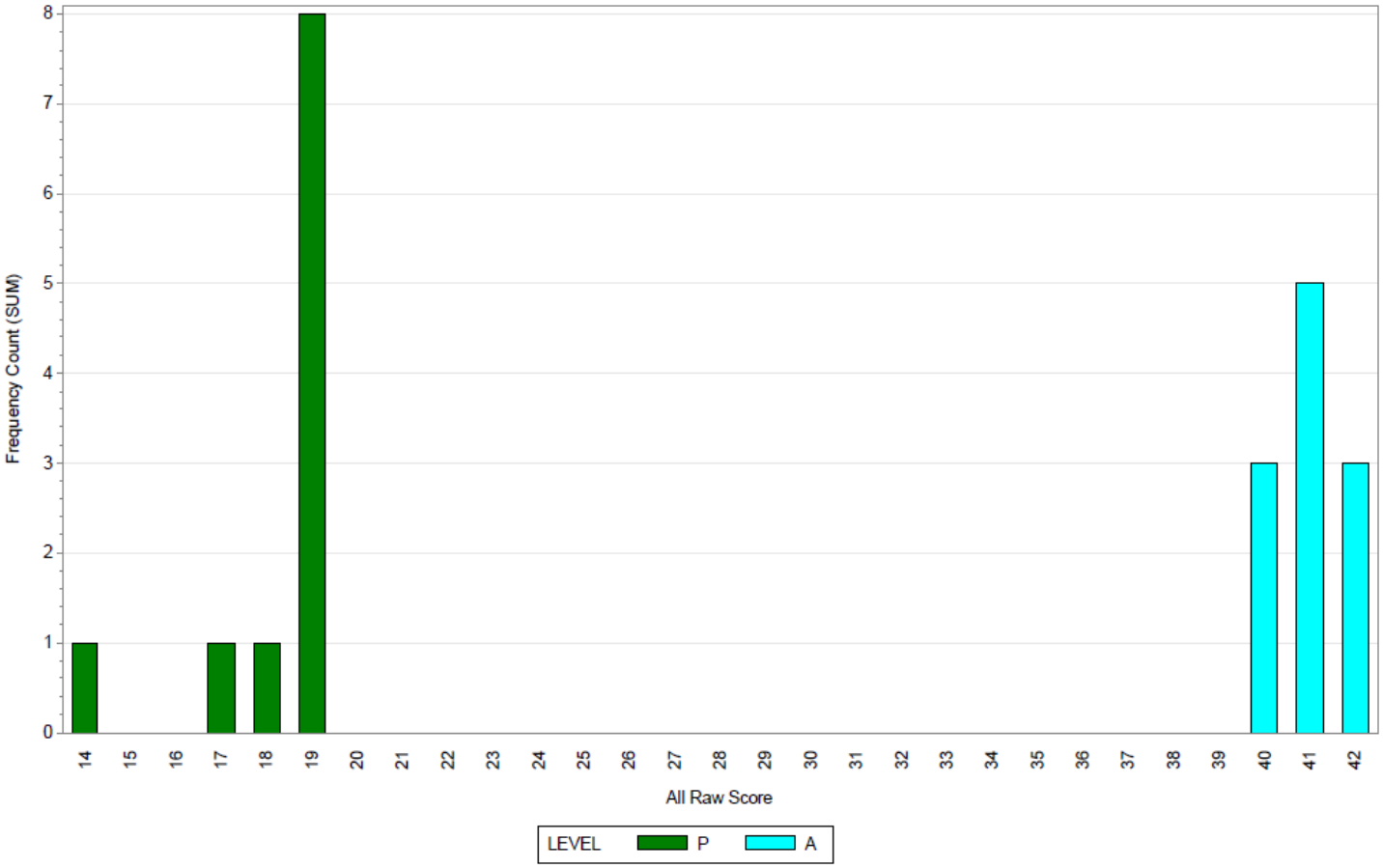
Round 3:



Proficient



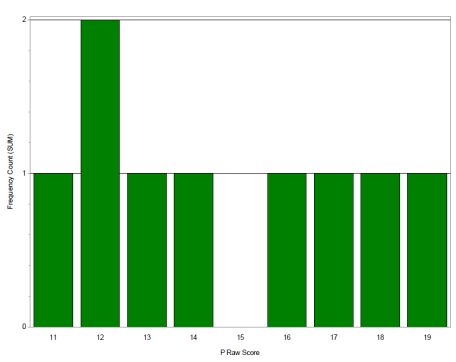
Advanced



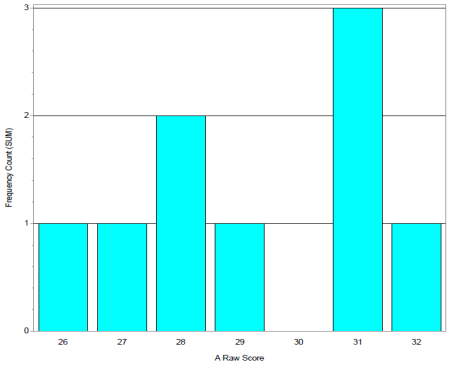
Both Performance Levels Concurrently

Mathematics Grade 9

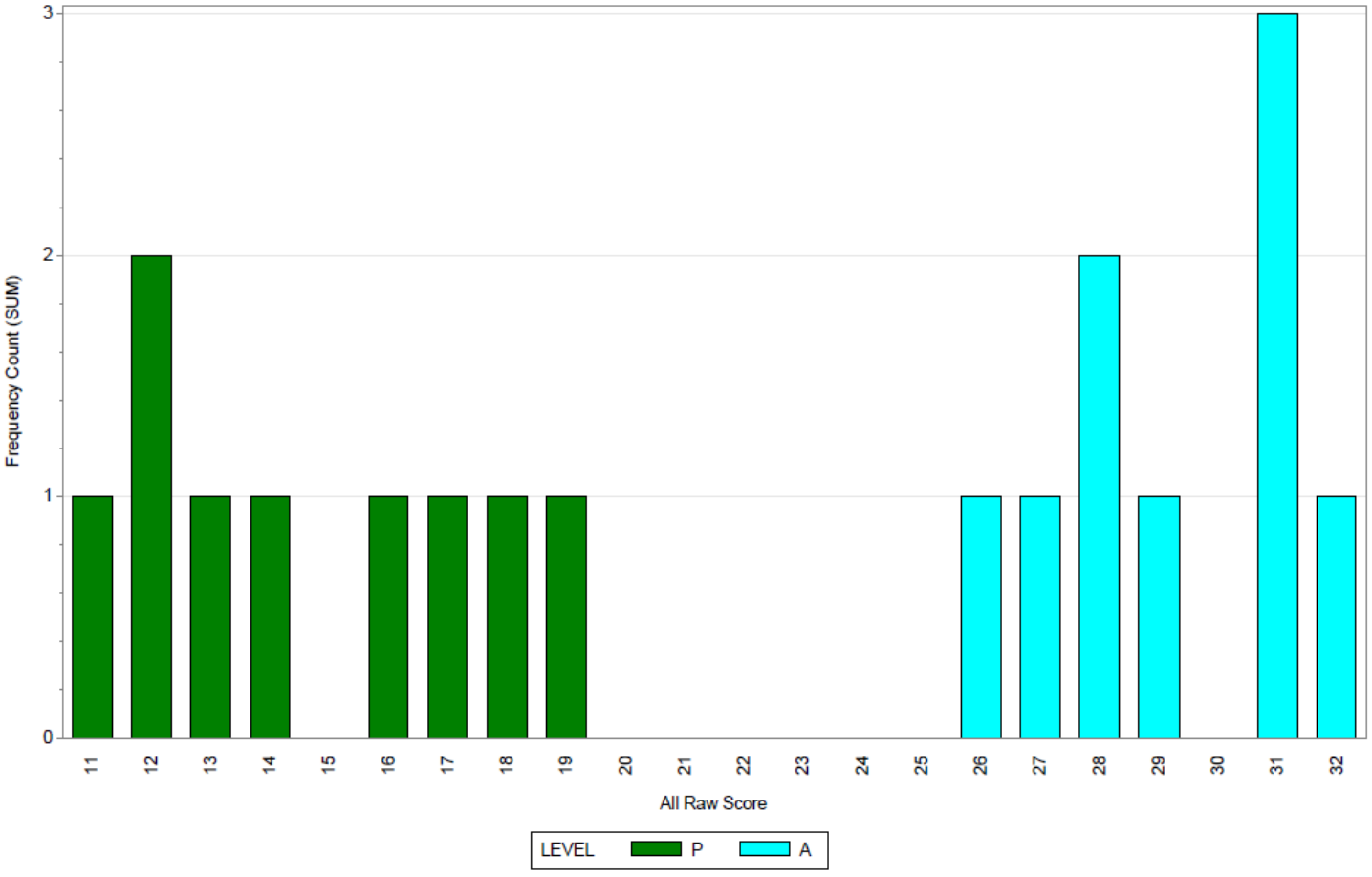
Round 1:



Proficient

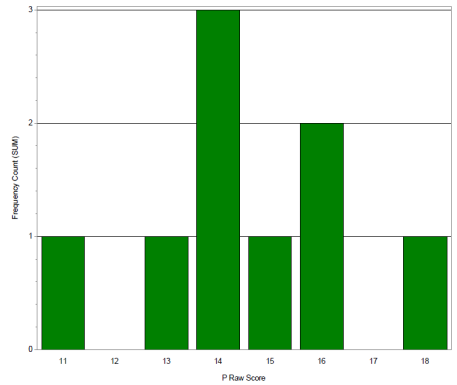


Advanced

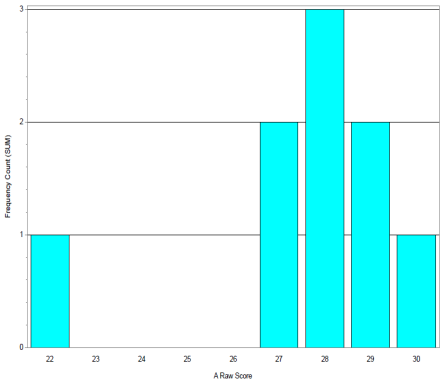


Both Performance Levels Concurrently

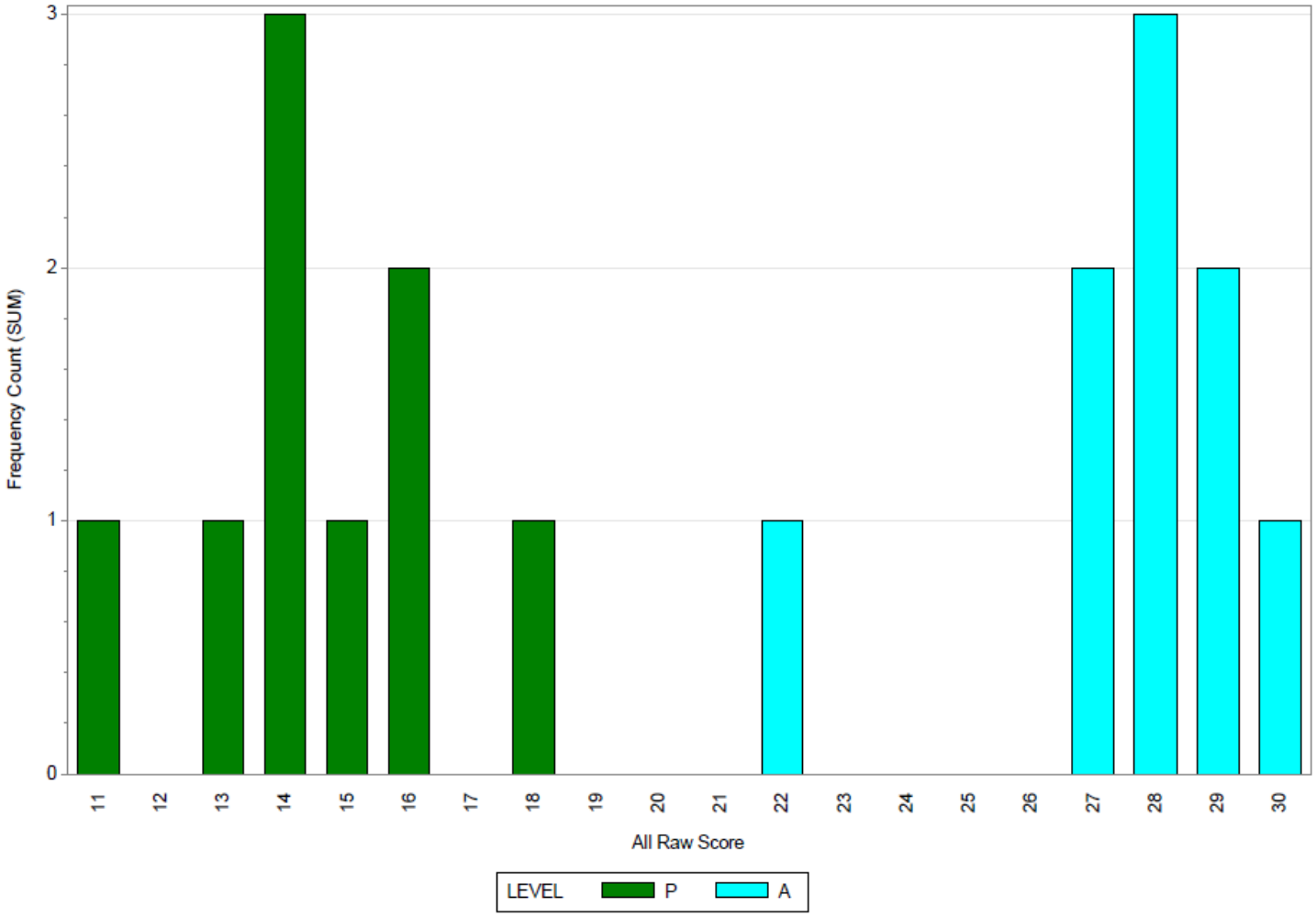
Round 2:



Proficient

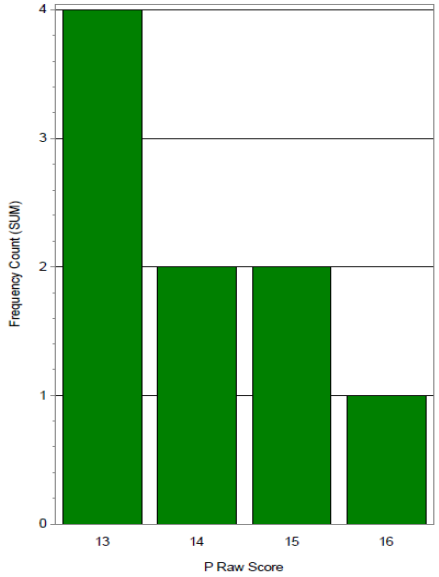


Advanced

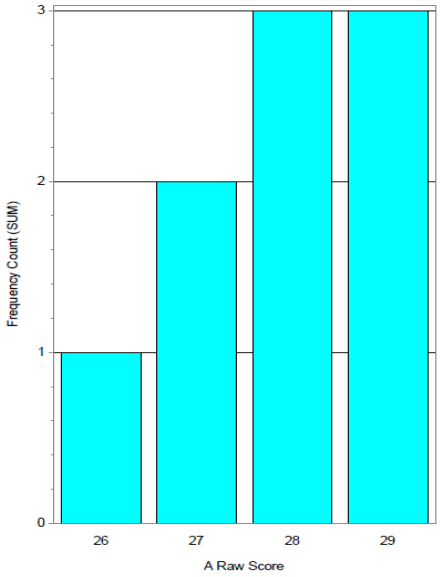


Both Performance Levels Concurrently

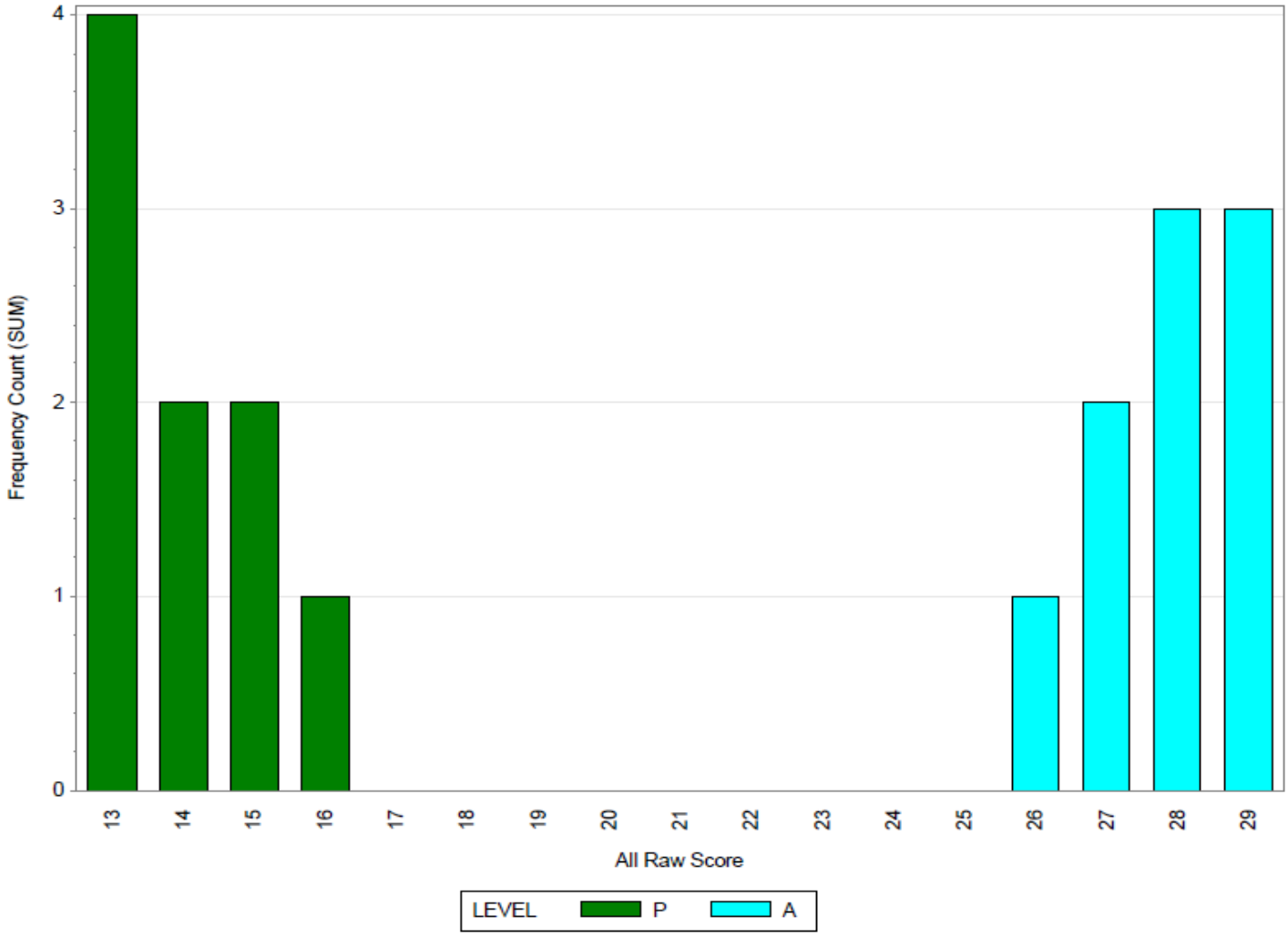
Round 3:



Proficient

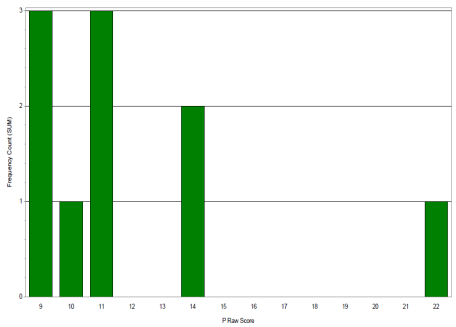


Advanced

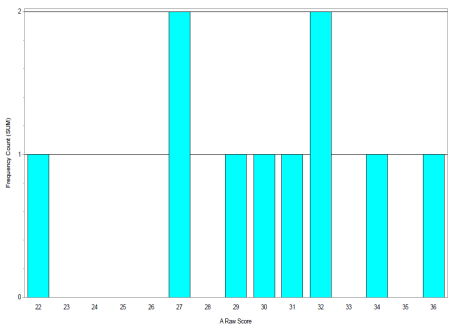


Both Performance Levels Concurrently

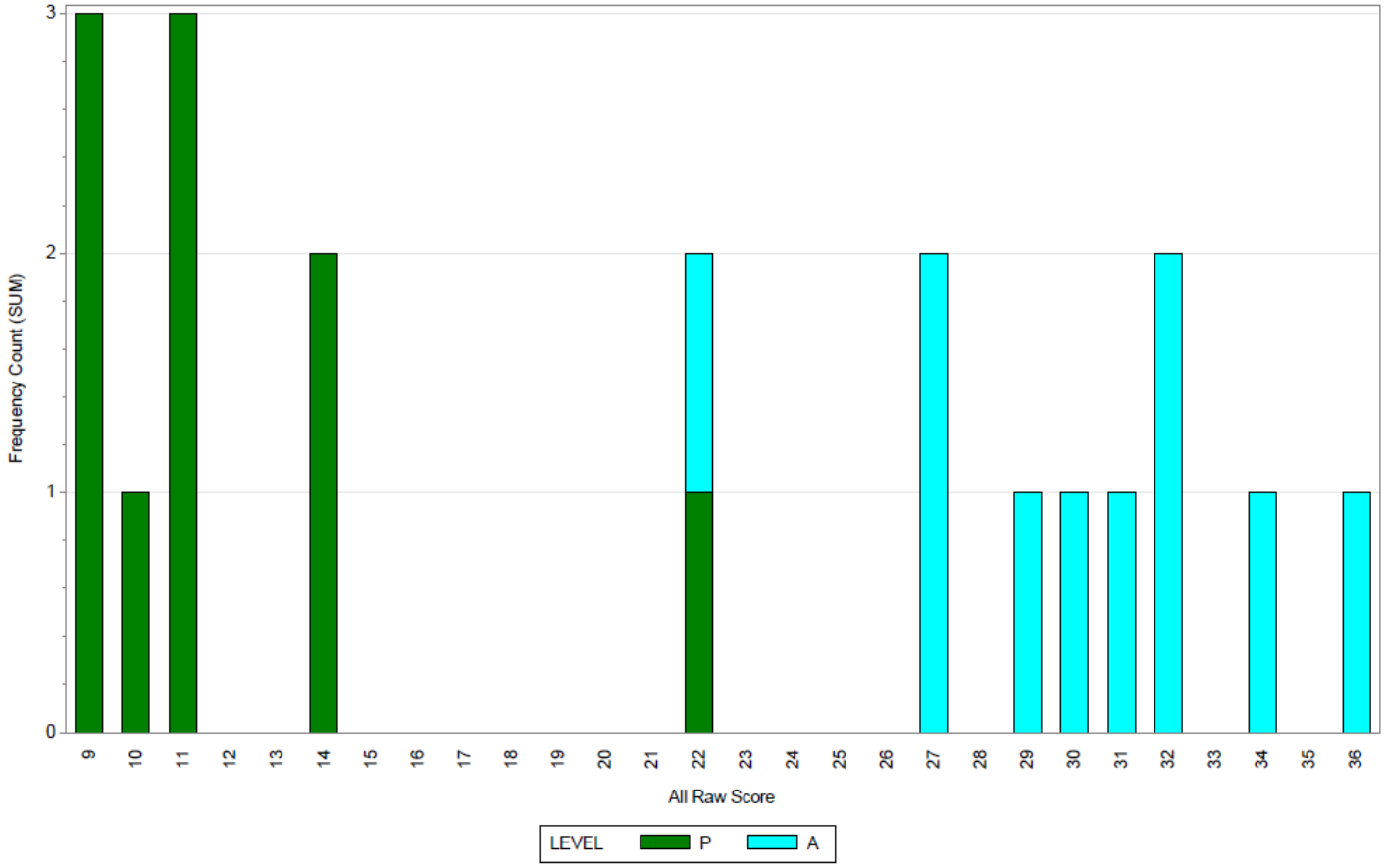
Round 1:



Proficient



Advanced



Both Performance Levels Concurrently

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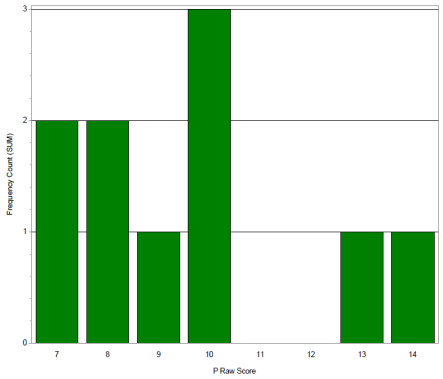
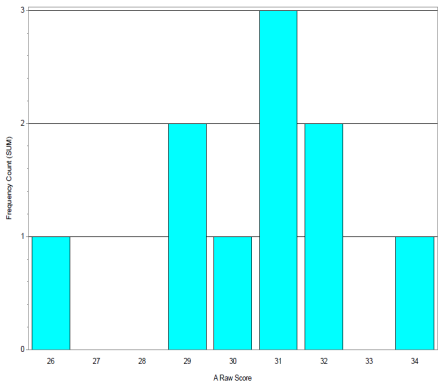
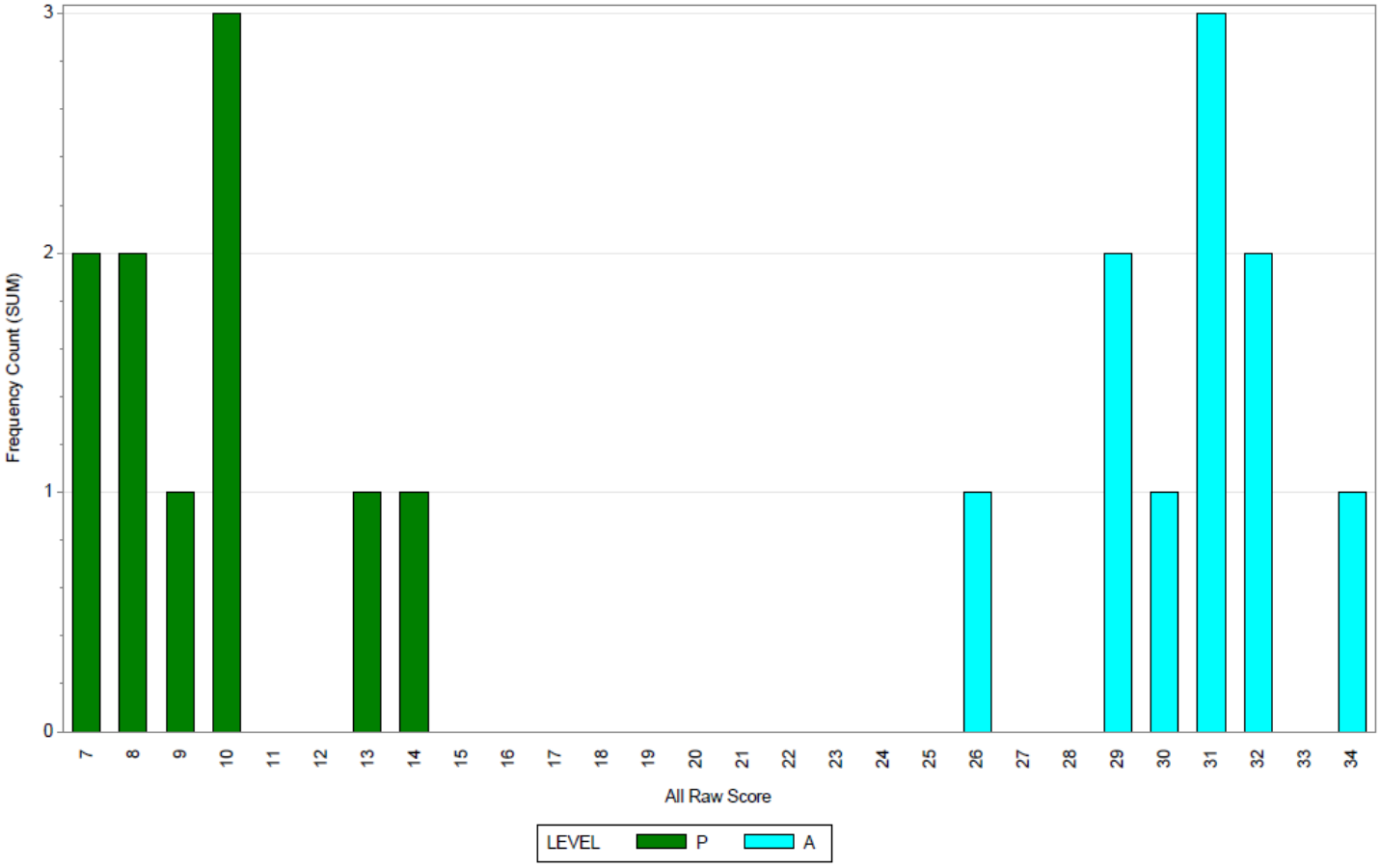


Proficient

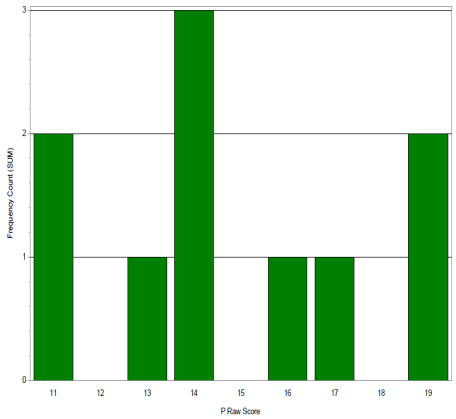


Advanced

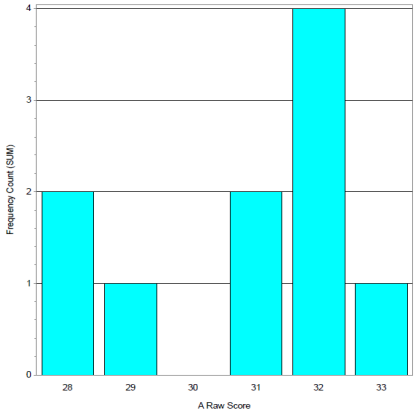


Both Performance Levels Concurrently

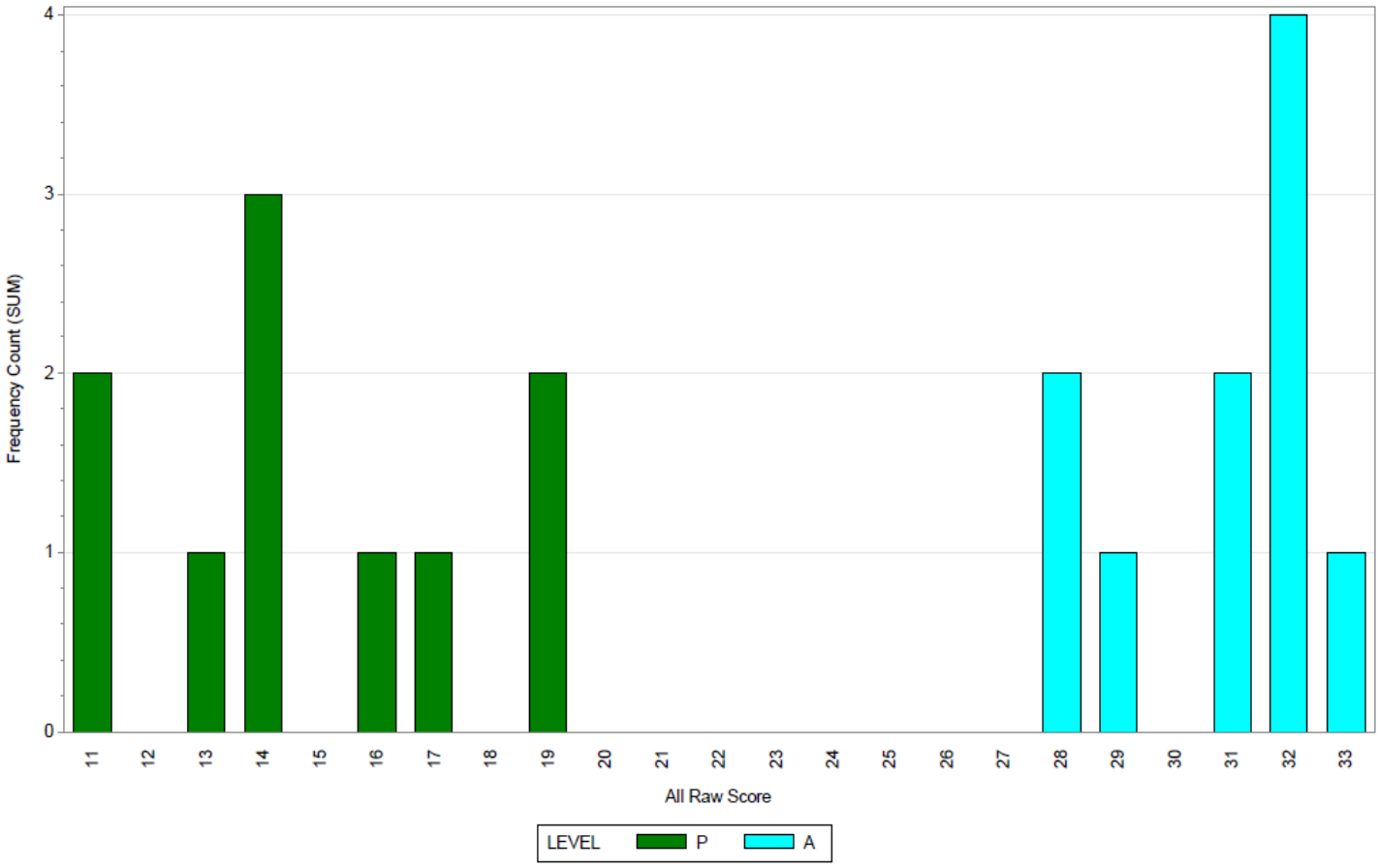
Round 3:



Proficient



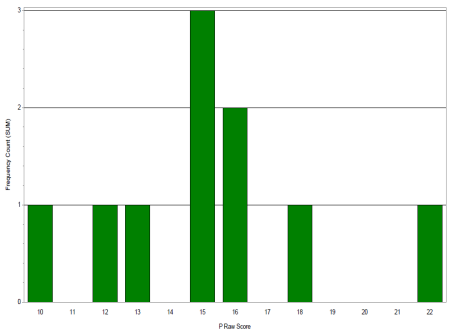
Advanced



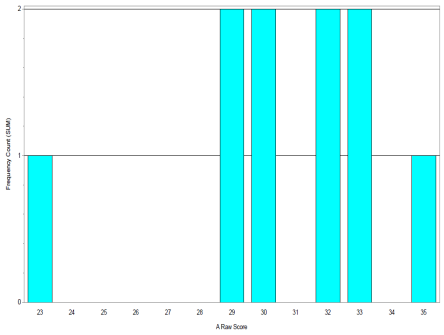
Both Performance Levels Concurrently

Mathematics Grade 11

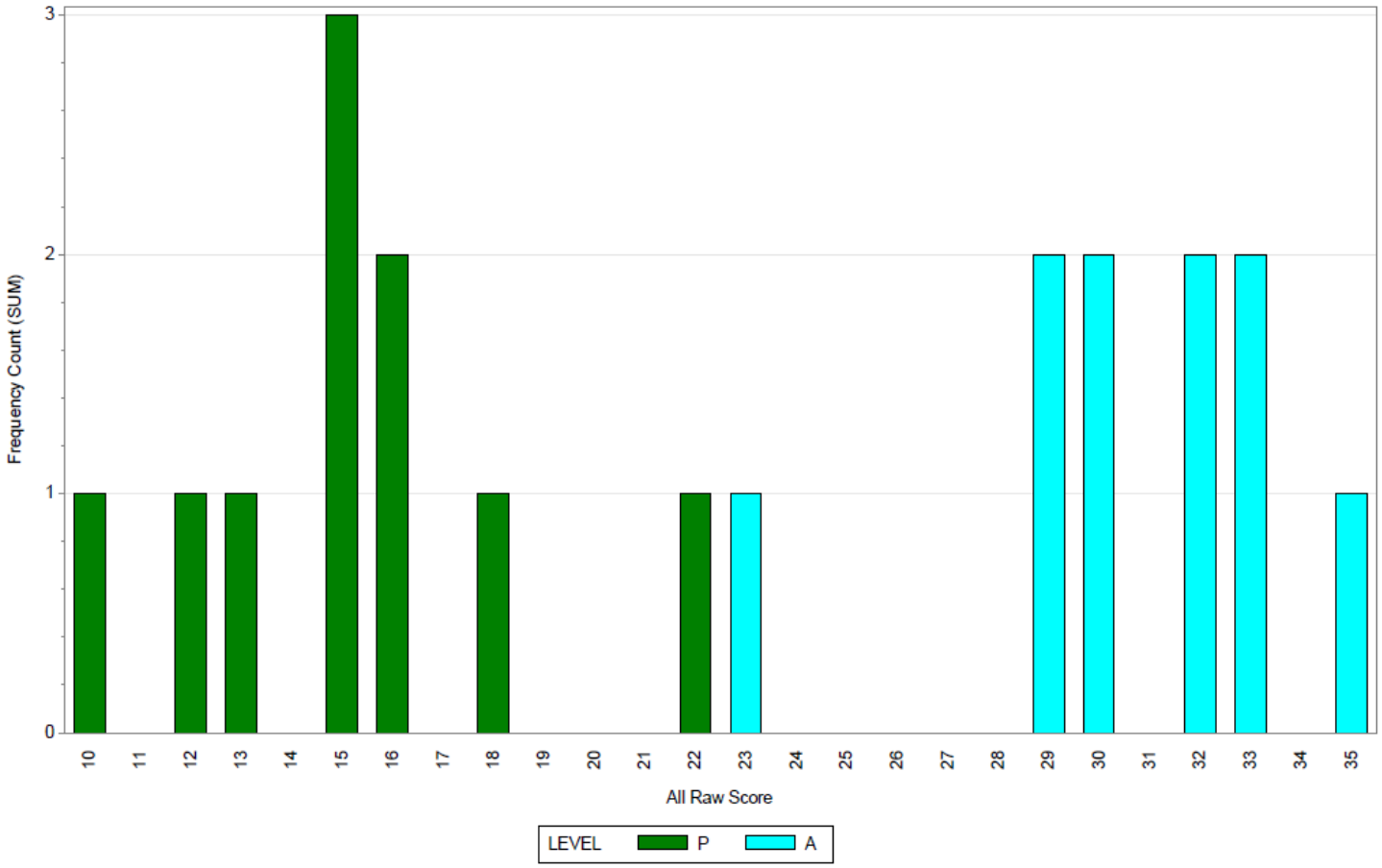
Round 1:



Proficient

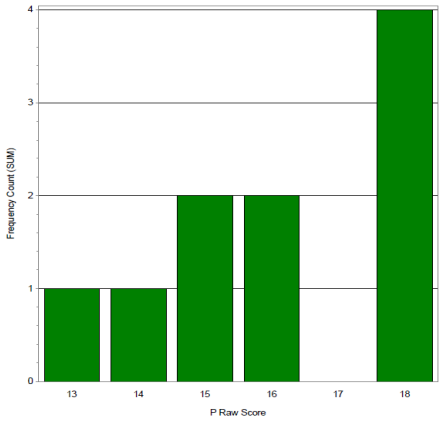


Advanced

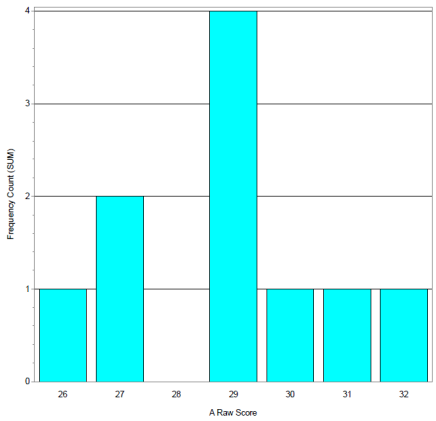


Both Performance Levels Concurrently

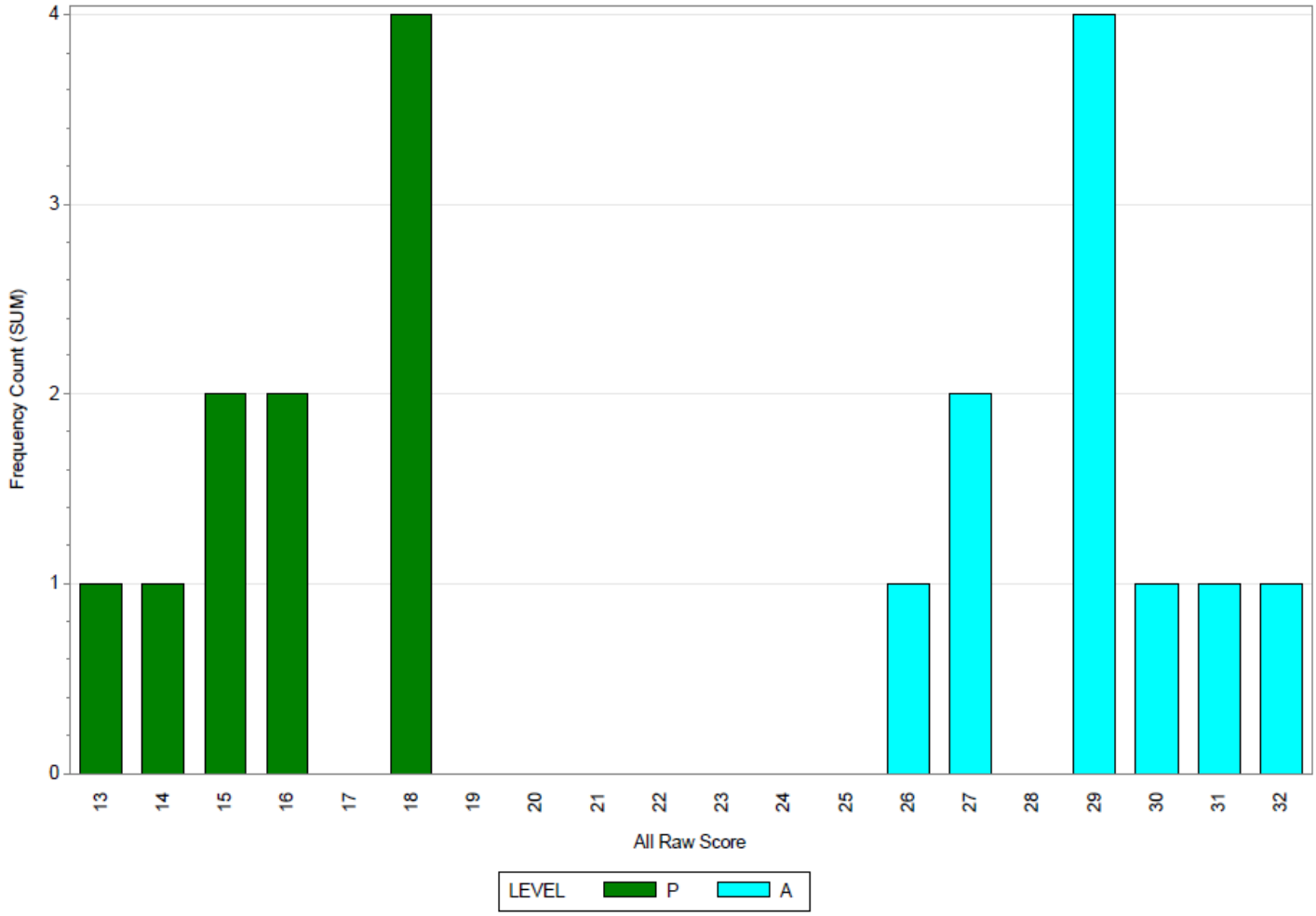
Round 2:



Proficient

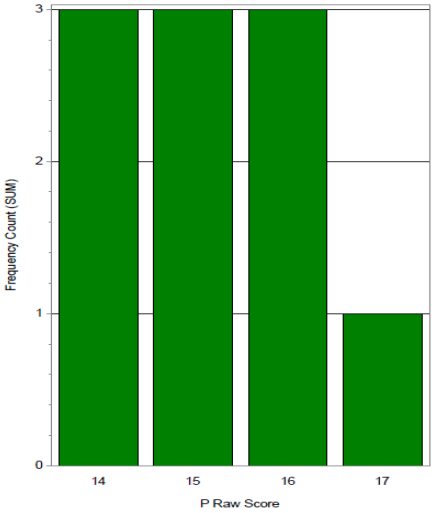


Advanced

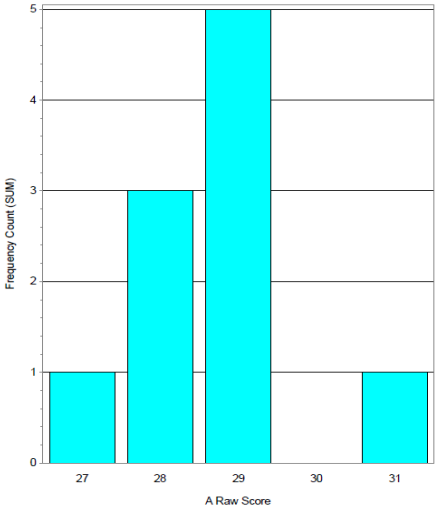


Both Performance Levels Concurrently

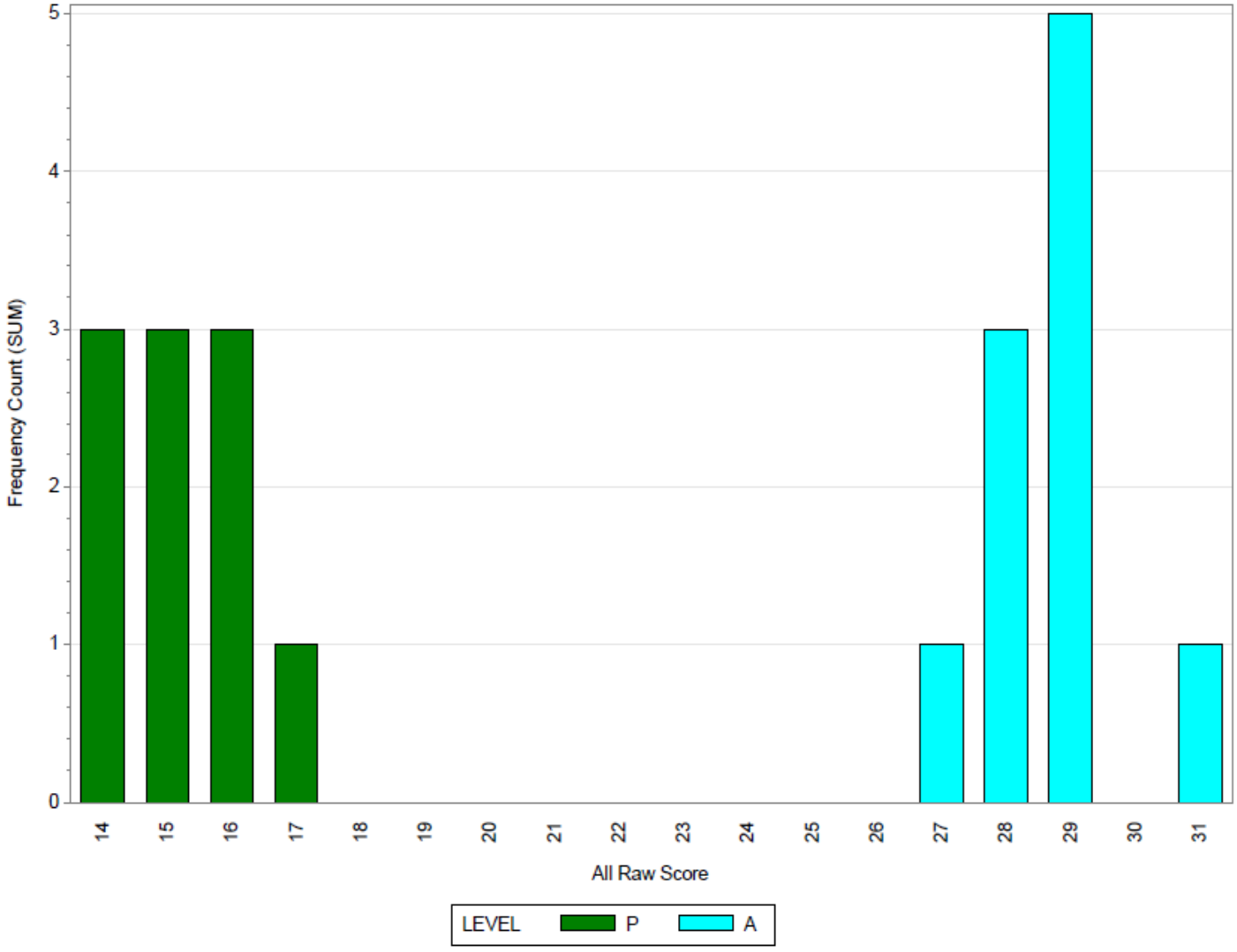
Round 3:



Proficient



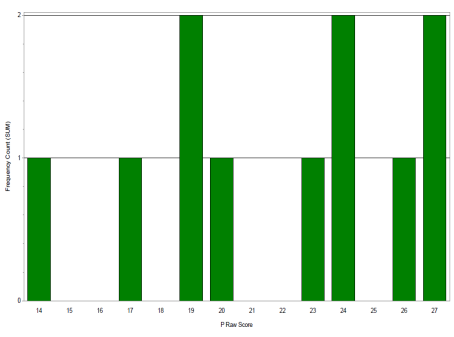
Advanced



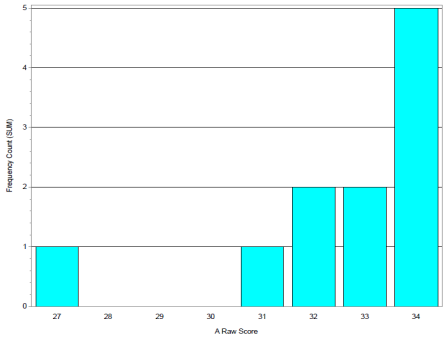
Both Performance Levels Concurrently

Science Grade 5

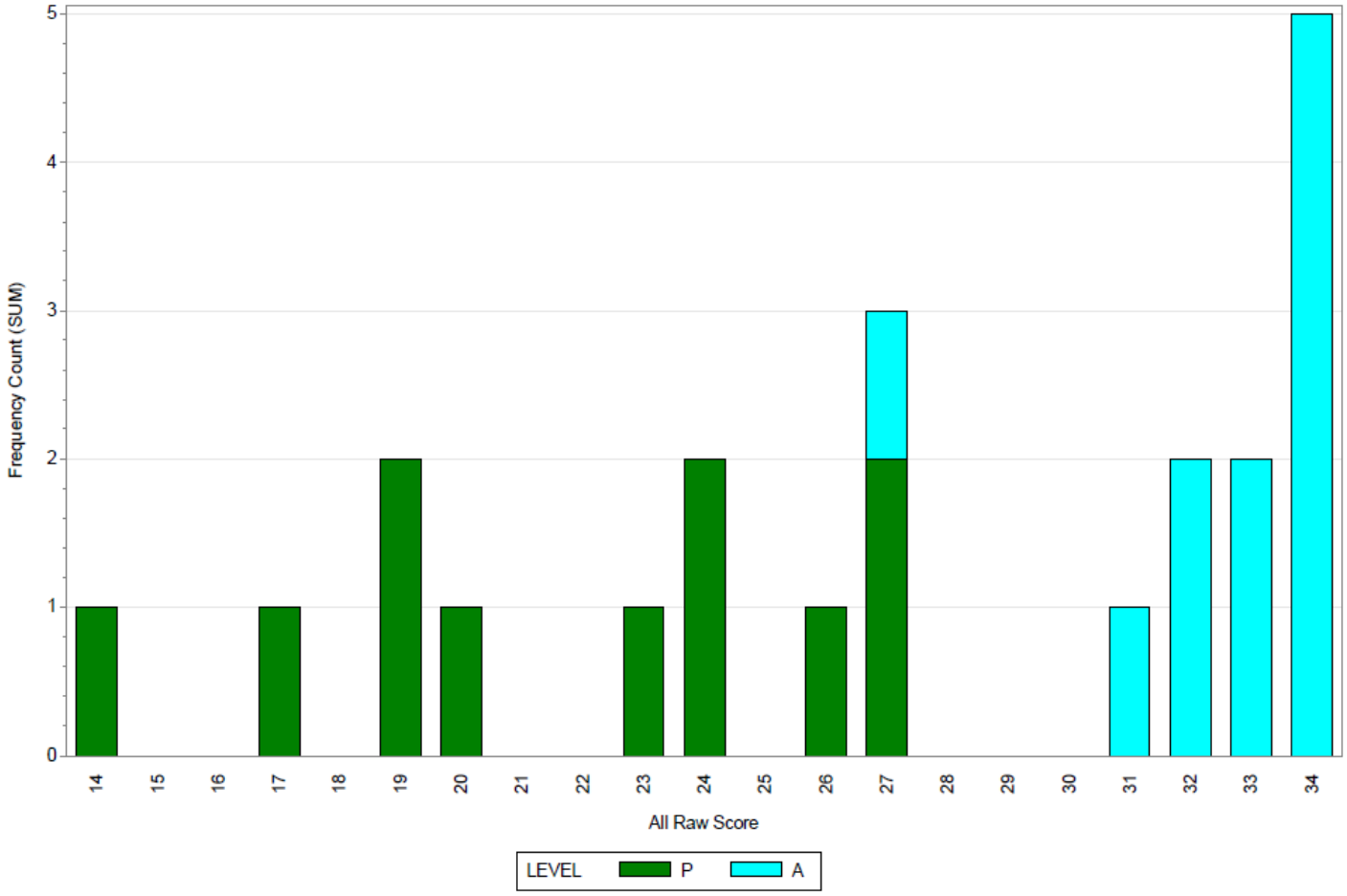
Round 1:



Proficient

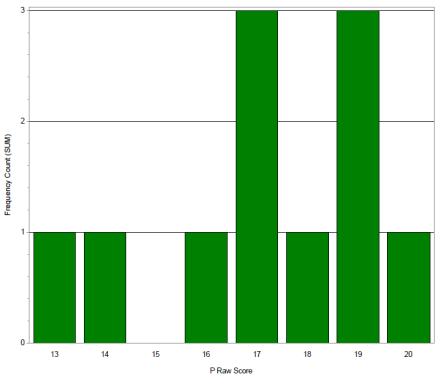


Advanced

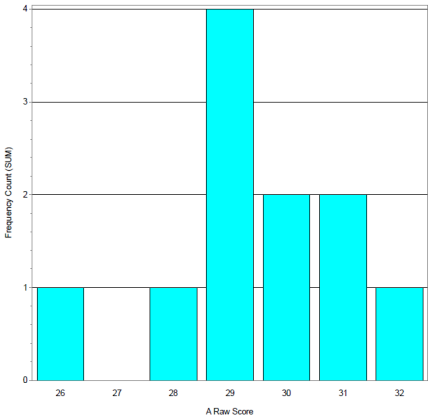


Both Performance Levels Concurrently

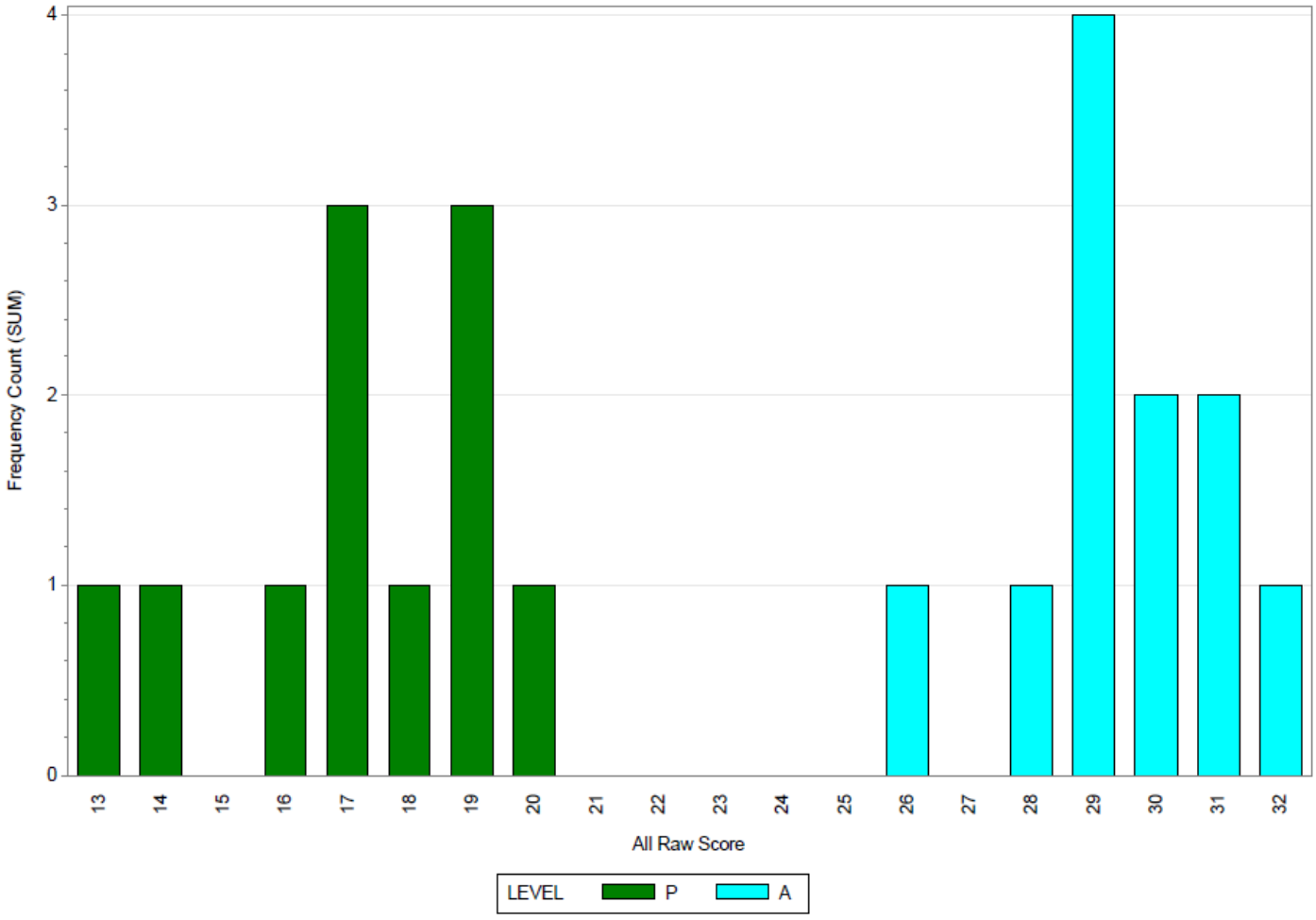
Round 2:



Proficient

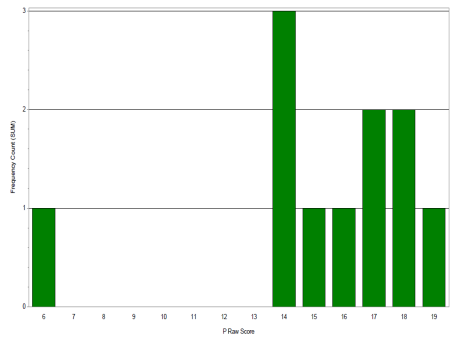


Advanced

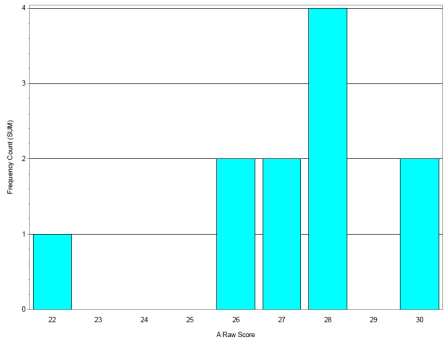


Both Performance Levels Concurrently

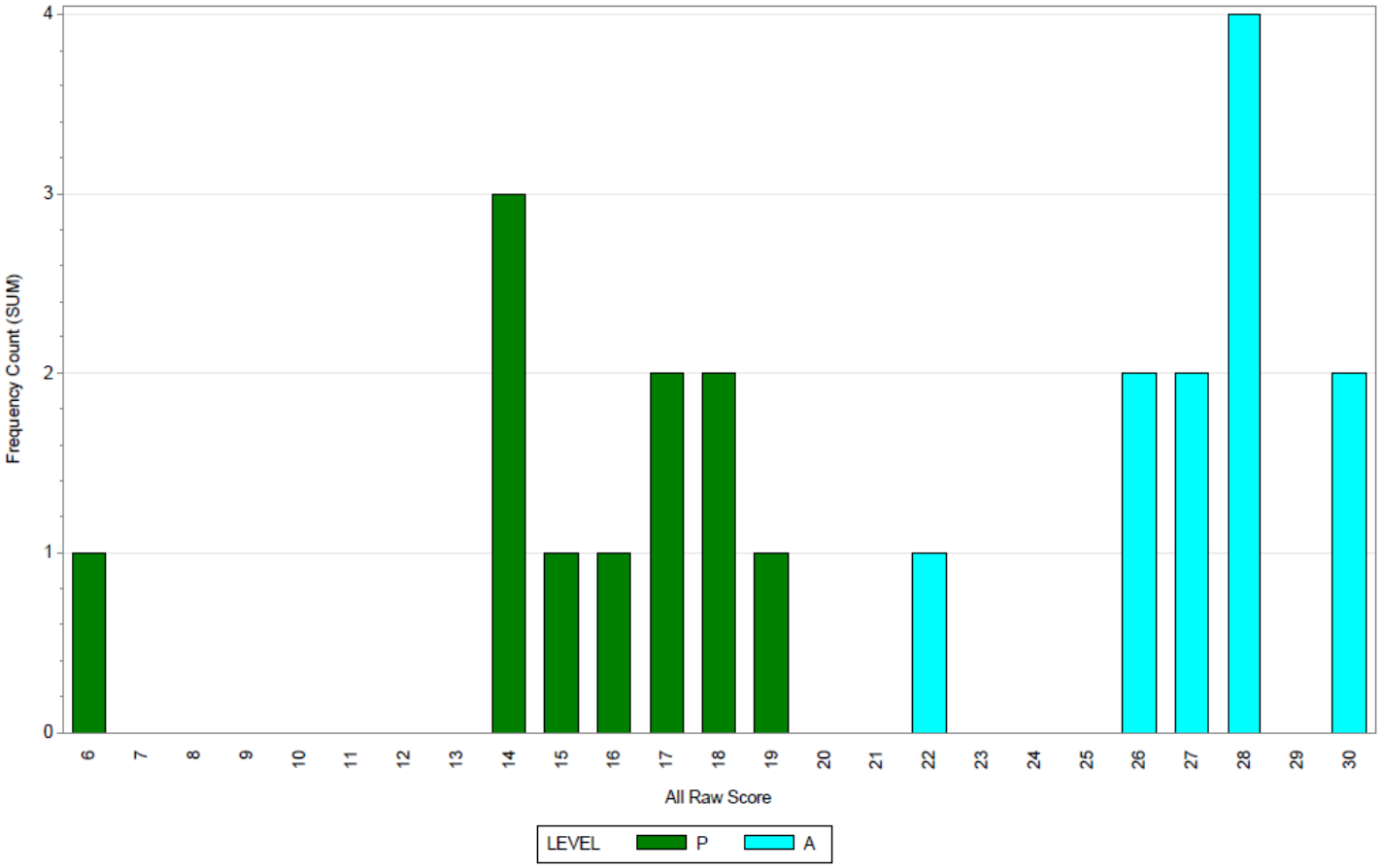
Round 3:



Proficient



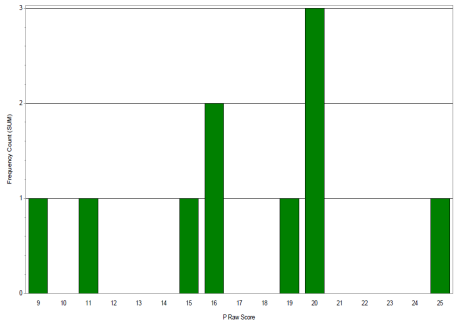
Advanced



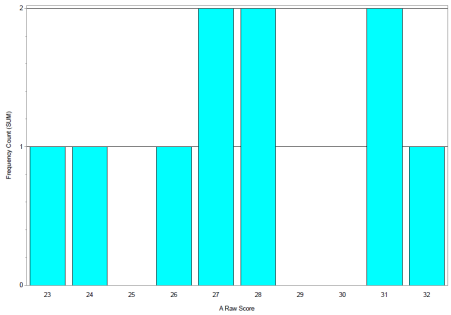
Both Performance Levels Concurrently

Science Grade 8

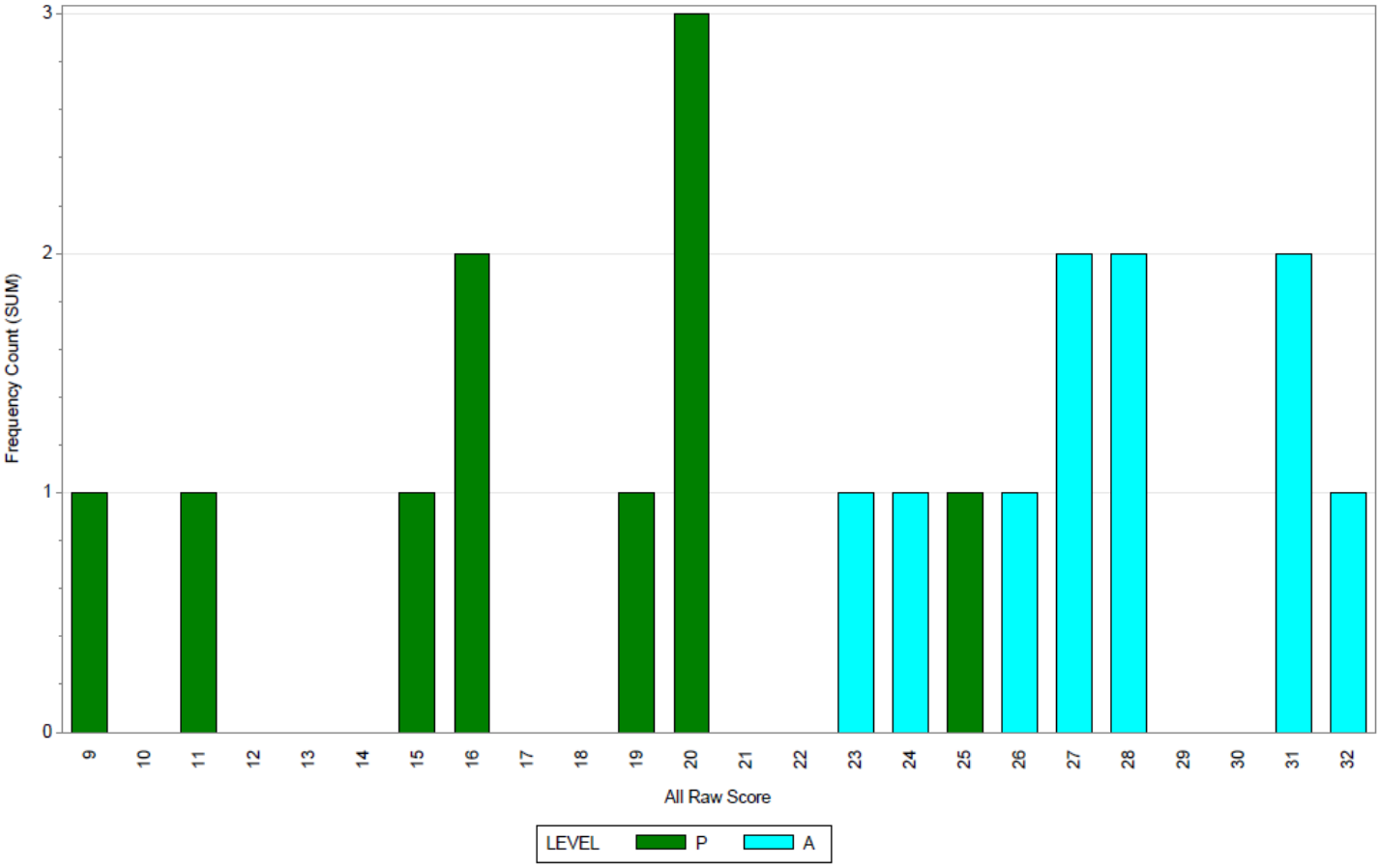
Round 1:



Proficient

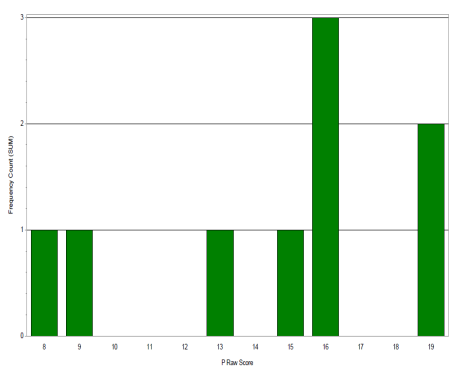


Advanced

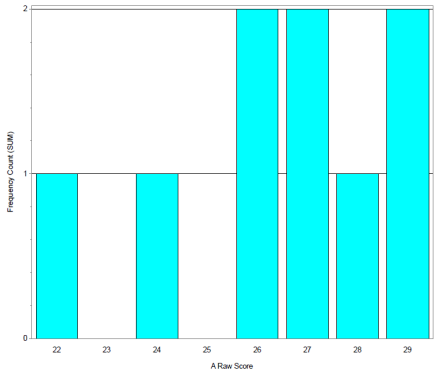


Both Performance Levels Concurrently

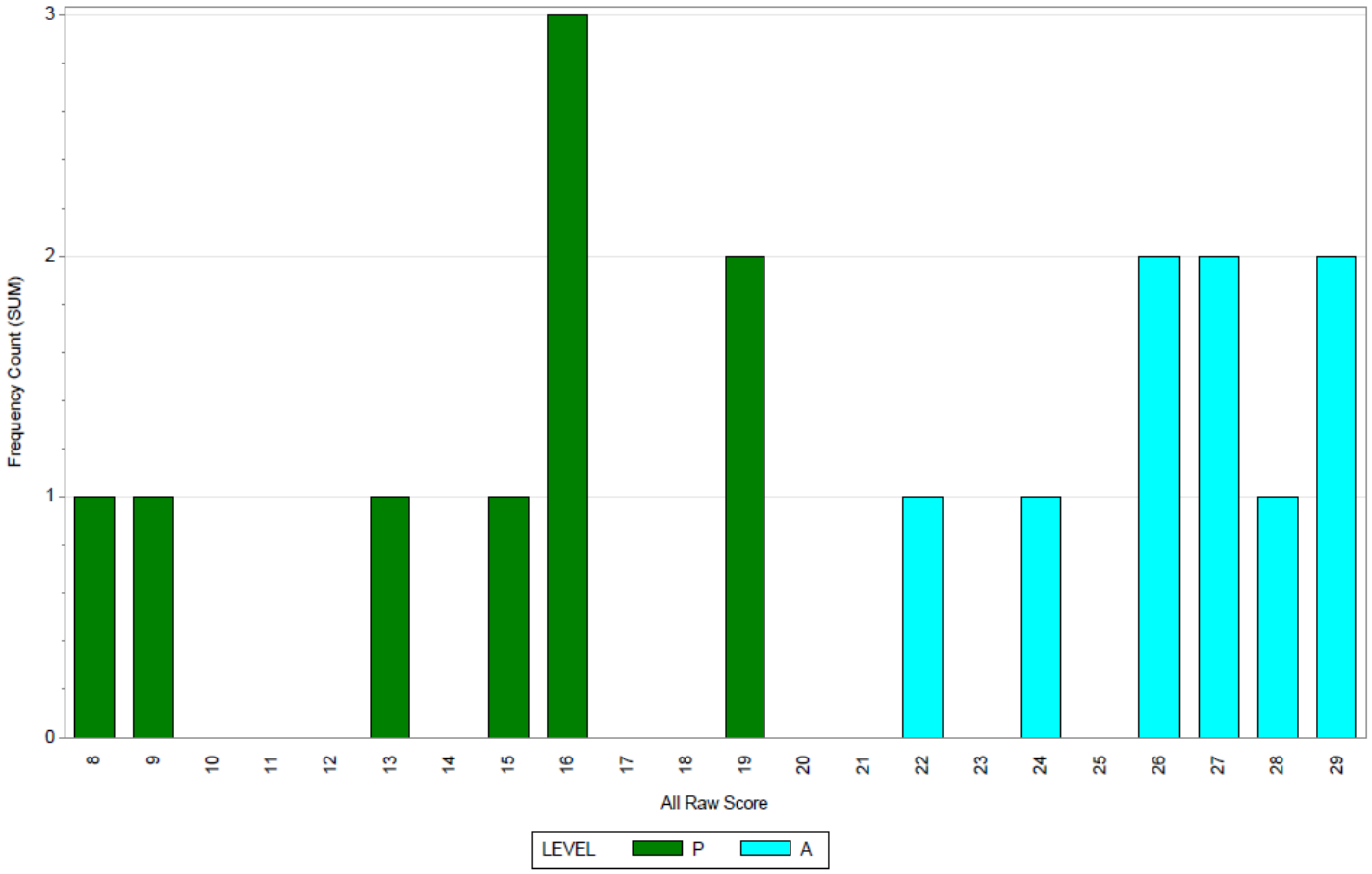
Round 2:



Proficient

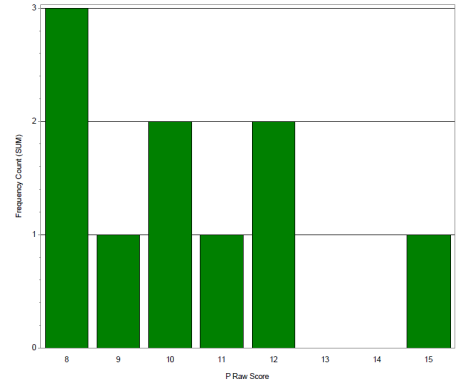


Advanced

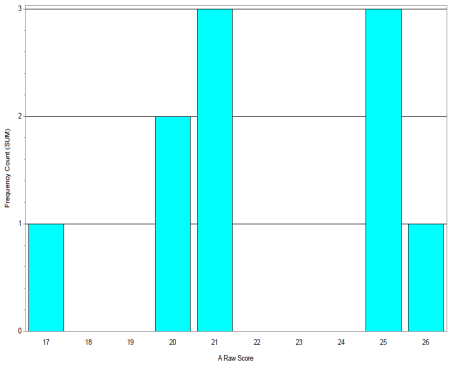


Both Performance Levels Concurrently

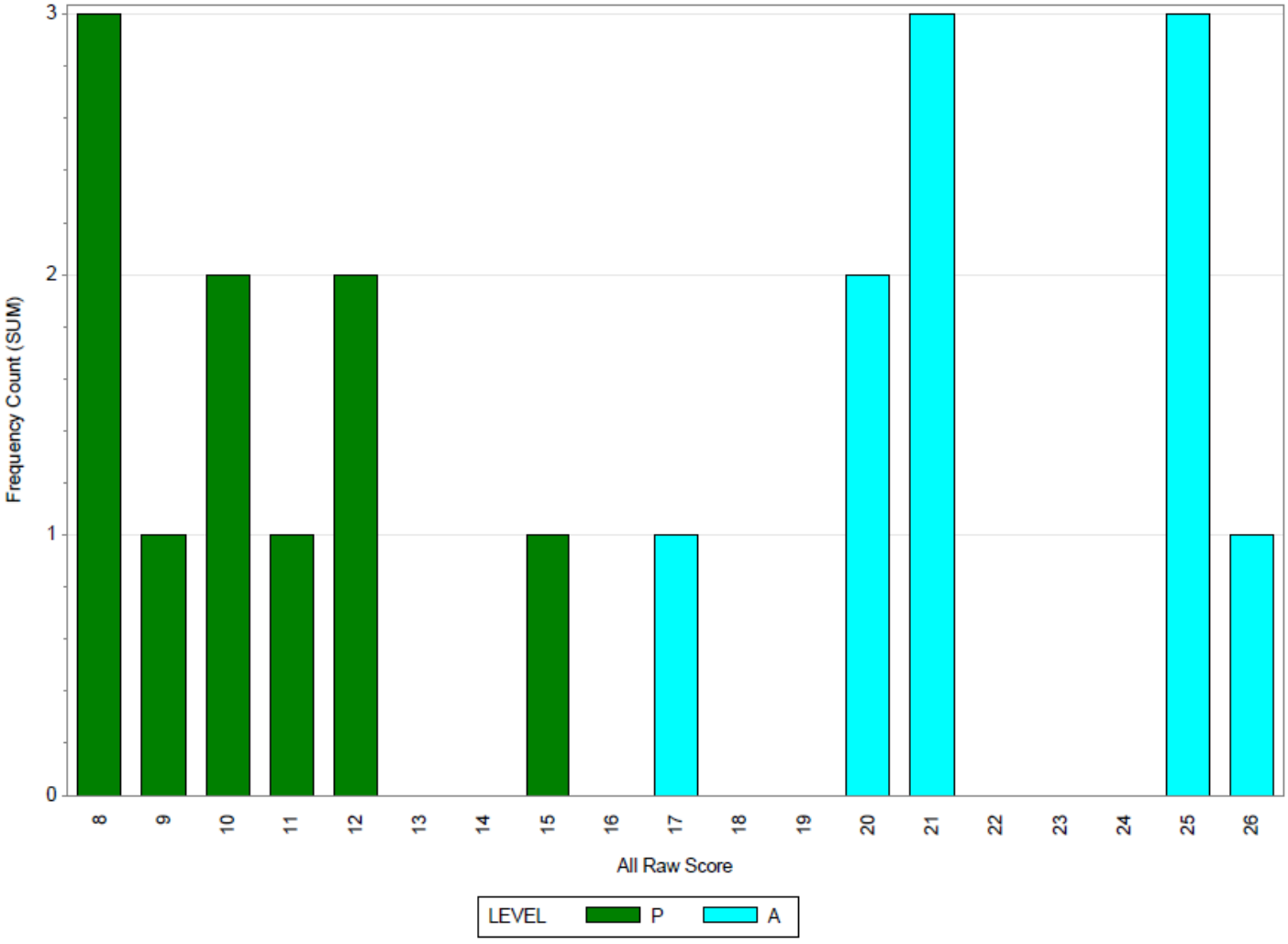
Round 3:



Proficient



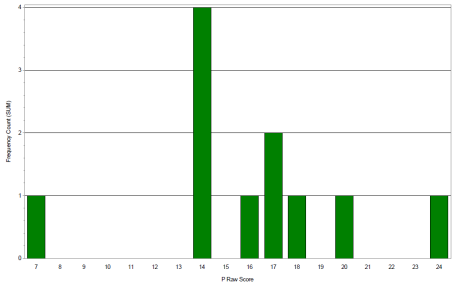
Advanced



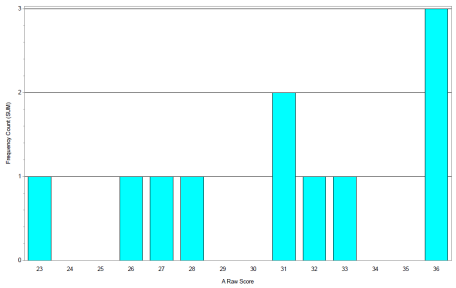
Both Performance Levels Concurrently

Science Grade 10

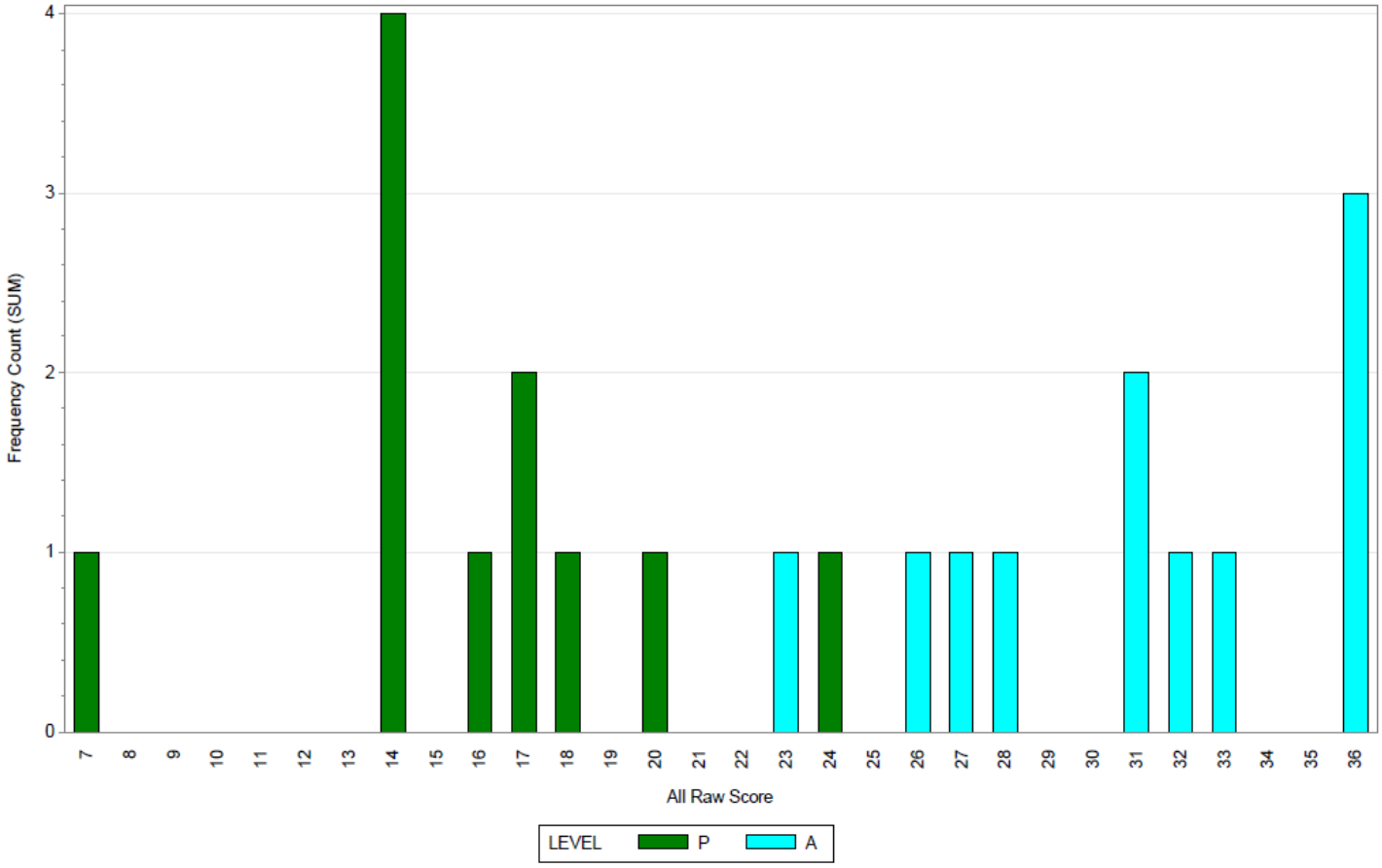
Round 1:



Proficient

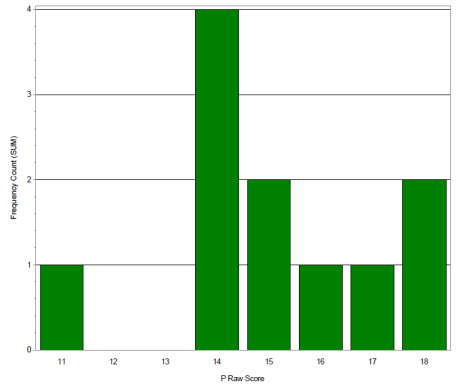


Advanced

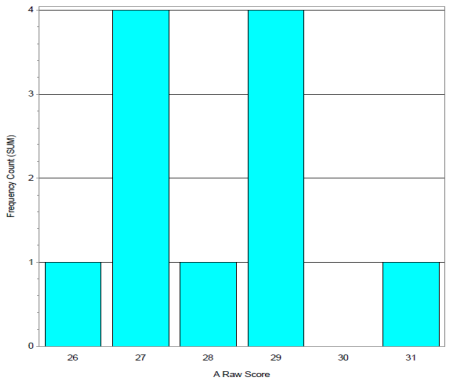


Both Performance Levels Concurrently

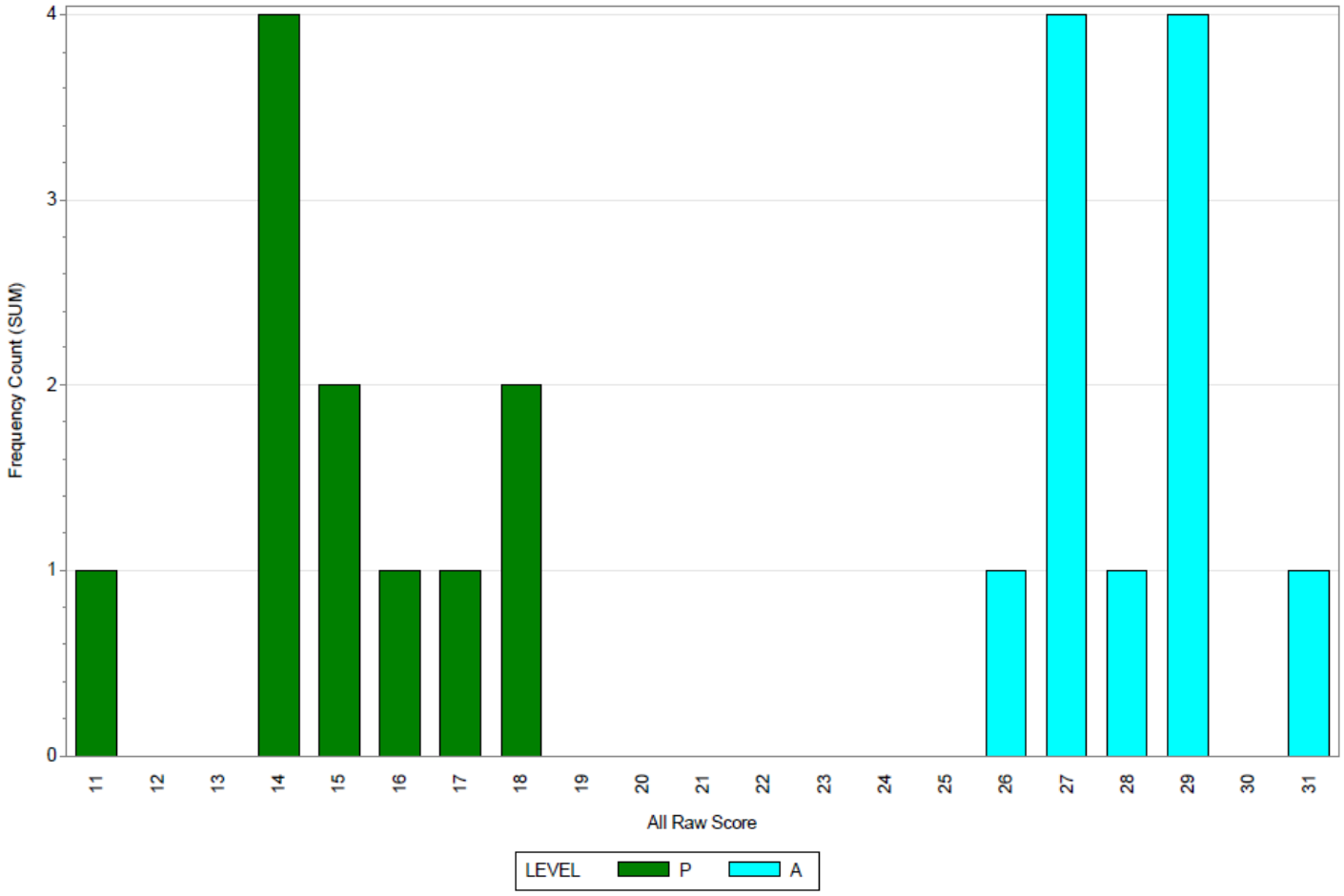
Round 2:



Proficient

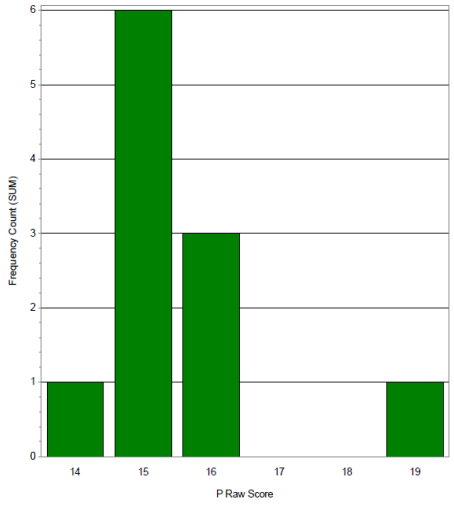


Advanced

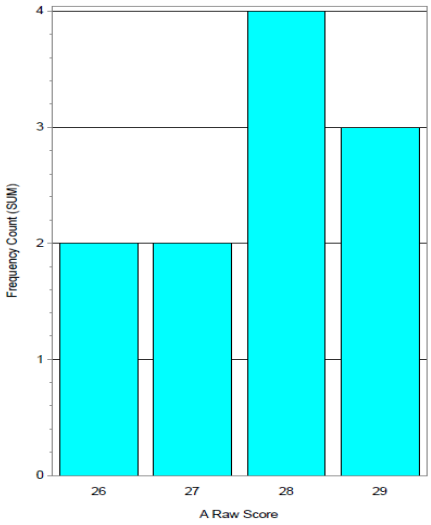


Both Performance Levels Concurrently

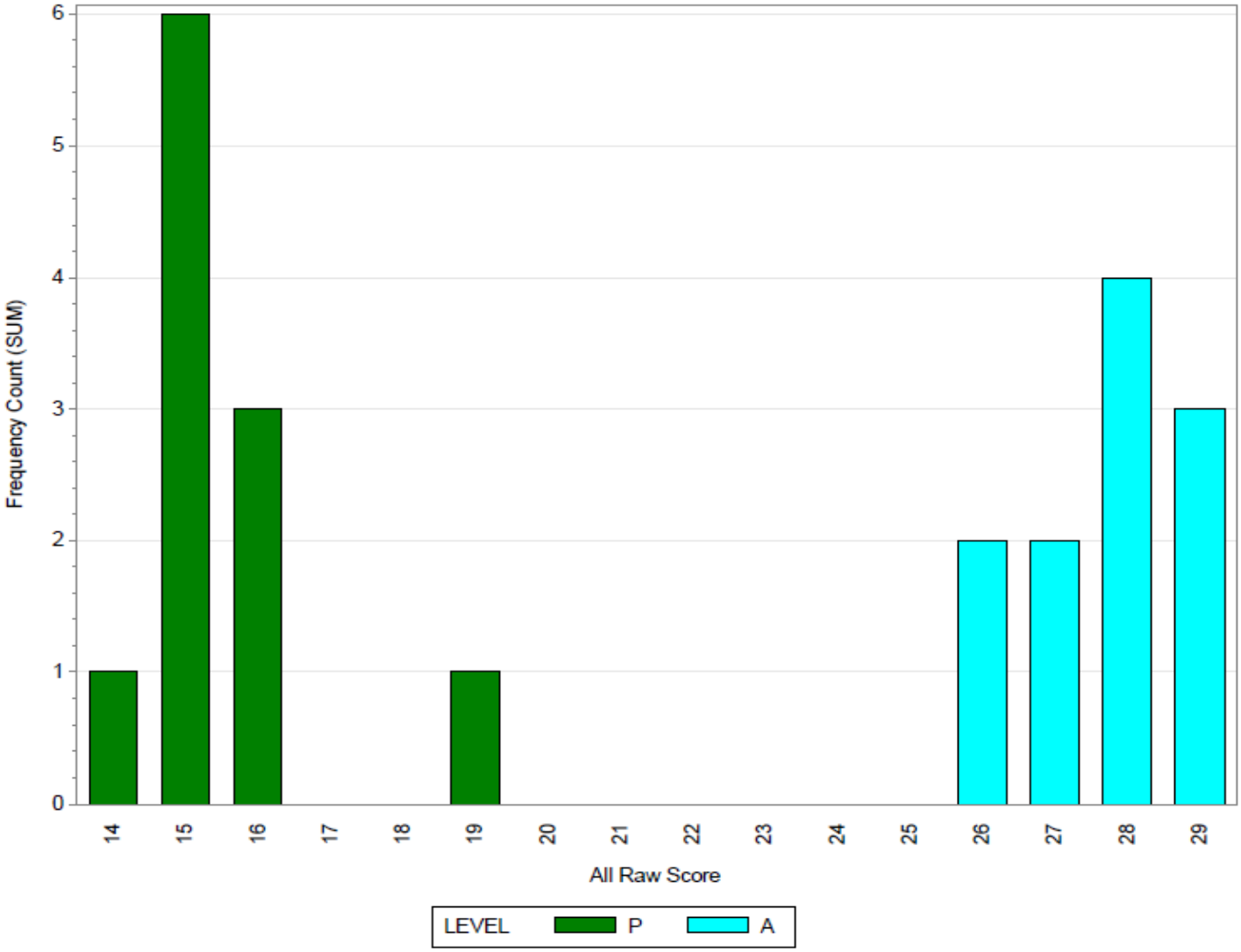
Round 3:



Proficient



Advanced



Both Performance Levels Concurrently