

# **West Virginia**

Alternate Performance Task Assessment

***2008 ADDENDUM***

**&**

**Profile Sorting  
Standard Setting  
Technical Report  
2007**

**for**

**Grades 4, 6, and 11  
Science**

**Submitted to  
West Virginia Department of Education  
November 2008**

**Mc  
Graw  
Hill** **CTB  
McGraw-Hill**

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## Addendum

### Background Information

In July 2007, staff members from the West Virginia Department of Education (WVDE) and CTB/McGraw-Hill (CTB) collaborated to perform standard setting on the West Virginia Alternate Performance Task Assessment (APTA) in Grades 4, 6, and 11 Science. The purpose of the standard setting was to identify cut scores for the tests to divide students into four performance levels: *Novice*, *Partial Mastery*, *Mastery*, and *Above Mastery*, where *Above Mastery* represents the highest level of performance on the tests.

The 2007 standard setting was divided into two phases: profile sorting (Jaeger, 1995) and a cross-grade discussion. Information about the standard setting methodology may be found in the *West Virginia Alternate Performance Task Assessment Profile Sorting Standard Setting Technical Report 2007 for Grades 4, 6, and 11 Science* (CTB/McGraw-Hill, 2007).

The final cut scores and associated impact data from the 2007 standard setting are shown in Table 1. Impact data are the percentage of students classified in each performance level. These impact data, as well as all data presented at the 2007 standard setting, were based on the 2007 pilot administration of the APTA Science assessments. Table 1 also shows the total number of valid student cases (N) and the maximum score points obtainable for each 2007 APTA Science field test. The cut scores shown in Table 1 were approved by the West Virginia Board of Education (WVBE) on October 25, 2007.

**Table 1. Cut scores and impact data, maximum score points, and N counts for the 2007 administration of APTA Science Field Test**

Grade	Max Score Points	N	Cut Scores			Associated Impact Data			
			<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>4</b>	165	230	69	117	147	9.9%	22.5%	39.9%	27.4%
<b>6</b>	162	214	65	112	145	8.4%	25.7%	41.6%	24.3%
<b>11</b>	159	186	59	105	136	11.3%	27.5%	40.4%	21.0%

### Evaluating the Performance Standards in 2008

The results of the 2007 standard setting comprised the initial performance standards. In 2008, the results of the first operational administration were used to evaluate the 2007 performance standards in light of student performance.

Two important factors were considered in the evaluation of the performance standards in 2008. First, the WVDE recognized that the initial performance standards were established on pilot data and that the results of the 2008 operational administration could be different. Second, the number of score points on each test was different in 2008 than in 2007: the items for the 2008 operational tests were selected from the 2007 pilot items. These factors prompted the WVDE to revisit the performance standards in 2008.

In reviewing the cut scores after the 2008 operational administration of APTA Science, the WVDE strived to maintain the meaning and stringency of the performance standards established during the 2007 standard setting. To accomplish this, the WVDE and CTB began with the impact data from the 2007 standard setting. These impact data were mirrored using the 2008 operational test data; that is, cut scores for the 2008 data were determined such that the percentage of students classified in each performance level was as close as possible to the percentages from 2007. It was not always possible to exactly match the percentages in 2008 to those in 2007. In these cases, the WVDE and CTB worked to find the most appropriate cut scores that closely mirrored the impact data and reflected the recommendations of the Standard Setting Committee.

Table 2 shows the percentage of students classified in each performance level and the associated cut scores for the 2008 operational administration of APTA Science. Table 2 also shows the total number of valid student cases (N) and the maximum score points obtainable for each 2008 APTA Science test. The impact data in Table 2 from 2008 are similar to those in Table 1 from 2007.

Table 3 shows the raw-score ranges associated with each performance level, based on the cut scores determined from the 2008 data.

For more information about the 2008 operational administration of APTA Science, please see the *2008 WV APTA Technical Report* (CTB/McGraw-Hill, 2008).

**Table 2. Cut scores and impact data, maximum score points, and N counts for the 2008 administration of APTA Science**

Grade	Max Score Points	N	Cut Scores			Impact Data			
			<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>4</b>	102	272	43	72	89	10.3%	24.3%	40.1%	25.4%
<b>6</b>	114	263	46	82	101	8.0%	25.5%	40.7%	25.9%
<b>11</b>	114	251	54	78	102	11.6%	29.5%	39.0%	19.9%

**Table 3. Raw-score ranges associated with each APTA performance level for 2008**

Grade	Raw Score Ranges			
	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>4</b>	0–42	43–71	72–88	89–102
<b>6</b>	0–45	46–81	82–100	101–114
<b>11</b>	0–53	54–77	78–101	102–114

## References

CTB/McGraw-Hill. (2007). West Virginia Alternate Performance Task Assessment Profile Sorting Standard Setting Technical Report 2007 for Grades 4, 6, and 11 Science. Monterey, CA: Author.

CTB/McGraw-Hill. (2008). 2008 WV APTA Technical Report. Monterey, CA: Author.

Jaeger, R. M. (1995). Setting performance standards through two-stage judgmental policy capturing. *Applied Measurement in Education*, 8, 15-40.

# **West Virginia**

Alternate Performance Task Assessment

## **Profile Sorting Standard Setting Technical Report 2007**

for

## **Grades 4, 6, and 11 Science**

Submitted to  
West Virginia Department of Education  
September 2007



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## **SECTION A**

### **Executive Summary**

## Executive Summary

In July 2007, staff members from the West Virginia Department of Education (WVDE) and CTB/McGraw-Hill worked in collaboration to perform standard setting on the West Virginia Alternate Performance Task Assessment (APTA) in Grades 4, 6, and 11 Science. The purpose of the standard setting was to identify cut scores on the tests to divide students into four performance levels: *Novice*, *Partial Mastery*, *Mastery*, and *Above Mastery*, where *Above Mastery* represents the highest level of performance on the test.

The standard setting was divided into two phases. In the first phase, West Virginia special educators convened to engage in a profile sorting (Jaeger, 1995) workshop. During the workshop, held July 30 – August 1, 2007, participants examined scored response vectors (student profiles) and classified them into performance levels.

In the second phase of the standard setting, the participants from the profile sorting workshop engaged in a cross-grade discussion of the results from the profile sorting workshop. This group identified trends in the data and recommended changes in the cut scores to promote grade-to-grade articulation.

The final cut scores adopted from the cross-grade discussions for the APTA program are shown in Table 1. The impact data associated with these cut scores are shown in Table 2. The impact data are from the 2007 pilot administration of the APTA. Impact data are the percentage of students classified in each performance level. The ranges of test scores associated with each performance level, expressed in terms of raw score, are shown in Table 3. The ranges of test scores associated with each performance level, expressed in terms of percent-correct, are shown in Table 4.

Results of the standard setting were used to set initial performance standards. In 2008, results of the first operational administration will be used to evaluate the standard setting recommendations in light of student performance. Specifically, student performance on the operational assessment will be adjusted in light of raw-score and percent-correct ranges (see Tables 1 – 4) before being finalized.

**Table 1. Final cut scores for the APTA program.**

Content Area	Grade	Cut Scores		
		<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
Science	4	69	117	147
	6	65	112	145
	11	59	105	136

**Table 2. Impact data associated with the final cut scores for the APTA program.**

		<b>Impact Data</b>			
<b>Content Area</b>	<b>Grade</b>	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>Science</b>	<b>4</b>	9.9%	22.5%	39.9%	27.4%
	<b>6</b>	8.4%	25.7%	41.6%	24.3%
	<b>11</b>	11.3%	27.5%	40.4%	21.0%

**Table 3. Raw score ranges associated with each APTA performance level.**

		<b>Raw Score Ranges</b>			
<b>Content Area</b>	<b>Grade</b>	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>Science</b>	<b>4</b>	0-68	69-116	117-146	147-165
	<b>6</b>	0-64	65-111	112-144	145-162
	<b>11</b>	0-58	59-104	105-135	136-159

**Table 4. Percent-correct ranges associated with each APTA performance level.**

		<b>Percent-correct Ranges</b>			
<b>Content Area</b>	<b>Grade</b>	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
<b>Science</b>	<b>4</b>	0% - 41%	42% - 70%	71% - 88%	89% - 100%
	<b>6</b>	0% - 40%	40% - 69%	69% - 89%	90% - 100%
	<b>11</b>	0% - 36%	37% - 65%	66% - 85%	86% - 100%

This report presents the results from the standard setting for APTA Grades 4, 6, and 11 Science. Section B gives a synopsis of each phase of the standard setting process, describing the profile sorting study and the cross-grade discussion. Section C shows the agenda given to participants during the profile sorting workshop. The opening session overheads are provided in Section D. Section E shows the training materials used to train Table Leaders and participants on the profile sorting method. Section F shows detailed results from participants' ratings during the profile sorting workshop. The results of the participant evaluation are provided in Section G. Section H shows the performance level descriptions provided to participants during the profile sorting workshop.

## **SECTION B**

### **Synopsis**

## Synopsis

In July 2007, staff members from the West Virginia Department of Education (WVDE) and CTB/McGraw-Hill worked in collaboration to perform standard setting on the West Virginia Alternate Performance Task Assessment (APTA) in Grades 4, 6, and 11 Science. The purpose of the standard setting was to identify cut scores on the tests to divide students into four performance levels: *Novice*, *Partial Mastery*, *Mastery*, and *Above Mastery*, where *Above Mastery* represents the highest level of performance on the test.

The standard setting was divided into two phases, each described separately in this section.

- 1. Profile Sorting.** On July 30–August 1, 2007, a profile sorting study (Jaeger, 1995) was performed using student score vectors (student profiles). Standard setting participants focused on each student’s content progress and rated these student profiles into performance levels.
- 2. Cross-grade Discussion.** The participants from the profile sorting workshop convened to examine the results of the profile sorting activities. The group recommended adjustments to the cut scores and to the percentage of students classified in each performance level.

This section describes each of these phases, including information about the results from each phase.

### Profile Sorting

On July 30–August 1, 2007, the profile sorting workshop for the APTA was held in Charleston, West Virginia. Special educators from across the State of West Virginia were convened to participate in the workshop.

The profile sorting method used at the workshop was adapted from the Judgmental Policy Capturing Method (Jaeger, 1995). In the method, participants examine scored response vectors (student profiles) and holistically rate them into performance levels.

**Participants.** Nineteen West Virginia educators were invited by WVDE to participate in the profile sorting workshop. WVDE divided the 19 participants into tables. The groups were split into tables of approximately six participants. Table 1 shows the number of participants working at each table.

After the workshop, each participant completed an evaluation which included information regarding each participant’s educational background, profession, and years of service. This information is presented in Tables 2, 3, and 4. The complete results of the participant evaluation are provided in Section G.

**Table 1. Number of participants in each grade.**

Content Area	Grade	Number of Participants
Science	4	7
	6	6
	11	6

**Table 2. Educational background of profile sorting participants.**

Content Area	Grade	N	Bachelor's	Master's	Doctorate
Overall		19	15.8%	84.2%	0.0%
Science	4	7	14.3%	85.7%	0.0%
	6	6	16.7%	83.3%	0.0%
	11	6	16.7%	83.3%	0.0%

**Table 3. Profession of profile sorting participants.**

Content Area	Grade	N	Teacher	Administrator	Other
Overall		19	57.9%	21.1%	21.1%
Science	4	7	42.9%	28.6%	28.6%
	6	6	50.0%	33.3%	16.7%
	11	6	83.3%	0.0%	16.7%

**Table 4. Years of service of profile sorting participants.**

Content Area	Grade	N	1-5	6-10	11-15	16-20	21+
<b>Overall</b>		19	10.5%	5.3%	5.3%	15.8%	63.2%
<b>Science</b>	4	7	0.0%	0.0%	14.3%	28.6%	57.1%
	6	6	33.3%	16.7%	0.0%	0.0%	50.0%
	11	6	0.0%	0.0%	0.0%	16.7%	83.3%

**Table Leaders.** Participants in each grade were led by a Table Leader, whose primary role was to monitor the group discourse, which included keeping the group focused on the tasks, facilitating discussions, and helping maintain the schedule. Table Leaders were selected by WVDE prior to the workshop and were full, voting members of their committees.

**Group Leader.** The Group Leader facilitated the standard setting for those major portions in which participants were working. The Group Leader served as a facilitator and was in charge of time management, focusing the participants on the task at hand, and interacting with the participants. The Group Leader also facilitated large-group discussions and was in charge of security and data management. The Group Leader collected the rating forms from participants and communicated with CTB Research and WVDE staff. The Group Leader did not vote.

**CTB Staff.** The CTB Standard Setting Team worked with staff from WVDE to design, organize, and conduct the APTA standard setting. Ricardo Mercado, CTB Research Project Manager for standard setting, facilitated the profile sorting and cross-grade discussion. Mr. Mercado was also responsible for training participants on the process used for the profile sorting workshop.

Michelle Horne, CTB Content Editor, served as the Group Leader for the APTA Science Standard Setting.

Karen Barton, Ph.D., CTB Research Manager, is the research scientist for the APTA program. Anne Murphy, Ed.D., CTB Research Scientist, assisted with the standard setting. Dr. Murphy attended the standard setting workshop.

Dorothy Tele'a, CTB Standard Setting Specialist, coordinated the production of materials for the workshop, attended the workshop, and assisted in data analysis following the workshop. Adele Brandstrom, CTB Standard Setting Specialist, assisted in the production of the materials presented at the workshop.

Kimberly Block, CTB Program Manager for the West Virginia contract, assisted with the logistics of the standard setting.

CTB staff were non-voting members and were present to facilitate the workshop.

**Schedule.** Table 5 shows the schedule used during the APTA standard setting. Note that the afternoon of Day 1 was devoted to Table Leader training; only Table Leaders attended this session.

**Table 5. Schedule of events for the APTA profile sorting workshop.**

<b>Day</b>	<b>Time</b>	<b>Activity</b>
<b>Day 1</b>	<b>PM</b>	Table Leader training
<b>Day 2</b>	<b>AM</b>	Participant orientation, review of performance level descriptors, and standards
	<b>PM</b>	Round 1 profile sorting
<b>Day 3</b>	<b>AM</b>	Round 2 profile sorting
	<b>PM</b>	Cross-grade discussion, description writing, and evaluation

**Table Leader training.** On the afternoon of Day 1 of the profile sorting workshop, the Table Leaders were convened to engage in a training session on the profile sorting method.

Beth Judy, Alternate Assessment Coordinator, opened the session for WVDE by describing APTA and how the assessment had been implemented in West Virginia over the last year. WVDE then discussed how the test would be used to measure the knowledge, skills, and abilities held by students with the most severe and profound cognitive disabilities. WVDE concluded the opening remarks with a discussion of how the recommendations made by the committee would be analyzed, reviewed, and possibly changed before they reached their final form.

Ricardo Mercado, CTB Research Project Manager, trained participants on the profile sorting method. Standard setting was first described in general terms, followed by explicit training on how participants would recommend cut scores for the APTA using the profile sorting method.

Throughout the Table Leader training, the Table Leaders were provided with sample materials, mirroring those actually to be used during the workshop. The training materials for the profile sorting workshop can be found in Section E. A description of these materials follows:

- Scoring guide. The scoring guide detailed what must be demonstrated to achieve each score point. Each multiple-choice item has a maximum score point of three (0 – no response; 1 – correct and full physical prompt; 2 – correct and partial physical, verbal, or gestural prompt; and 3 – correct and independently performs task without assistance). Each constructed-response item has a maximum score point of six (0 – no response; 1 – minor errors but identifiable and full; 2 – correct and full; 3 – minor errors but identifiable and partial; 4 – correct and partial; 5 – minor errors but identifiable and independent; and 6 – correct and independently performs task without assistance).
- Item Map. The item map provided detailed information about each item.
- Science Extended Content Standards. The extended content standards listed the knowledge, skills, and abilities students should be taught.
- Test book. Samples of items in a test book.
- Student profiles. Students' scores for each piece of evidence (student profiles) were shown to participants. Examples of student profiles are shown in Figure 1. The first header row shows the maximum number of points for each item. The maximum score for a multiple-choice item is 3, and the maximum score for a constructed-response item is 6. The second header row shows the item number in the test book. Each subsequent row is labeled with a student identification number and includes the score points earned for each item by the student. For example, student "001" earned three score points for Item 1.

***Student profiles.*** The student profiles used in the standard setting were comprised of real data. Each student profile represents the scored responses of an actual student.

**Figure 1. Sample of student profiles used during the profile sorting workshop.**

**SAMPLE Standard Setting Workshop  
Training Profiles**

\*Unless otherwise noted, the max score for an item is 3.

MAX*			6			
Item	1	2	3	4	5	6
<b>Profile ID</b>						
001	3	3	6	3	3	3
002	3	3	0	3	3	3
003	3	0	5	3	3	0
004	0	0	0	3	3	3
005	3	3	6	3	0	3

**Participant orientation.** On the morning of the second day of the APTA profile sorting workshop, WVDE began the session with a presentation similar to that given to Table Leaders during the Table Leader training session. The test, the reasons for standard setting, and the ways that the standard setting results would be reviewed were all described to participants. Following this presentation, CTB oriented all participants to the profile sorting activity.

**Study of the test.** Participants were then divided into their pre-assigned grade tables. All participants worked in one large room. At their grade tables, participants were then given copies of the APTA. Participants worked individually to take the test. As they studied the items, participants noted the knowledge, skills, and abilities measured by each item. Participants also studied the scoring guide for each item and explored the level of independence associated with each score point.

**Study of the performance level descriptions.** Participants then reviewed the APTA Science Extended Content Standards for their grade, as well as the performance level descriptions. Participants were encouraged to discuss the performance level descriptions and to consider the differences between the performance levels. For example, participants were encouraged to consider the difference in test performance between students who were classified as *Partial Mastery* and as *Mastery*. Section H shows the performance level descriptions provided to participants during the profile sorting workshop.

**Profile sorting Rounds 1 and 2.** Participants were then provided their student profiles to rate. Each grade committee was given 200 student profiles to rate throughout the workshop, with the exception of Grade 11. Participants in Grade 11 received 186 student profiles to rate, representing all students tested at that grade. The student profiles selected for the standard setting were randomly selected from all of the students tested by the APTA in each grade.

Participants were instructed to go through the student profiles individually, focusing on one profile at a time. Participants were encouraged to consider the knowledge, skills, and abilities that were demonstrated by a student's score on each item. Participants were directed to rely on the performance level descriptions while making their ratings.

After each participant at the table rated all student profiles, the Table Leader led a discussion about the profiles for which there was disagreement at the table. The participants were asked to share their rationales behind their ratings and to keep an open mind about their ratings. After this discussion, participants were free to keep their existing ratings or change one or more of them.

After participants completed discussion on the profiles for the first round, the table repeated the process for the second round. Throughout the process, participants were instructed to keep in mind the knowledge, skills, and abilities demonstrated by students through their scores, and how these skills relate to the APTA Science Extended Content Standards and performance level descriptions.

***Performance level description revision.*** After each grade completed their profile sorting, they were given an opportunity to recommend revisions to the performance level descriptions. Section H shows the performance level descriptions provided to participants during the profile sorting workshop.

***Participant evaluation.*** Participants were given an evaluation of the profile sorting workshop to measure how satisfied they were with the process. The complete results of the participant evaluation can be found in Section G.

***Calculating cut scores for the profile sorting workshop.*** After all participants completed their profile ratings, the impact data for each test was first estimated. To do this, the proportion of total observations within a grade and content area were found.

For example, a grade and content area with four participants who each rated 200 profiles has a total of 800 observations. The proportion of these observations that were rated *Novice* was found, followed by the proportions for *Partial Mastery*, *Mastery*, and *Above Mastery*.

These proportions were then mapped onto the frequency distribution for the 2007 APTA Pilot. The cut scores which yielded the closest impact data to the proportions calculated from the participants' observations were found.

Table 6 shows the proportions of profiles classified into each performance level in the profile sorting workshop. The cut scores associated with these impact data are shown in Table 7. The detailed results of participants' ratings during the profile sorting workshop are included in Section F.

**Table 6. Impact data associated with the profile sorting activity.**

Content Area	Grade	Performance Level*			
		<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
Science	4	10%	24%	39%	28%
	6	4%	20%	51%	25%
	11	11%	30%	38%	21%

\*Grade percentage may not total 100% due to rounding.

**Table 7. Cut scores associated with the profile sorting activity.**

Content Area	Grade	Performance Level		
		<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
Science	4	69	55	59
	6	118	102	106
	11	147	145	136

### **Cross-grade Discussion**

On the afternoon of Day 3, the participants from the profile sorting workshop convened to examine the results from the profile sorting workshop. The participants worked together to recommend cut scores for each grade that yielded articulated impact data from a cross-grade perspective.

***Examining the profile sorting results.*** Participants were shown the impact data and cut scores associated with the profile sorting activity, as summarized in Tables 6 and 7.

Participants then discussed the knowledge, skills, and abilities expected of students in each grade and performance level. Participants were instructed to consider how the Science Extended Content Standards differ across grades, and how these differences could affect the expectations of students in each performance level.

***Calculating cross-grade cut scores.*** Following the cross-grade deliberations, cut scores were calculated. The cut scores which most closely yielded the impact data recommended from the cross-grade discussion were identified. The recommendations from the cross-grade discussion are considered to be the final recommendation from the standard setting committee.

Participants first discussed the differences in the Extended Content Standards across grades. Participants noted that the standards were qualitatively similar between Grades 4 and 6; however, the standards at Grade 11 were more specialized and accordingly dissimilar from Grade 6.

Participants then reviewed their table discussions that were conducted throughout the standard setting. Participants noted that they would expect the impact data for Grades 4 and 6 to be similar and that relatively fewer students would be classified as *Mastery* in Grade 11, largely due to differences in the Extended Content Standards. Based on the recommended cut scores from the profile sorting workshop, participants recommended changes to the *Mastery* cut scores to promote this type of trend. Grade 4 participants recommended a decrease in their *Mastery* cut score from 118 to 117, representing a change of approximately -0.1 SEM. Grade 6 participants recommended a +1.2 SEM increase in their *Mastery* cut score, from 102 to 112. Grade 11 participants recommended a single point decrease in their *Mastery* cut score, from 106 to 105, a change of approximately -0.1 SEM. These changes were recommended to promote consistency between grades.

Participants in Grade 6 noted that fewer students were classified as *Novice* in Grade 6 than in Grade 4 or 11. They remarked that this difference did not resonate with their experiences with students in the tested population, and the committee reported that it would expect that relatively similar percentages of students would be classified as *Novice* in each grade. Grade 6 participants recommended an increase in their *Partial Mastery* cut score from 55 to 65, representing a change of approximately +1.2 SEM.

The impact data recommended from the cross-grade discussion are shown in Table 8. The cut scores associated with these impact data are shown in Table 9.

Results of the standard setting were used to set initial performance standards. In 2008, results of the first operational administration will be used to evaluate the standard setting recommendations in light of student performance. Specifically, student performance on the operational assessment will be adjusted in light of raw-score and percent-correct ranges (see Section A, Tables 1 – 4) before being finalized.

**Table 8. Impact data associated with the cross-grade discussion.**

Content Area	Grade	Performance Level			
		<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
Science	4	9.9%	22.5%	39.9%	27.4%
	6	8.4%	25.7%	41.6%	24.3%
	11	11.3%	27.5%	40.4%	21.0%

**Table 9. Cut scores associated with the cross-grade discussion.**

		Performance Level		
Content Area	Grade	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
Science	4	69	117	147
	6	65	112	145
	11	59	105	136

### **Quality Control Procedures**

The CTB Standard Setting Team adheres to many quality control procedures to foster the accuracy of the materials used and the results presented during the standard setting. Prior to the workshop, the Standard Setting Team cross-checks the accuracy of the information in the item maps, the Microsoft Excel macros, and the proprietary software used to generate results and impact data. Any results that appear to be questionable are further investigated in consultation with CTB Research staff.

## References

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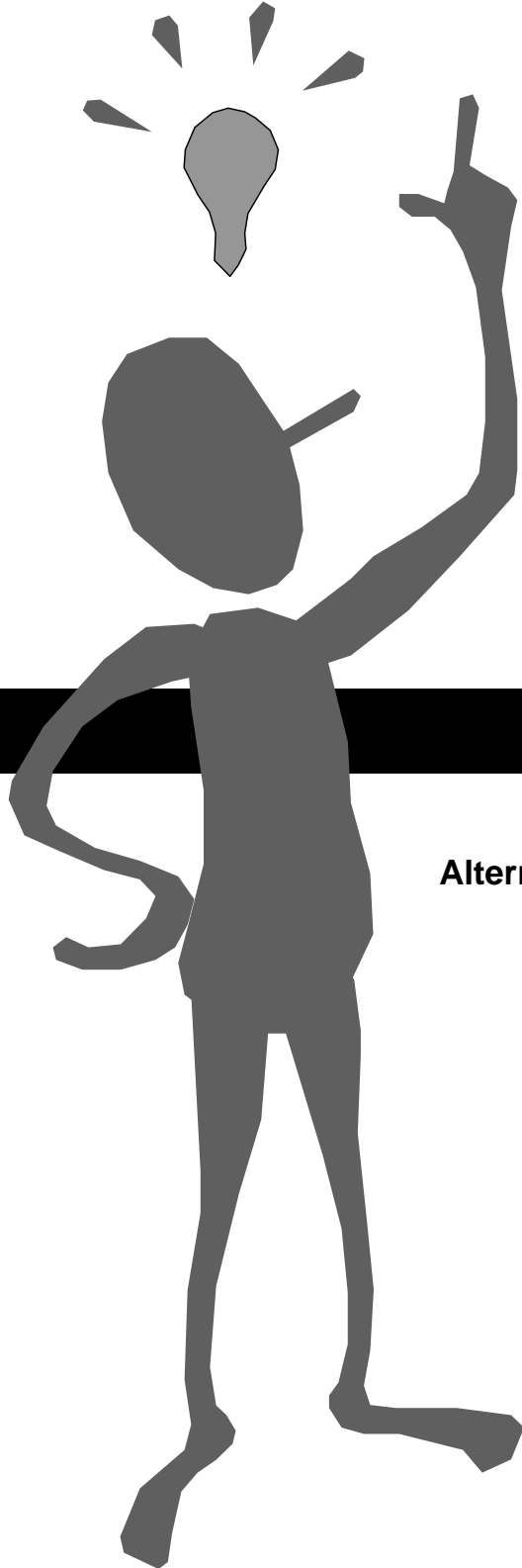
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## **SECTION C**

### **Profile Sorting Agenda**



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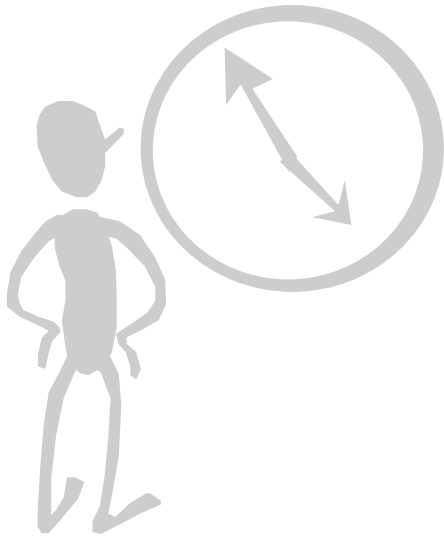
# Workshop Agenda

**West Virginia  
Alternate Performance Task Assessment (APTA)**

***Profile Sorting Standard Setting Workshop***

**Science Grades 4, 6, and 11**

**July 30 – August 1, 2007  
Charleston, West Virginia**



**Welcome to the Profile Sorting Standard Setting Workshop for the West Virginia Alternate Performance Task Assessment (APTA) for Science Grades 4, 6, and 11!**

**The West Virginia Department of Education and CTB/McGraw-Hill would like to thank you for your time and expertise during this important process.**

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

**Table Leaders Only**

**Monday, July 30**

- 12:30 PM** Table Leader registration
- 1:00 PM** Opening session and orientation
- 2:30 PM** Break
- 2:45 PM** Orientation to performance level descriptors
- 3:15 PM** Target student discussion
- 4:15 PM** Secure materials collection
- 4:30 PM** Dismissal

**Tuesday, July 31**

- 8:00 AM** Continental breakfast and participant registration
- 8:30 AM** Opening session and orientation
- 10:00 AM** Break and divide into grade groups
- 10:15 AM** Take the test
- 11:30 AM** Orientation to performance level descriptors
- 12:00 PM** Lunch
- 1:00 PM** Profile sorting activity, Round 1
- 2:30 PM** Break
- 2:45 PM** Continue profile sorting activity, Round 1
- 4:45 PM** Secure materials collection
- 5:00 PM** Dismissal

**Wednesday, August 1**

- 8:00 AM** Continental breakfast
- 8:30 AM** Discuss profiles in grade groups
- 10:00 AM** Break
- 10:15 AM** Profile sorting activity, Round 2
- 12:00 PM** Lunch
- 1:00 PM** Cross-grade discussion
- 2:15 PM** Cross-grade recommendations
- 2:30 PM** Break
- 2:45 PM** Performance level descriptor adjustment (if needed)
- 4:30 PM** Secure materials collection
- 4:45 PM** Evaluations
- 5:00 PM** Dismissal

## **SECTION D**

### **Overheads**

## West Virginia Alternate Performance Task Assessment (APTA) Standard Setting: Opening Session

CTB/McGraw-Hill  
July 30 – August 1, 2007

CTB/McGraw-Hill | QUALITY ASSESSMENT SINCE 1924

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### Overview

- Introduction to standard setting
- Committee roles
- Paper sorting process
- Standard setting simulation
- Workshop agenda
- Questions and answers

CTB  
McGraw-Hill

McGraw-Hill Education

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### What is standard setting?

- A process that lets experts make judgments about the content that students in each achievement level should know.
- The APTA standard setting process has two phases:
  - Profile Sorting
  - Cross-grade Discussion
- Recommendations made by the committee will be reviewed before final cut scores are adopted.

CTB  
McGraw-Hill

McGraw-Hill Education

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### Why standard setting?

- The West Virginia Extended Content Standards define what students are tested on.
  - These are things students *should* know and be able to do.
  - West Virginia has Extended Content Standards for Grades 4, 6, and 11 in Science.

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### Why standard setting?

- Performance standards define what students *can do* in each performance level.
- You will actively discuss your expectations of students in each performance level.

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### Performance Levels

- Specify the knowledge, skills and abilities a student needs to know in order to be classified in each performance level:
  - *Novice*
  - *Partial Mastery*
  - *Mastery*
  - *Above Mastery*

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### Committees

- Three grade level committees:
  - Grades 4, 6, and 11 Science



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### Committee Roles

- Table Leaders
- Participants
- WVDE
- CTB

*Standard Setting Committee*



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### Committee Roles

- Table Leaders
  - Lead the profile sorting process at the table
  - Keep track of secure materials
  - Standard setters
- Participants
  - Standard setters

*Standard Setting Committee*



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## Standard Setting Materials

- Test booklet
- Item map
- Scoring guides
- Student profiles
- Rating form

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## Item Map

West Virginia Alternate Performance Task Assessment (APTA) Standard Setting  
Training Item Map

Print Name: \_\_\_\_\_ Packet Number: \_\_\_\_\_

\* Unless otherwise noted, the max score for an item is 3.

Item No.	Item Type	Max Score*	p-value	Score Key	Objective Code	Subskill Code	What does this item measure? That is, what do you know about a student who can respond successfully to this item?
1	MC		0.93		01	1.1	
2	MC		0.90		02	2.2	
3	CR	3	0.96		03	3.1	
4	MC		0.80		02	2.3	
5	MC		0.89		01	1.1	
6	MC		0.96		01	1.1	

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## Three-point Rubric

3 pts	Correct and INDEPENDENT — Performs task without assistance.
2 pts	Correct and PARTIAL — Partial physical, verbal, or gestural prompt.
1 pt	Correct and FULL — Full physical prompt
0 pts	No response

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## Six-point Rubric

6 pts	Correct and INDEPENDENT — Performs task without assistance.
5 pts	Minor errors but identifiable and INDEPENDENT
4 pts	Correct and PARTIAL
3 pts	Minor errors but identifiable and PARTIAL
2 pt	Correct and FULL
1 pt	Minor errors but identifiable and FULL
0 pts	No response

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## Item 1

- Look at Item 1
- Consider what the item measures.
- If the student gets this item right, what do we know they can do?

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## Item Map

West V

Print Name: \_\_\_\_\_

\*Unless otherwise noted

Item No.	Item Type	Max Score	p-value	Stem, Key	Objective	Subskill Code	What does this item measure? That is, what do you know about a student who can respond successfully to this item?
1	MC		0.93		01	1.1	
2	MC		0.90		02	2.2	
3	CR	6	0.56		03	3.1	
4	MC		0.80		02	2.3	
5	MC		0.89		01	1.1	
6	MC		0.96		01	1.1	

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## Sample Rating Form

Profile	None	Partial Mastery	Mastery	Above Mastery
001	①	②	③	④
002	①	②	③	④
003	①	②	③	④
004	①	②	③	④
005	①	②	③	④
006	①	②	③	④
007	①	②	③	④
008	①	②	③	④
009	①	②	③	④
010	①	②	③	④

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## Rating Profiles

- Holistically rate each profile based on the students' scores.
- Refer to the performance level descriptions.
- Don't discuss your ratings with your colleagues before you make them.

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## Cross-grade Discussion

- The committee meets to discuss...
  - The results from the profile sorting
  - Your content-based expectations of students
  - Expectations across grades

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### Performance Level Definition Editing

- Recommending changes to the performance level definitions.
- Summarizes the knowledge, skills, and abilities of students in each performance level.

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### Workshop Agenda: Day 1

- Opening session and participant orientation
- Break into pre-assigned groups and tables
- Study the test and complete item map
  - Table activity
- Review the performance level descriptions and extended content standards
  - Table activity
- Profile sorting
  - Individual activity
- Secure Materials Collection

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### Workshop Agenda: Day 2

- Complete profile sorting
  - Individual activity
- Discuss profile sorting decisions
  - Table activity
- Cross-grade discussion
  - Group activity
- Edit performance level descriptions
  - Table activity
- Evaluate workshop
- Secure Materials Collection

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## **SECTION E**

# **Training Materials**

**VERTICAL ALIGNMENT  
FOR SCIENCE**

<b>Science Extended Standards</b>	<b>ES for Grade 4</b>
Standard 1: Nature of Science	SC.4.1.ES.1 Apply tools in the investigation of scientific concepts (e.g., magnifying glass, thermometer, ruler, microscope, magnet).

<b>Science Extended Standards</b>	<b>ES for Grade 4</b>
Standard 2: Content of Science	SC.4.2.ES.1 Describe characteristics of matter in the environment.
	SC.4.2.ES.2 Recognize different types of forces of motion.
	SC.4.2.ES.3 Compare the effects of different natural events on the environment (volcanoes, floods/rain, droughts).

<b>Science Extended Standards</b>	<b>ES for Grade 4</b>
Standard 3: Application of Science	SC.4.3.ES.1 Compare scientific systems and patterns within the environment.

**West Virginia Alternate Performance Task Assessment (APTA) Standard Setting  
Training Item Map**

**Print Name:** \_\_\_\_\_ **Packet Number:** \_\_\_\_\_

*\* Unless otherwise noted, the max score for an item is 3.*

Item No.	Item Type	Max Score*	p-value	Score Key	Objective Code	Subskill Code	What does this item measure? That is, what do you know about a student who can respond successfully to this item?
1	MC		0.93	3	01	1.2	
2	MC		0.90	2	03	3.1	
3	CR	6	0.56		03	3.2	
4	MC		0.80	2	02	1.2	
5	MC		0.89	3	03	1.3	
6	MC		0.96	1	01	1.2	

**SAMPLE Standard Setting Workshop  
Training Profiles**

\*Unless otherwise noted, the max score for an item is 3.

<b>MAX*</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Profile ID</b>						
001	3	3	6	3	3	3
002	3	3	0	3	3	3
003	3	0	5	3	3	0
004	0	0	0	3	3	3
005	3	3	6	3	0	3
006	3	0	2	3	3	0
007	3	3	5	3	3	3
008	1	0	1	3	1	1
009	1	1	2	1	1	1
010	3	2	1	3	3	3

Packet Number

Content Area

Grade

Round

Name: \_\_\_\_\_

① ①

① ①

② ②

③ ③

④ ④

⑤ ⑤

⑥ ⑥

⑦ ⑦

⑧ ⑧

⑨ ⑨

Science

4

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6

②

11

**WV APTA 2007**

**Profile Sorting Standard Setting**

**Training Rating Form**

Profile	<i>Novice</i>	<i>Partial Mastery</i>	<i>Mastery</i>	<i>Above Mastery</i>
001	①	②	③	④
002	①	②	③	④
003	①	②	③	④
004	①	②	③	④
005	①	②	③	④
006	①	②	③	④
007	①	②	③	④
008	①	②	③	④
009	①	②	③	④
010	①	②	③	④

## **SECTION F**

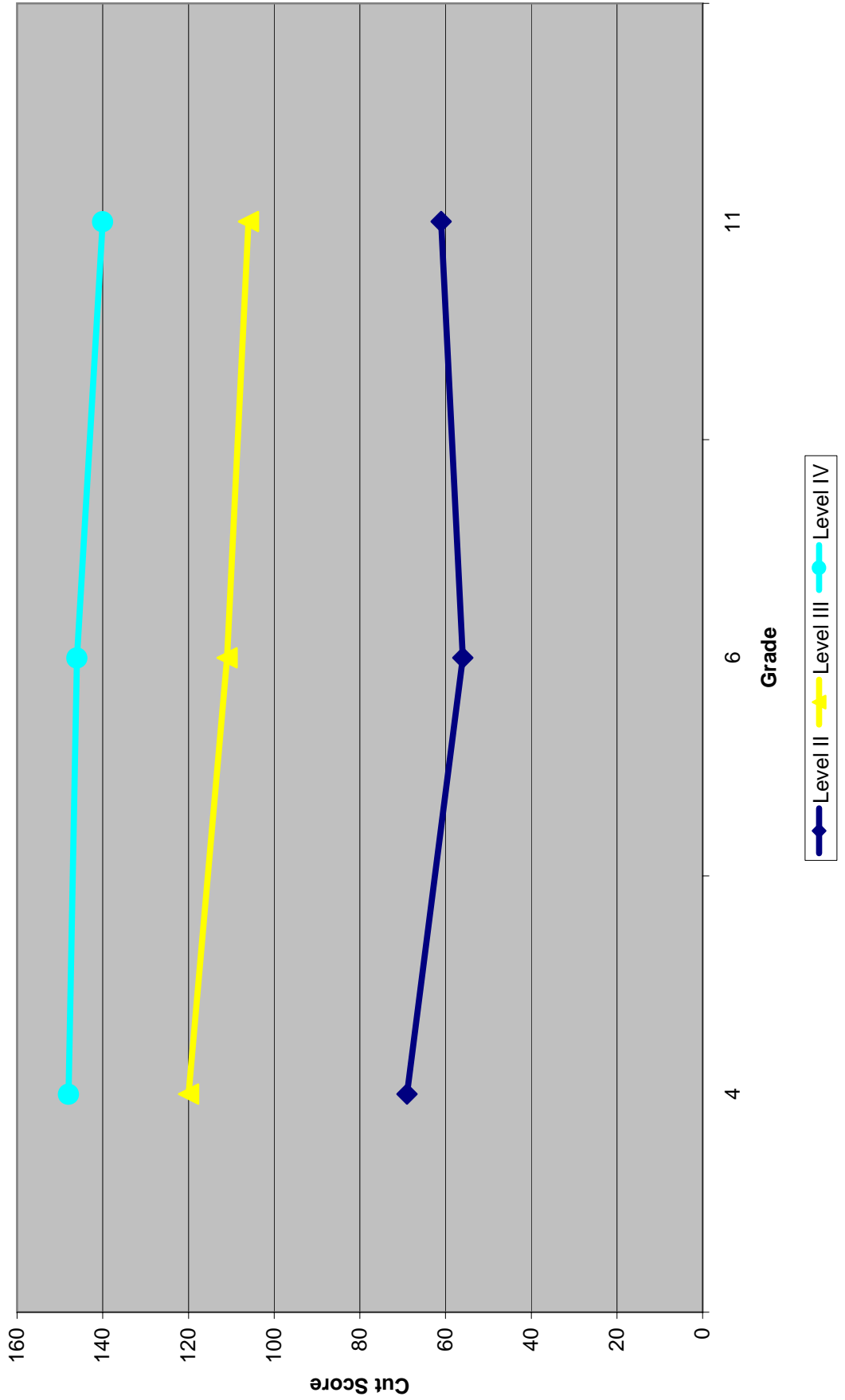
### **Detailed Summary of Ratings**

**Science** Based on Participants' Profile Sorting Decisions for Round 1  
 Standard setting workshop held July 30 - August 1, 2007

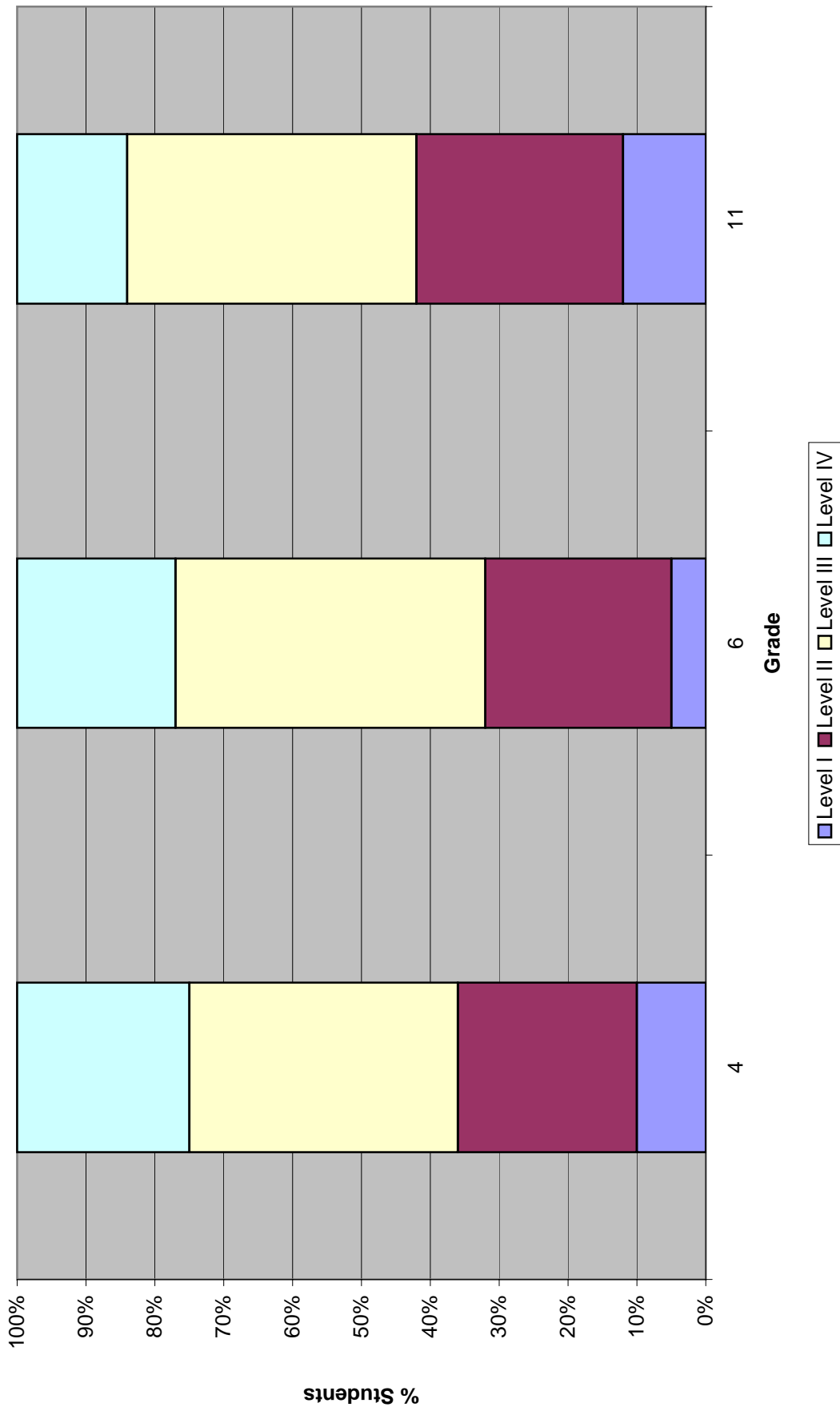
Grade	Level					Impact
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>III &amp; IV</i>	
4	10%	26%	39%	25%	64%	
6	5%	27%	45%	23%	68%	
11	12%	30%	42%	16%	58%	

Grade	Level			Cut Score
	<i>II</i>	<i>III</i>	<i>IV</i>	
4	69	120	148	
6	56	111	146	
11	61	106	140	

2007 West Virginia Alternate Performance Task Assessment Science  
Round 1 Cut Scores by Performance Level



2007 West Virginia Alternate Performance Task Assessment Science  
 Round 1 Percent of Students by Performance Level



**2007 West Virginia Alternate Performance Task Assessment  
Science Round 1  
Participant Ratings by Performance Level**

<b>Grade 4</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	3%	22%	36%	40%
2	11%	36%	35%	18%
3	13%	28%	37%	22%
4	12%	34%	40%	16%
5	12%	29%	39%	21%
6	11%	17%	31%	42%
7	12%	18%	55%	16%

<b>Grade 6</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	4%	11%	61%	25%
2	8%	22%	43%	28%
3	5%	31%	39%	25%
4	7%	27%	39%	28%
5	7%	34%	44%	16%
6	2%	35%	48%	16%

<b>Grade 11</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	12%	37%	40%	11%
2	9%	38%	48%	5%
3	12%	25%	43%	20%
4	15%	29%	39%	17%
5	16%	30%	35%	19%
6	9%	21%	47%	23%

**2007 West Virginia Alternate Performance Task Assessment  
Science Round 1**

Standard Error of the Mean	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	1.24%	2.85%	2.83%	4.19%
6	1.00%	3.73%	3.31%	2.24%
11	1.13%	2.72%	1.94%	2.67%
Total	0.92%	1.74%	1.64%	2.01%

Mean	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	10.36%	26.21%	38.71%	24.71%
6	5.18%	26.58%	45.35%	22.90%
11	12.11%	29.87%	42.16%	15.87%
Total	9.27%	27.49%	41.90%	21.35%

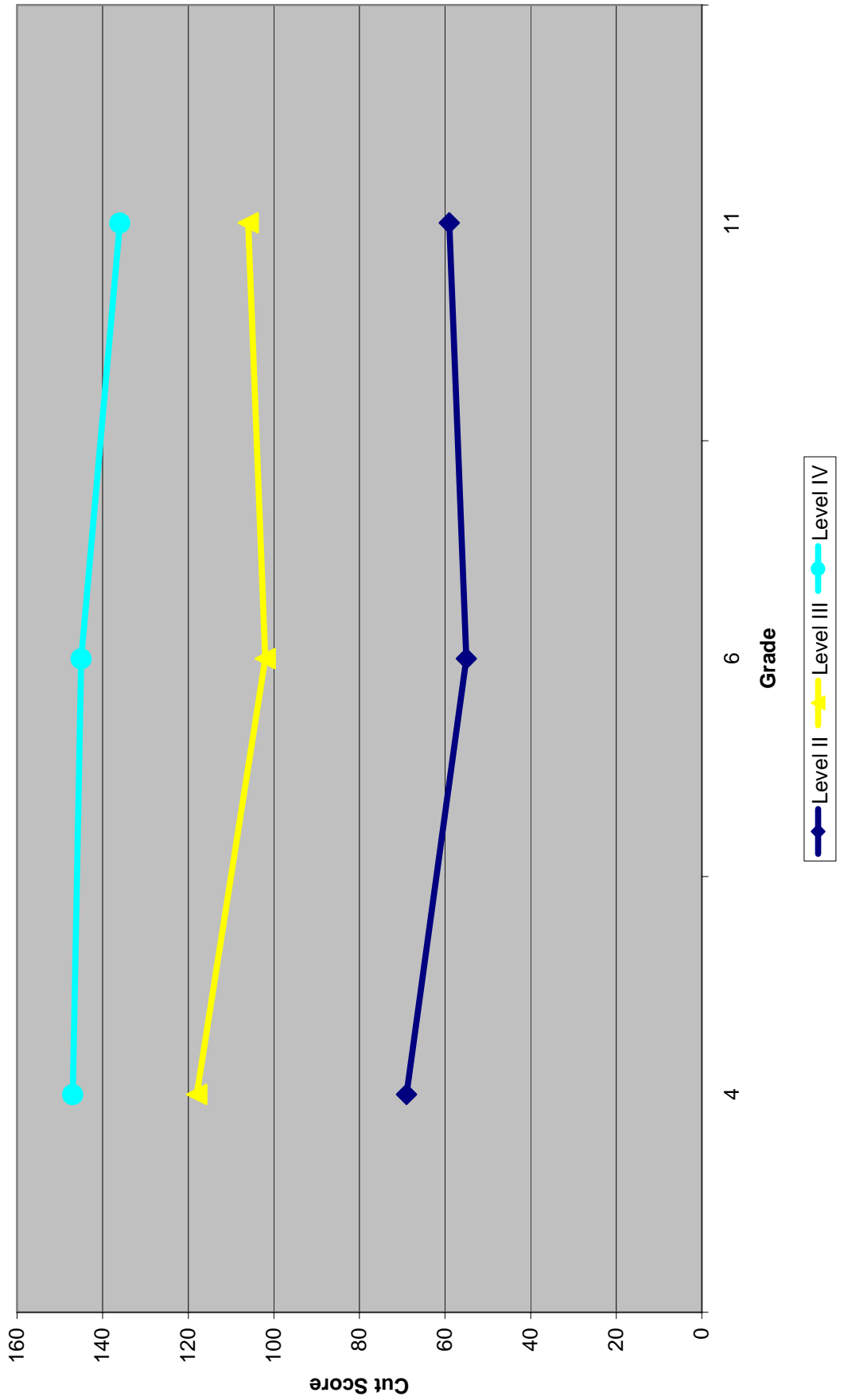
Standard Deviation	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	3.29%	7.54%	7.49%	11.08%
6	2.44%	9.15%	8.11%	5.49%
11	2.77%	6.67%	4.75%	6.55%
Total	4.01%	7.57%	7.15%	8.74%

**Science** Based on Participants' Profile Sorting Decisions for Round 2  
 Standard setting workshop held July 30 - August 1, 2007

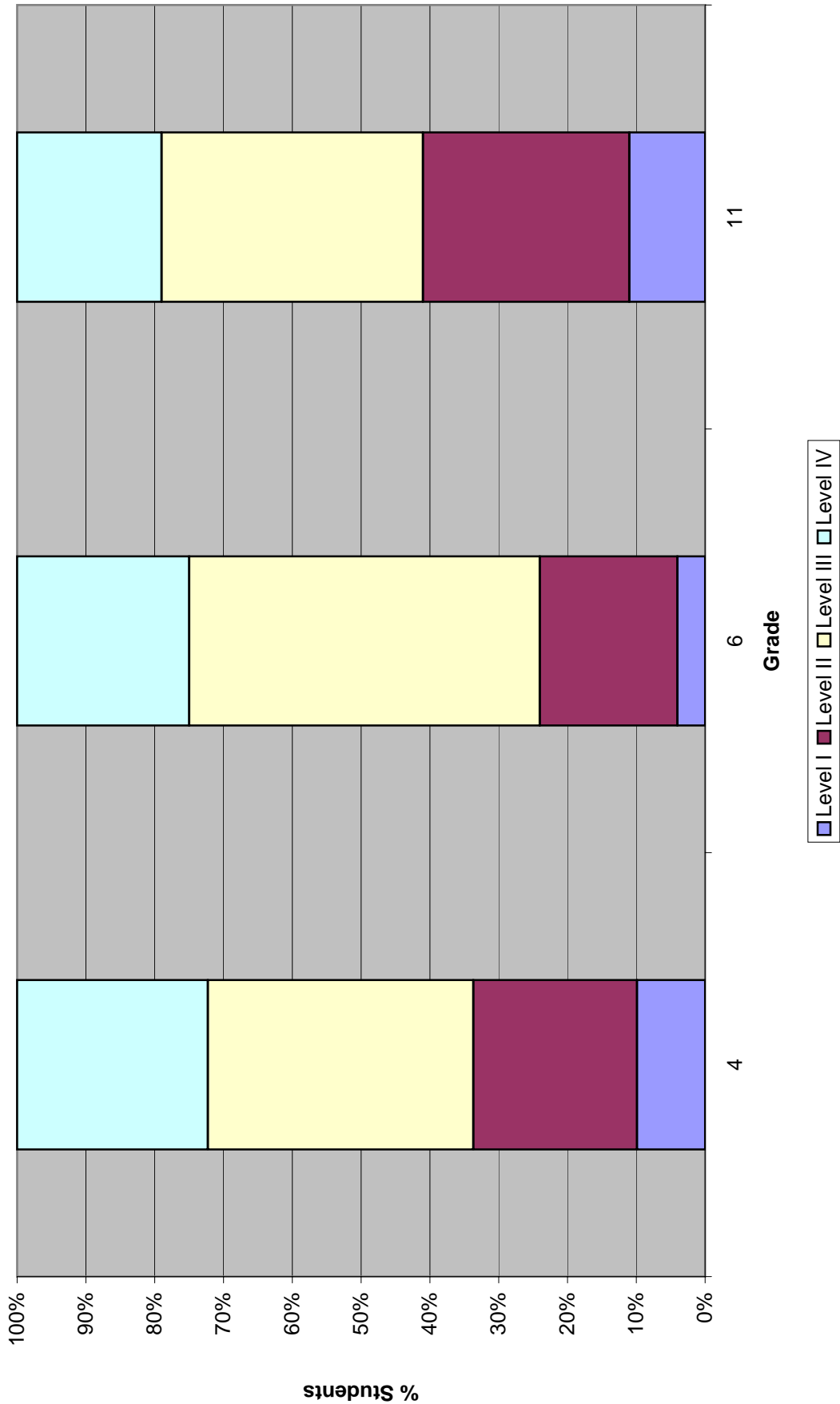
Grade	Level					Impact
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>III &amp; IV</i>	
4	10%	24%	39%	28%	67%	
6	4%	20%	51%	25%	76%	
11	11%	30%	38%	21%	59%	

Grade	Level			Cut Score
	<i>II</i>	<i>III</i>	<i>IV</i>	
4	69	118	147	
6	55	102	145	
11	59	106	136	

2007 West Virginia Alternate Performance Task Assessment Science  
Round 2 Cut Scores by Performance Level



2007 West Virginia Alternate Performance Task Assessment Science  
 Round 2 Percent of Students by Performance Level



**2007 West Virginia Alternate Performance Task Assessment  
Science Round 2  
Participant Ratings by Performance Level**

<b>Grade 4</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	6%	25%	39%	31%
2	11%	26%	37%	28%
3	11%	22%	40%	28%
4	11%	24%	38%	28%
5	10%	24%	39%	28%
6	10%	24%	39%	28%
7	11%	22%	40%	28%

<b>Grade 6</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	4%	19%	52%	25%
2	5%	21%	49%	26%
3	5%	21%	50%	24%
4	5%	19%	50%	27%
5	5%	20%	52%	24%
6	4%	20%	51%	25%

<b>Grade 11</b>	<b>Level</b>			
<b>Participant</b>	<b><i>I</i></b>	<b><i>II</i></b>	<b><i>III</i></b>	<b><i>IV</i></b>
1	11%	31%	37%	22%
2	11%	31%	40%	18%
3	11%	30%	37%	22%
4	11%	30%	36%	23%
5	13%	28%	37%	22%
6	10%	30%	39%	21%

**2007 West Virginia Alternate Performance Task Assessment  
Science Round 2**

Standard Error of the Mean	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	0.69%	0.51%	0.43%	0.47%
6	0.11%	0.38%	0.48%	0.43%
11	0.38%	0.38%	0.71%	0.72%
Total	0.73%	0.98%	1.41%	0.75%

Mean	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	9.57%	23.64%	38.57%	28.21%
6	4.34%	20.02%	50.71%	24.94%
11	11.20%	30.02%	37.63%	21.15%
Total	8.43%	24.51%	42.11%	24.95%

Standard Deviation	Level			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<b>Grade</b>				
4	1.84%	1.35%	1.13%	1.25%
6	0.26%	0.92%	1.19%	1.05%
11	0.93%	0.93%	1.73%	1.76%
Total	3.17%	4.27%	6.15%	3.26%

## **SECTION G**

# **Participant Evaluation Results**

# WV APTA 2007 Science Grades 4, 6, and 11

## Bookmark Standard Setting

### Evaluation Results

#### About these results

Each question is shown, along with its answer choices and associated response percentages. For Likert-type questions, there are five possible responses: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." For each question, the number of respondents is shown in the column labeled "N."

#### Question 1

I am confident that the standard setting produced valid standards.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	26.3%	73.7%
	Grade 4	7	0.0%	0.0%	0.0%	42.9%	57.1%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

#### Question 2

I considered the performance level descriptors when I sorted the profiles.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	5.3%	36.8%	57.9%
	Grade 4	7	0.0%	0.0%	0.0%	42.9%	57.1%
	Grade 6	6	0.0%	0.0%	0.0%	50.0%	50.0%
	Grade 11	6	0.0%	0.0%	16.7%	16.7%	66.7%

#### Question 3

I felt that this procedure was fair.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	15.8%	84.2%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	16.7%	83.3%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

#### Question 4

I had enough time to sort the profiles.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	15.8%	84.2%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	16.7%	83.3%

#### Question 5

I understood how to sort the profiles.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	10.5%	89.5%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

#### Question 6

Overall, I believe that my opinions were considered and valued by my group.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	5.3%	94.7%
	Grade 4	7	0.0%	0.0%	0.0%	14.3%	85.7%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

#### Question 7

Overall, I valued the workshop as a professional development experience.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	5.3%	94.7%
	Grade 4	7	0.0%	0.0%	0.0%	14.3%	85.7%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

#### Question 8

Overall, I was satisfied with my group's final recommendations.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	21.1%	78.9%
	Grade 4	7	0.0%	0.0%	0.0%	42.9%	57.1%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	16.7%	83.3%

### Question 9

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

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	10.5%	89.5%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

### Question 10

Participating in the standard setting increased my understanding of the test.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	5.3%	94.7%
	Grade 4	7	0.0%	0.0%	0.0%	14.3%	85.7%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

### Question 11

Reviewing the performance level descriptors helped me rate the profiles.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	5.3%	10.5%	84.2%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	16.7%	0.0%	83.3%

### Question 12

I considered the extended content standards when I sorted the profiles.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	21.1%	78.9%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

### Question 13

The workshop was well organized.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 4	7	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

### Question 14

The goals for profile sorting procedure was clear.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	15.8%	84.2%
	Grade 4	7	0.0%	0.0%	0.0%	42.9%	57.1%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

### Question 15

The presentation of impact data was helpful to me.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	5.3%	21.1%	73.7%
	Grade 4	7	0.0%	0.0%	14.3%	28.6%	57.1%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

### Question 16

The profile sorting procedure was well described.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	10.5%	89.5%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	0.0%	100.0%

### Question 17

The training on rating profiles made the task clear to me.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	0.0%	0.0%	26.3%	73.7%
	Grade 4	7	0.0%	0.0%	0.0%	28.6%	71.4%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	50.0%	50.0%

### Question 18

I would defend the Partial Mastery cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	5.3%	5.3%	31.6%	57.9%
	Grade 4	7	0.0%	0.0%	14.3%	42.9%	42.9%
	Grade 6	6	0.0%	0.0%	0.0%	16.7%	83.3%
	Grade 11	6	0.0%	16.7%	0.0%	33.3%	50.0%

### Question 19

I would defend the Partial Mastery cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	5.3%	0.0%	42.1%	52.6%
	Grade 4	7	0.0%	14.3%	0.0%	57.1%	28.6%
	Grade 6	6	0.0%	0.0%	0.0%	33.3%	66.7%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

### Question 20

I would defend the Mastery cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		18	0.0%	0.0%	5.6%	38.9%	55.6%
	Grade 4	7	0.0%	0.0%	14.3%	71.4%	14.3%
	Grade 6	5	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

### Question 21

I would defend the Mastery cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	10.5%	0.0%	31.6%	57.9%
	Grade 4	7	0.0%	14.3%	0.0%	57.1%	28.6%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	16.7%	0.0%	33.3%	50.0%

### Question 22

I would defend the Above Mastery cut score against criticism that it is too high.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	5.3%	10.5%	31.6%	52.6%
	Grade 4	7	0.0%	0.0%	28.6%	42.9%	28.6%
	Grade 6	6	0.0%	0.0%	0.0%	16.7%	83.3%
	Grade 11	6	0.0%	16.7%	0.0%	33.3%	50.0%

**Question 23**

I would defend the Above Mastery cut score against criticism that it is too low.

Content Area	Grade Level	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall		19	0.0%	5.3%	10.5%	21.1%	63.2%
	Grade 4	7	0.0%	14.3%	28.6%	28.6%	28.6%
	Grade 6	6	0.0%	0.0%	0.0%	0.0%	100.0%
	Grade 11	6	0.0%	0.0%	0.0%	33.3%	66.7%

**Question 24**

What is your education level?

Content Area	Grade Level	N	Bachelor's	Master's	Doctorate
Overall		19	15.8%	84.2%	0.0%
	Grade 4	7	14.3%	85.7%	0.0%
	Grade 6	6	16.7%	83.3%	0.0%
	Grade 11	6	16.7%	83.3%	0.0%

**Question 25**

What is your current occupation?

Content Area	Grade Level	N	Teacher	Administrator	Other
Overall		19	57.9%	21.1%	21.1%
	Grade 4	7	42.9%	28.6%	28.6%
	Grade 6	6	50.0%	33.3%	16.7%
	Grade 11	6	83.3%	0.0%	16.7%

**Question 26**

How many years in your current profession?

Content Area	Grade Level	N	1-5	6-10	11-15
Overall		19	10.5%	5.3%	5.3%
	Grade 4	7	0.0%	0.0%	14.3%
	Grade 6	6	33.3%	16.7%	0.0%
	Grade 11	6	0.0%	0.0%	0.0%

Content Area	Grade Level	N	16-20	21+
Overall		19	15.8%	63.2%
	Grade 4	7	28.6%	57.1%
	Grade 6	6	0.0%	50.0%
	Grade 11	6	16.7%	83.3%

**Question 27**

What is your race/ethnicity?

Content Area	Grade Level	N	Asian/Pacific Islander	Hispanic/Latino	African-American
Overall		19	0.0%	0.0%	0.0%
	Grade 4	7	0.0%	0.0%	0.0%
	Grade 6	6	0.0%	0.0%	0.0%
	Grade 11	6	0.0%	0.0%	0.0%

Content Area	Grade Level	N	American Indian	White	Other
Overall		19	0.0%	100.0%	0.0%
	Grade 4	7	0.0%	100.0%	0.0%
	Grade 6	6	0.0%	100.0%	0.0%
	Grade 11	6	0.0%	100.0%	0.0%

**Question 28**

What is your gender?

Content Area	Grade Level	N	Male	Female
Overall		19	31.6%	68.4%
	Grade 4	7	28.6%	71.4%
	Grade 6	6	33.3%	66.7%
	Grade 11	6	33.3%	66.7%

**Question 29**

Have you taught ESL/ELD?

Content Area	Grade Level	N	Yes	No
Overall		19	5.3%	94.7%
	Grade 4	7	0.0%	100.0%
	Grade 6	6	0.0%	100.0%
	Grade 11	6	16.7%	83.3%

**Question 30**

Have you taught Special Education?

Content Area	Grade Level	N	Yes	No
Overall		19	84.2%	15.8%
	Grade 4	7	71.4%	28.6%
	Grade 6	6	83.3%	16.7%
	Grade 11	6	100.0%	0.0%

**Question 31**

Have you taught Alternative Education?

Content Area	Grade Level	N	Yes	No
Overall		19	36.8%	63.2%
	Grade 4	7	71.4%	28.6%
	Grade 6	6	16.7%	83.3%
	Grade 11	6	16.7%	83.3%

**Question 32**

Have you taught Vocational Education?

Content Area	Grade Level	N	Yes	No
Overall		19	15.8%	84.2%
	Grade 4	7	42.9%	57.1%
	Grade 6	6	0.0%	100.0%
	Grade 11	6	0.0%	100.0%

**Question 33**

Have you taught Adult Education?

Content Area	Grade Level	N	Yes	No
Overall		19	31.6%	68.4%
	Grade 4	7	57.1%	42.9%
	Grade 6	6	16.7%	83.3%
	Grade 11	6	16.7%	83.3%

**Question 34**

Which grade did you work on during this standard setting?

Content Area	Grade Level	N	Grade 4	Grade 6
Overall		19	36.8%	31.6%
	Grade 4	7	100.0%	0.0%
	Grade 6	6	0.0%	100.0%
	Grade 11	6	0.0%	0.0%

Content Area	Grade Level	N	Grade 11
Overall		19	31.6%
	Grade 4	7	0.0%
	Grade 6	6	0.0%
	Grade 11	6	100.0%

## **SECTION H**

### **Performance Level Descriptions**

<b>Performance Levels</b>	<b>(Grade 4) Science SC 4.1 Nature of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standards in nature of science. The student will perform the following complex task without assistance: interpret information yielded a variety of tools.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standards in nature of nature of science. The student will perform the following task without assistance: apply tools in the investigation of scientific concepts (magnifying glass, thermometer, ruler, microscope)
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in nature of science. The student will perform the following with assistance: match scientific instrument or tool to its appropriate use.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in nature of science. The student will attempt to perform the following with assistance: identify a scientific instrument.

	<b>Science SC 4.2 Content of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standards in content of science. The student will perform the following complex task without assistance: compare different characteristics of living organisms and different characteristics of non-living organisms; compare different types of forces of motion; predict the effect of different natural events on the environment.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in content of science. The student will perform the following task without assistance: describe characteristics of matter in the environment; recognize different types of forces of motion; compare the effect of different natural events on the environment.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in content of science. student will perform the following with assistance: Identify characteristics of living matter; classify objects according to how they move (roll, swing, float, fly); describe the effects of a natural event on the environment.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in content of science: indicate example of living/non-living things; identify an object that rolls and one that does not; identify a natural event.

	<b>Science SC 4.3 Application of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standard in application of science. The student will perform the following complex task without assistance: complete the parts of a scientific system/patterns within environment.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in application of science. The student will perform the following task without assistance; compare scientific systems and patterns within the environment.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in application of science. The student will perform the following with assistance: select scientific systems/patterns.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in application of science. The student will attempt to perform the following with assistance; identify scientific systems/patterns.

<b>Performance Levels</b>	<b>(Grade 6) Science SC 6.1 Nature of Science</b>
<b>Above Mastery</b>	The student demonstrates performance and shows an application of knowledge that exceeds the <b>extended</b> standards in nature of science. The student will perform the following complex task without assistance: sequence a scientific process to solve a problem; explore the contributions of science.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standards in nature of science. The student will perform the following task without assistance: apply scientific processes used in problem solving; recognize the contributions of science.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in nature of science. The student will perform the following with assistance: match a scientific process to a task; match scientific developments to their function.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in nature of science. The student will attempt to perform the following with assistance: identify items relating to scientific processes; select picture of a scientific invention that has made life easier..

	<b>Science SC 6.2 Content of Science</b>
<b>Above Mastery</b>	The student demonstrates performance and shows an application of knowledge that exceeds the <b>extended</b> standards in content of science. The student will perform the following complex task without assistance: interpret the life cycles in nature; determine the properties and processes of energy and matter; interpret the impact of the moon and sun on earth.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in content of science. The student will perform the following task without assistance: describe the life cycles in nature; classify the properties and processes of energy; explain the relationships between the earth, moon and sun.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in content of science. The student will perform the following with assistance: match stage of a life cycle to an animal; identify the properties and processes of energy; match the relationships between the earth, moon and sun.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in content of science: select the stage in a life cycle; choose objects that represent properties and processes of energy; identify the earth, moon and sun.

	<b>Science SC 6.3 Application of Science</b>
<b>Above Mastery</b>	The student demonstrates performance and shows an application of knowledge that exceeds the <b>extended</b> standard in application of science. The student will perform the following complex task without assistance: predict changes in systems.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in application of science. The student will perform the following task without assistance; describe changes in the earth's system.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in application of science. The student will perform the following with assistance: match parts of a system to a whole.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in application of science. The student will attempt to perform the following with assistance; identify a system.

<b>Performance Levels</b>	<b>(Grade 11) Science SC.CC.1 Nature of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standards in nature of science. The student will perform the following complex task without assistance: interpret and graph collective data; sequence chronologically related scientific innovations.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standards in nature of science. The student will perform the following task without assistance: safely use laboratory equipment to measure items; identify scientific innovations in chemistry.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in nature of science. The student will perform the following with assistance: match the instrument to its function; match a modern scientific to its use.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in nature of science. The student will attempt to perform the following with assistance: identify laboratory equipment; identify a modern scientific instrument.

	<b>(Grade 11) Science SC.CC.2 Content of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standards in content of science. The student will perform the following complex task without assistance: organize examples of solids into non-metals and metals; apply knowledge of chemical changes; predict the changes in mass, temperature or concentration, given different circumstances.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in content of science. The student will perform the following task without assistance: classify examples of matter based on their properties; identify the difference between a chemical change and a physical change; compare substances by mass, temperature or concentration.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in content of science. student will perform the following with assistance: sort items based on properties of matter; identify a chemical change; recognize that mass and temperature can be changed.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in content of science: identify an item as a solid or a liquid; identify a physical change; identify that temperature is a measure of heat in a substance and that mass is the amount of matter in a substance.

	<b>(Grade 11) Science SC CC.3 Application of Science</b>
<b>Above Mastery</b>	The student demonstrates knowledge that exceeds the <b>extended</b> standard in application of science. The student will perform the following complex task without assistance: determine solutions to environmental problems.
<b>Mastery</b>	The student demonstrates knowledge that meets the <b>extended</b> standard in application of science. The student will perform the following task without assistance; describe the impact of technology on the environment.
<b>Partial Mastery</b>	The student demonstrates knowledge characterized by errors and/or omissions in application of science. The student will perform the following with assistance: recognizes causes of pollution.
<b>Novice</b>	The student demonstrates knowledge characterized by fragmented and incomplete performance in application of science. The student will attempt to perform the following with assistance; identify different types of pollution.