

# Missouri Assessment Program- Alternate (MAP-A)

## 2008 Technical Report



Prepared by the  
Assessment Resource Center



in Collaboration with  
the Missouri Department of Elementary and Secondary Education  
and Measured Progress

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# Overview

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The purpose of this report is to document the technical aspects of the 2007-2008 Missouri Assessment Program-Alternate (MAP-A) assessment. This was the third year of the revised MAP-A program. In the spring of 2008, students in grades 3 through 8, 10, and 11 participated in the MAP-A as follows:

- Grades 3 & 4: Mathematics and communication arts;
- Grade 5: Mathematics, communication arts, and science;
- Grades 6 & 7: Mathematics and communication arts;
- Grade 8: Mathematics, communication arts, and science;
- Grade 10: Mathematics only;
- Grade 11: Communication arts and science.

Science assessment for MAP-A was developed and piloted in 2007 at grades 5, 8, and 11. (See Appendix A for more information regarding the science pilot.) This report provides information about the technical quality of the mathematics, communication arts and science assessments, including a description of the processes used to develop, administer, and score the MAP-As and to analyze the results.

## Organization of the Report

The organization of this report is based on the conceptual flow of an assessment's life span: It begins with an overview of the initial test specifications and addresses all the intermediate steps that lead to final score reporting. Following this overview, the report addresses the general design of the MAP-A, the ongoing development process, the specific designs of the communication arts and mathematics assessments, the MAP-A format, and the administration of the assessment. Section 3 addresses scoring and reporting of MAP-A results. Section 4 addresses the reliability and validity of the MAP-A. Section 5 addresses security of MAP-A information. The report also includes references and appendices as appropriate.

This report describes several technical aspects of the 2008 MAP-A in an effort to contribute to the accumulation of validity evidence to support MAP-A score interpretations. Because it is the interpretations of scores that are evaluated for validity, not the assessment itself, this report presents documentation to substantiate intended interpretations (AERA, 1999). In the case of the MAP-A, however, construct validity is a major factor in score interpretation. The information in this report contributes important information to the validity assertion by addressing the following aspects of the MAP-A:

- Design
- Alignment
- Administration
- Scoring
- Achievement levels
- Reporting

## Purpose of the MAP-A

The Individuals with Disabilities Education Act (IDEA) requires that students with disabilities be included in each state's system of accountability and that students with disabilities have access to the general curriculum. The No Child Left Behind Act (NCLB) also speaks to the inclusion of all children in a state's accountability system by requiring states to report student achievement for all students as well as for groups of students on a disaggregated basis. These federal laws reflect an ongoing concern about equity: All students should be academically challenged and taught to high standards; all students should be involved in the educational accountability system.

To ensure the participation of all students in the state's accountability system, the Missouri Department of Elementary and Secondary Education (DESE) has developed the MAP-A. Only IDEA-eligible students with the most significant cognitive disabilities are expected to participate in the MAP-A. Students with moderate disabilities participate in the standard MAP assessment.

The MAP-A is a portfolio-based assessment that measures student performance based on alternate achievement standards. The MAP-A is aligned with Missouri's Show-Me Standards, Grade Level Expectations (GLEs) and Alternate Grade Level Expectations (AGLEs) in communication arts, mathematics, and science. Missouri educators worked with DESE and its contractor, Measured Progress, to develop and review the AGLEs and to design the assessment blueprint for alternate assessment of eligible Missouri students. The MAP-A combines functional life skills and general education academic skills in a meaningful way for students.

MAP-A results are intended to inform stakeholders about student achievement on Missouri's communication arts, mathematics, and science standards and AGLEs. The results should be used for program and instructional improvement and as a component of school accountability.

The MAP-A assesses student performance on two Alternate Performance Indicators (APIs) in each of two content-area strands in communication arts and two content-area strands in mathematics. It also assesses performance on four APIs in science, two of which are selected from two Process strands and two of which are selected from six Content strands (two at each grade-level). Teachers observe and assess a student's performance and collect evidence in each strand during two distinct collection periods. The assessment effectively links standards, curriculum, instruction, and assessment and is scored using three criteria: 1) level of accuracy, 2) level of independence, and 3) connection to the standards. The collected evidence provides documentation of a connection between the Show-Me-Standards and instruction.

## History

Through 2004 – 2005

- MAP-A mathematics assessments are administered to eligible students in grades 4, 8, and 10; communication arts assessments are administered in grades 3, 7, and 11.

2004 – 2005

- DESE contracts with Measured Progress for development of a redesigned MAP-A to assess mathematics and communication arts.
- Development involves multiple groups of stakeholders and advisors.
- Mathematics and communication arts assessments are piloted.

2005 – 2006

- Revisions based on stakeholder feedback are made to MAP-A design.
- Operational assessment in mathematics and communication arts commences.
- MAP-A Mathematics assessments are administered to eligible students in grades 3 through 8 and 10; communications arts assessments are administered in grades 3 through 8 and 11.
- Standard setting for mathematics and communication arts is conducted and the resulting cut scores are approved by the Missouri State Board of Education.
- DESE contracts with Measured Progress for development of MAP-A science assessment. Development involves multiple groups of stakeholders and advisors.

2006 – 2007

- Revisions in response to stakeholder feedback are made to MAP-A.
- Mathematics and communication arts are assessed with MAP-A for the second year.
- The MAP-A science component was developed and piloted; Measured Progress documented the science development process. This documentation may be found in Appendix A.

2007 – 2008

- Revisions in response to stakeholder feedback are made to MAP-A.
- Mathematics and communication arts are assessed with MAP-A for the third year.
- The MAP-A science component becomes operational and is assessed at grades 5, 8, and 11.
- Measured Progress conducts standard-setting meeting for the science assessment and the resulting cut scores are approved by the Missouri State Board of Education.

# Operational Assessment Administration

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The MAP-A was administered in the spring of 2008 to students meeting the Missouri's alternate assessment eligibility criteria. Mathematics assessments were administered to students in grades 3 through 8 and 10. Communication arts assessments were administered to students in grades 3 through 8 and 11. Science assessments were administered to students in grades 5, 8, and 11. Students from 416 districts participated in the MAP-A; 4,913 students participated in mathematics, 4,795 students participated in communication arts, and 1,947 students participated in science.

## Eligible Students

All students are required to participate in the Missouri Assessment Program in one of four ways: 1) grade-level MAP assessments, 2) End-of-course assessments, 3) MAP or End-of-course assessments with accommodations, or 4) the MAP-A.

The decision as to how a student with disabilities will participate in the state's accountability system is made by the student's Individualized Education Program (IEP) team using DESE-established criteria. If the IEP team for a student with a disability answers "yes" to all five of the following eligibility questions, then the student is eligible for MAP-A participation.

### MAP-A Participation Eligibility Criteria

Yes No

- |                          |                          |                                                                                                                                                                                                                           |
|--------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. The student has a demonstrated significant <u>cognitive</u> disability and adaptive behavioral skills. Therefore, the student has difficulty acquiring new skills, and skills must be taught in very small steps.      |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. The student does not keep pace with peers, even with the majority of students in special education, with respect to the total number of skills acquired.                                                               |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. The student's educational program centers on the <u>application of essential skills</u> to the Missouri Show-Me Standards.                                                                                             |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. The IEP team, as documented in the IEP, does not recommend participation in the MAP subject-area assessments or taking the MAP with accommodations.                                                                    |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. The student's inability to participate in the MAP subject-area assessments is not primarily the result of excessive absences; visual or auditory disabilities; or social, cultural, language, or economic differences. |

In an attempt to provide more information for educators charged with making the MAP-A eligibility decision, DESE provided statements as a supplement to criterion #3. These statements may be used by IEP teams in identifying students whose educational program centers on the **application of essential skills** to the Missouri Show-Me Standards:

1. The student's reading ability is limited and, as such, the student acquires information primarily through other methods.
2. The student's ability to demonstrate knowledge by writing or speaking is limited; thus, the student must often use other methods to express ideas and share information.
3. The student requires significant supports to access the general education curriculum while demonstrating modest progress in that curriculum.

4. The student typically has difficulty solving novel problems or using newly acquired skills in differing situations.
5. The student's educational priorities primarily address essential skills that will be used in adult daily living.
6. The student's post-secondary outcomes will likely require supported or assisted living.
7. The student requires instruction in small groups or on a one-to-one basis, with frequent prompts and guidance from adults.

The grade-level MAP and End-of-course assessments provide access to the vast majority of students. Therefore, approximately 1% of Missouri students assessed are expected to participate in the MAP-A. In accordance with NCLB regulation 34 CFR 200.13 Adequate Yearly Progress in General, Missouri applies a 1% cap to the number of proficient and advanced scores based on the MAP-A that may be included in AYP calculations at both the state and district levels.

District test coordinators were required to enroll MAP-A eligible students in the MAP-A through the Assessment Resource Center (ARC) in fall 2007. This triggered delivery of a set of student-specific materials to the districts for each student enrolled in the MAP-A and an expectation that a MAP-A would be submitted for scoring for that student in spring 2008.

## Assessment Blueprint/Design

The MAP-A is a performance-based assessment that promotes enhanced capacities and integrated life opportunities for students with severe disabilities. One key purpose is to capture evidence of student learning. Another key purpose, in accord with high-quality assessment practices, is to provide information upon which to base ongoing development of curricula and instruction that are responsive to individual student needs. Students with significant cognitive disabilities are valued and contributing members of their school and community. Missouri implements and continues to improve the MAP-A to meet the needs of students and teachers as well as to comply with the requirements of the federal government.

The MAP-A consists of a portfolio of data and supporting evidence collected by an instructional team. It provides information on a student's knowledge and skills in communication arts and mathematics. The MAP-A assesses accuracy, independence, and connection to the standards on two APIs in each of two strands in communication arts and mathematics; the MAP-A also assesses four APIs in two Process and six Content strands in science. Tables 1, 2, and 3 contain the assessment blueprints for the three subjects.

**Table 1**

<b>Assessment Blueprint for Mathematics</b>		
<b>Content Area</b>	<b>Grade Focus</b>	<b>Title of Strand</b>
<b>Mathematics</b>	Required for Grades 3-8 and 11	Numbers and Operations ( <b>NO</b> )
	Required for Elementary Grades 3, 4, & 5	Algebraic Relationships ( <b>AR</b> ) <i>and/or</i> Geometric and Spatial Relationships ( <b>GS</b> )
	Required for Middle School Grades 6, 7, & 8	Data and Probability ( <b>DP</b> )
	Required for High School Grade 10	Measurement ( <b>ME</b> )

**Table 2**

<b>Assessment Blueprint for Communication Arts</b>		
<b>Content Area</b>	<b>Grade Focus</b>	<b>Title of Strand</b>
<b>Communication Arts</b>	Required for Grades 3-8 and 10	Reading: Develop and apply skills and strategies to the reading process ( <b>RD and/or RP</b> )
	Required for Elementary Grades 3, 4, & 5	Writing: Compose well-developed text using standard English conventions ( <b>WC</b> )
	Required for Middle School and High School Grades 6, 7, 8, & 11	Writing: Apply a writing process in composing text or write effectively in various forms and types of writing ( <b>WP</b> )

**Table 3**

<b>Assessment Blueprint for Science</b>		
<b>Content Area</b>	<b>Grade Focus</b>	<b>Title of Strand</b>
<b>Science</b>	<b>PROCESS STRANDS</b>	
	Required for Grades 5, 8 and 11	Scientific Inquiry ( <b>IN</b> )
	Required for Grades 5, 8 and 11	Impact of Science, Technology and Human Activity ( <b>ST</b> )
	<b>CONTENT STRANDS</b>	
	Required for Elementary Grade 5	Characteristics and Interactions of Living Organisms ( <b>LO</b> )
	Required for Elementary Grade 5	Changes in the Ecosystems and Interaction of Organisms with their Environments ( <b>EC</b> )
	Required for Middle School Grade 8	Properties and Principles of Matter and Energy ( <b>ME</b> )
	Required for Middle School Grade 8	Properties and Principles of Force and Motion ( <b>FM</b> )
	Required for High School Grade 11	Process and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) ( <b>ES</b> )
	Required for High School Grade 11	Composition and Structure of the Universe and the Motion of the Objects Within It ( <b>UN</b> )

Mathematics and communication arts are assessed at grades 3 through 8. Mathematics is also assessed at grade 10. Communication arts is also assessed at grade 11. Both mathematics and communication arts require assessment of four different APIs. APIs for MAP-A entries must be selected from particular strands within each content area, depending upon the student’s grade level.

For example, the mathematics Measurement strand (ME) includes 55 APIs, from which two must be selected for a 10<sup>th</sup> grade student’s MAP-A mathematics assessment, along with two APIs from the Numbers and Operations strand (NO). The following is a sample of nine APIs from the Measurement strand.

## Alternate Performance Indicators (APIs)

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**Justify and use the appropriate unit of measure (linear, time, weight).**

- ME1.1.** Recognize, compare, and order attributes such as length and weight.
- a. Compare and communicate the length of 2 objects directly, using words such as “bigger,” “smaller,” “longer,” “shorter,” and “taller.”
  - b. Compare and communicate the weight of 2 objects directly, using words such as “heavier,” and “lighter.”
  - c. Engage in experiences to connect number with length, using both conventional rulers and manipulative units that are standard units, such as centimeter cubes.
  - d. Engage in experiences to connect number with weight, using balance and spring scales.
  - e. Select and identify the appropriate tool for the attribute being measured.
  - f. **Show understanding of unit iteration for length measurement (e.g., placing units end to end in some manner, with no gaps).**
  - g. **Use repetition of a single unit to measure something larger than the unit (e.g., measuring the length of the room with a single meter stick).**
  - h. **Use appropriate unit for the attribute being measured.**

API lists may be found in the *Instructor’s Guide and Implementation Manual* and/or at DESE’s MAP-A web page.<sup>1</sup>

Once the APIs are selected, the MAP-A requires that data for each API be collected over two collection periods to form a MAP-A entry. For each entry, three data points per collection period must be recorded on the Entry/Data Summary Sheet. One of these three data points per collection period must be further described and documented on a Student Work Record. Actual student work, appropriate for inclusion in the portfolio, is submitted with the student work record.

A **complete MAP-A entry** is defined, at a minimum, as one Entry/Data Summary Sheet and two Student Work records documenting six data points for each API. Because there are four APIs, and four entries required, a student’s mathematics submission will contain documentation for 24 data points, at a minimum. The same would be true for communication arts, for a total of 48

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<sup>1</sup><http://www.dese.mo.gov/divimprove/assess/mapa.html>

MAP-A data points per student participating in both mathematics and communication arts assessments. Table 4 below outlines the requirements.

**Table 4**

<b>Mathematics and Communication Arts Data Collection and Submission Requirements</b>					
<b>Strand</b>	<b>API</b>	<b>Collection Period</b>	<b>Data Collection Required</b>	<b>Forms Required</b>	
Strand 1	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		
Strand 2	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		

Organisms (LO)

Characteristics and Interactions of Living

**Table 5**

<b>Science Data Collection and Submission Requirements</b>					
<b>Strand</b>	<b>API</b>	<b>Collection Period</b>	<b>Data Collection Required</b>	<b>Forms Required</b>	
Process Strand 7 and Content Strand	Process API 1 and Content API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		
Process Strand 8 and Content Strands	Process API 2 and Content API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records
		2	3 data points		

## Steps for MAP-A Administration

The administration process follows twelve steps that take the teacher from determining student eligibility to the point of submitting the assessment. These steps are outlined in the *Instructor's Guide and Implementation Manual* provided to teachers. This manual provides detailed information on what evidence to collect and how to do so for each student and also provides many samples for teachers to refer to during the process. The twelve steps are as follows:

### A Twelve-Step Procedure for Completing the MAP-A

- 1. Verify student eligibility for participation in the MAP-A. Refer to the student's IEP.**  
For information about eligibility see the Participation Eligibility Criteria established by DESE.
- 2. Determine the composition of the instructional team that will assess the student and fully inform all participants about the MAP-A.**  
The instructional team may include teachers, administrators, physical therapists, speech therapists, occupational therapists, paraprofessionals, job coaches, parents or guardians, and the student, when appropriate. **The student's case manager/teacher is responsible for the coordination of the assessment.** The case manager/teacher should fully inform all participants on the instructional team about the alternate assessment. Other professionals responsible for assisting the case manager/teacher in collecting information about the student should be aware of the MAP-A requirements and their roles in administering the MAP-A. Members of the instructional team are listed on the MAP-A validation form. The instructional team may have members in common with the IEP team, but they are NOT the same group.
- 3. Identify the mandatory strands in each content area.**  
The instructional team should refer to the Assessment Blueprint prior to beginning collection of evidence for the MAP-A.
- 4. Select Alternate Performance Indicators (APIs) for each required content-area strand.**  
The instructional team should refer to the Alternate Performance Indicators for a list of appropriate grade-level APIs for each strand.
  - For mathematics and communication arts, **two APIs per strand** are required.
- 5. Review the requirements for documentation for the MAP-A.**  
The following forms are required to complete documentation for each API:
  - **Form 1: Entry/Data Summary Sheet**  
This form is used to determine student scores for the rubric dimensions *Level of Accuracy* and *Level of Independence*. The following are included on the Entry/Data Summary Sheet:
    - Student identification
    - Content area and strand identification
    - API identification and description
    - Summary data chart
  - **Form 2: Student Work Record**

This form is used to determine the student's score for the rubric dimension *Connection to the Standards*. In order to obtain full credit for this rubric dimension, the Student Work Record must show *application* of the API in standards-based activities. The following are included on the Student Work Record:

- Student identification
- Content area and strand identification
- API identification and description
- Activity description
- Description and evaluation of student performance

**6. Determine the data collection system for documentation of student performance.**

The instructional team selects the APIs and determines how student performance will be documented. The team should ask the following questions when planning for data collection:

- How was the activity designed?
- What type of data will be collected?
  - Discrete trials
  - Task analyses
  - Time intervals
  - Accuracy rates
  - Student identification
  - Content area and strand identification
  - Discrete trials
  - Task analyses
  - Time intervals
  - Accuracy rates
- How will the data be collected and organized?
- Who will collect the data?
- When will the data be collected?
- How will data be converted into percentage scores?

**7. Collect and record data throughout the assessment period.**

There are two required collection periods for the recording of data on the Entry/Data Summary Sheet. Only data collected during the identified collection periods should be included on the data sheets. There must be three data points per collection period, one of which is linked to a Student Work Record.

**8. Select a Student Work Record to include in the MAP-A for each collection period.**

The data from the Student Work Records submitted must be documented on the Entry/Data Summary Sheet. Make sure the activity shows evidence of application of the API.

**9. Complete the Student Work Record.**

**10. Complete the Entry/Data Summary Sheet for each assessed API.**

There are two steps to completing the Entry/Data Summary Sheet prior to submission of the MAP-A:

- Determine API percentage averages.
  - a. Average the two scores for *Level of Accuracy*.
  - b. Average the two scores for *Level of Independence*.
- Indicate the Student Work Record included for each collection period of the API.

### **11. Assemble the MAP-A documentation.**

Once all of the required documentation has been completed, the teacher should assemble the MAP-A as directed in the Table of Contents Checklist.

### **12. Submit completed MAP-A.**

Submit completed MAP-A to your district test coordinator on or before the MAP-A return deadline.

## **Administrator Training**

Through DESE Regional Professional Development Centers (RPDCs) contracts, Improvement Consultants (ICs) hold primary responsibility for training Missouri teachers about MAP-A. On September 5, 2007, an administration training was delivered to ICs employed by the state's RPDCs, staff from the State Schools for Severely Handicapped, and staff from the DESE Assessment Section and Division of Special Education. The intent of the training was to provide ICs and others with the information necessary to train teachers in the MAP-A administration process. The 32 participants represented all nine regions of the state. Participants were provided with a copy of the 2007-2008 *MAP-A Instructor's Guide and Implementation Manual* and supporting materials that included sample agendas, blank activity sheets with attached step-by-step instructions, electronic copies of the presentation slides and other training materials. Presentation slides and student samples reviewed may be found in Appendix D.

The training included updates in the assessment program for 2008, participation criteria, a step-by-step process for the administration of the MAP-A, an overview of the components and forms used in the MAP-A, the scoring rubric and rules, data collection processes, the assessment AGLEs and APIs, and several student samples. Trainers were led through the step-by-step process from start to finish using student vignettes supplied to them. They were led through a process that involved making decisions about which APIs may be appropriate for an individual student's assessment, up to the point of deciding what kind of data and student work would be submitted for the student. Trainers were also given a script for this activity to use in the future as they trained teachers.

Other hands-on activities showed trainers how to use the actual student samples provided in the manual for training purposes. A variety of student samples were included in the manual to show a range of students, grades, and content areas. Other samples were specifically created to train teachers on the differences between acquisition and application of skills and also how to write up student observations so that all the information on evaluating the student and his/her performance on a chosen API was present (see Appendix D, Administration Training Materials).

Participants were also provided with information regarding common difficulties and errors encountered in the 2007 MAP-A submissions. These included

- confusion over application and acquisition,
- attempts to show progress,
- inappropriate or incomplete descriptions of student accuracy or independence,
- selection of APIs out of the grade-span allowable strands, and
- printing with ProFile.

The ICs were then responsible for providing trainings in their regions to school personnel. DESE planned to provide every teacher administering the MAP-A with a copy of the 2008 *Instructor's Guide and Implementation Manual*. Teachers attending the trainings were provided with a copy;

teachers could also obtain copies of the manual through the RPDC in their region or from the Assessment Resource Center. The manual was also available for download at the DESE website.

Based on feedback from teachers across the state, most RPDCs offered a training for teachers new to MAP-A and a training session specifically designed for returning MAP-A teachers. In addition, many regions offered drop-in days. On these days, hosted and moderated by the RPDCs, teachers worked with RPDC staff and with their peers to refine MAP-A assessments-in-development. Table 6 indicates the number of workshops offered by each region and the number of participants at those trainings.

**Table 6**

<b>2008 MAP-A Administration Training by Region</b>		
<b>Region</b>	<b>Number of Workshops Offered</b>	<b>Number of Participants Attending</b>
Southeast	6	425
Heart of Missouri	5	125
Kansas City	12	341
Northeast	9	168
Northwest	7	131
South Central	*	*
Southwest	10	392
St. Louis	19	747
Central	8	132
Totals	76	2461

\*Data unavailable

## Implementation Schedule

The schedule for the MAP-A began with the September 5, 2007, administration training and continued with trainings conducted by RPDC staff beginning in September 2007. Assessment materials were shipped to districts November 2007 through early January 2008, and two distinct data collection periods spanned January through mid-March 2008. MAP-A submissions were returned to ARC in March 2008 for scoring. Table 7 outlines this timeline.

**Table 7**

<b>2008 MAP-A Timeline</b>	
Enrollment Window	October 1 – October 31, 2007
Transfer Administration Date	January 11, 2008
Collection Period 1	January 14 – February 8, 2008
Collection Period 2	February 11 – March 7, 2008
Submit Completed MAP-A within District	March 10 – March 17, 2008
Return Deadline	March 18, 2008

## Participation

MAP-A participation totaled 4913 students in mathematics, 4795 in communication arts, and 1947 in science. Details regarding Missouri student participation in the 2008 MAP-A operational assessments is provided in Table 8.

**Table 8**

<b>2008 MAP-A Participation</b>									
<b>Content Area</b>	<b>Operational Assessment</b>								
	<b>Mathematics</b>			<b>Communication Arts</b>			<b>Science</b>		
Grade Span/ Level	3 – 5	6 – 8	10	3 – 5	6 – 8	11	5	8	11
Districts with Students Participating	332	320	177	332	320	172	204	186	172
Students Participating	2192	2010	711	2192	2010	593	699	655	593

# Scoring and Reporting

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MAP-A scoring was conducted at the Assessment Resource Center (ARC). Scoring took place over a six-week period that began in March and ran through May 2008.

## Scoring Rubric

The scoring rubric is the basis for determining the student scores on the MAP-A. Three dimensions are scored:

1. Level of accuracy. This dimension reflects how well the student understands the concept(s) being assessed.
2. Level of independence. This dimension reflects the extent to which the student is able to perform without assistance from the examiner.
3. Connection to the standards. This dimension reflects whether the assessment is clearly linked to Show-Me Standards.

Scorers review the entries submitted and assign rubric scores for each of the three dimensions. Level of accuracy and level of independence are scored using a four-point rubric. Connection to the standards is scored using a three-point rubric. The total entry score is a simple sum of these three, and ranges from 0 to 11 points. A sum of the entry scores for the four entries required for mathematics and communication arts, and the two entries that are required for science make up the total raw score for that subject area. The total raw score ranges from 0 to 44 points for mathematics and communication arts, and 0 to 22 points for science.

Table 7 shows the rubric dimensions.

**Table 7**

<b>Missouri Assessment Program-Alternate (MAP-A) Rubric</b>					
<b>SCORE</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>No Score</b>
<b>Level of Accuracy</b>	Student performance of skills “based on Alternate Performance Indicators” demonstrates a <b>high level of understanding</b> of concepts. <b>76–100% Accuracy</b>	Student performance of skills “based on Alternate Performance Indicators” demonstrates <b>some understanding</b> of concepts. <b>51–75% Accuracy</b>	Student performance of skills “based on Alternate Performance Indicators” demonstrates a <b>limited understanding</b> of concepts. <b>26–50% Accuracy</b>	Student performance of skills “based on Alternate Performance Indicators” demonstrates a <b>minimal understanding</b> of concepts. <b>0–25% Accuracy</b>	Entry contains insufficient information to determine a score.
<b>Level of Independence</b>	Student requires <b>minimal</b> verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>76–100% Independence</b>	Student requires <b>some</b> verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>51–75% Independence</b>	Student requires <b>frequent</b> verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>26–50% Independence</b>	Student requires <b>extensive</b> verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>0–25% Independence</b>	Entry contains insufficient information to determine a score.
<b>Connection to the Standards</b>		There is evidence of applying the Alternate Performance Indicator in <b>two</b> standards-based activities, one per collection period.	There is evidence of applying the Alternate Performance Indicator in at least <b>one</b> standards-based activity, <b>one out of two collection periods</b> .	There is some evidence of a connection to the Alternate Performance Indicator.	There is insufficient evidence of a connection to the Alternate Performance Indicator.

MAP-A data submissions are not always complete and may not follow submission guidelines. Table 8 shows potential data irregularities and the rules that were used to address them.

**Table 8**

<b>Scoring Rules</b>	
<b>Data Irregularity</b>	<b>Scoring Rule</b>
A required Entry/Data Summary Sheet is missing.	Entry is assigned a “No Score” for each dimension of the rubric.
No dates given on Entry/Data Summary Sheet and on Student Work Records.	Entry is assigned a “No Score” for each dimension of the rubric.
No API is identified on a Student Work Record or Entry Data/Summary Sheet.	Entry is assigned a “No Score” for each dimension of the rubric.
The API is not grade span appropriate.	Entry is assigned a “No Score” for each dimension of the rubric.
The API is not consistent across the 2 collection periods.	Entry is assigned a “No Score” for each dimension of the rubric.
One out of two collection periods is incomplete.	Entry is assigned a “No Score” for each dimension on the rubric.
A collection period does not have a minimum of three data points.	The collection period is considered incomplete. Entry is assigned a “No Score” for each dimension on the rubric.
A collection period does not include at least one Student Work Record.	The collection period is considered incomplete. Entry is assigned a “No Score” for each dimension on the rubric.
The activity described on a Student Work Record does not connect to the API.	The collection period is considered incomplete. Entry is assigned a “No Score” for each dimension on the rubric.
One or more Student Work Records shows acquisition rather than application of the API.	Work will not be counted for Connection to the Standards.
Task/Activity Description and/or Evaluation of Student’s Performance section missing from the Student Work Record.	Work is not counted for Connection to the Standards.
The same API is used in more than one entry.	The first instance is scored. In the second instance, the entry is assigned “0 Data Points” in both collection periods and “No Score” for each dimension of the rubric.
A single science content strand is used in more than one entry.	The first instance is scored. In the second instance, the entry is assigned “0 Data Points” in both collection periods and “No Score” for each dimension of the rubric.

<b>Scoring Rules</b>	
<b>Data Irregularity</b>	<b>Scoring Rule</b>
Dates on the Entry/Data Summary Sheet and Student Work Records are outside the collection periods.	Any data from dates outside of the collection periods is not used for scoring.
An API Entry is missing.	Entry is assigned “0 Data Points” in both collection periods and “No Score” for each dimension on the rubric.
Percentages on Student Work Record or Entry Data/Summary Sheet are miscalculated.	Scorer recalculates and records correct percentages.
Percentage calculations for Accuracy and/or Independence cannot be verified for a Student Work Record.	Percentages for Accuracy and/or Independence for the data point corresponding to the Student Work Record are calculated as zeros.

More information regarding scoring criteria may be found in Appendix E.

## Scorers

ARC has experience hiring and training scorers to read, evaluate, and score open-ended assessments (fill-in-the-blank, short answer, short or long essay) for students at the primary, secondary, and post-secondary educational levels in subject areas including reading/language arts, mathematics, science, and social studies. Emphasis is placed on the maintenance of security and confidentiality of tests at all times. Scorers consult with scoring facilitators about scoring questionable responses to determine how to score them and attend regularly scheduled meetings in order to identify and provide input for solving problems or potential problems. Facilitators exercise functional supervision over reader/scorers and/or other staff as necessary.

ARC recruited scorers and facilitators specifically for the MAP-A program. Minimum qualifications for MAP-A scorers include a baccalaureate degree, communication skills, and demonstrated ability to critically review printed material. In addition, MAP-A scoring facilitators have prior scoring experience, strong facilitation skills, and the ability to instruct scorers regarding the meaning and application of scoring rubrics. Preferred qualifications for MAP-A scorers include previous experience scoring open-ended assessments, teaching, editing, and/or participating in structured analysis.

Twenty scorers and two scoring facilitators scored the 2007-2008 MAP-A submissions from March through May 2008. Scorers and scoring facilitators were required to sign nondisclosure agreements and agreed to maintain the security of MAP-A materials at all times.

Scorer candidates participated in training sessions led by MAP-A experts that involved paper-and-pencil scoring training. Following training, scorer candidates were given qualifying tests. After they qualified, scorers participated in additional hands-on training. Scorer training focused on the MAP-A rubric and scoring rules. Scorers were given examples of typical student work illustrating various rubric scores and scoring decisions. Examples of “difficult” submissions presenting a variety of

scoring challenges were included. Scorer training also included an emphasis on applying the rubric and decision rules as trained, guarding against bias. If they passed these tests, candidates were certified to score the MAP-A.

The scoring facilitators participated in intensive training sessions and successfully completed qualifying tests prior to MAP-A scoring. The facilitators functioned as day-to-day monitors of MAP-A scoring, conducted retraining using materials approved by the ARC MAP-A program staff, and designated, with ARC MAP-A program staff approval, additional validation readers. The facilitators conducted validation reads on all portfolios rated by scorers. They were responsible for inter-rater agreement, as described below. Scorers who were unable to maintain acceptable agreement rates were released from the MAP-A scoring project.

## Scoring Procedure

Scorers and facilitators used the following procedure for the day-to-day scoring of the MAP-A:

### Scorers

1. Take one MAP-A binder from the “In Box.”
2. Apply numbered sticker to MAP-A binder spine.
3. Verify that two scannable mathematics and communication arts score sheets, and two scannable science score sheets, if appropriate for grade level, found inside each binder correspond to the student identifying data on the binder’s cover.
4. Remove 1 scannable score sheet.
5. Score according to directions.
6. Place completed scannable score sheet in “Completed Score Sheet Tray” and the MAP-A binder in the “Second Read Box”.
7. Repeat process as needed.

### Scoring Facilitators

1. Stock the “In Box” with unscored MAP-A binders.
2. Remove the blank scannable score sheet from the binder.
3. Score MAP-A binders from the “Second Read Box.”
4. Place scannable score sheets in “Completed Score Sheet Tray.”
5. Repeat process as needed.

## Reporting

Paper reports were created at the individual student level and at the district level. Two separate student-level reports were created, one for parents/guardians and one for teachers. Paper reports were printed at ARC or at the University of Missouri Printing Services located in the same building as ARC. The score data did not leave ARC and the electronic prepress files were returned with the paper products. Paper reports were sent to both the district of residence and the district of attendance for each student as appropriate. A description of the paper reports follows and report samples may be found in Appendix F.

## Reports

### Individual Student Report–Parent/Guardian and Teacher

This report contained overall achievement level for a single content area, achievement level descriptors, raw rubric scores, and APIs assessed for each of the required entries. The only difference between the two student-level reports was that teacher reports included comments related to any submission irregularities in a student’s MAP-A so that teachers could learn to make correct submissions in the future.

### API History Report

The Individual Student API History Report listed APIs assessed in 2007-2008 and, if information is available, those assessed in previous years. APIs that were assessed with the MAP-A in more than one year are noted. This report is provided for informational purposes, and meant to assist administrators, teachers, and parents in tracking the breadth and depth of content assessed with the MAP-A from year to year across a student’s educational span.

### Student Record Label

The label contained assessment year and achievement level information.

### District Report

This report summarized data based on district of residence, and compared district performance by content area, grade span, and achievement level to overall state performance.

### State Schools Building Report

This report was similar to the District Report but compared student data from one SSSH building by content area, grade span, and achievement level to overall SSSH performance.

### State Schools Report

This report was similar to the District Report but compared student data from one SSSH building by content area, grade span, and achievement level to overall state performance.

### State Schools District Report

This report was similar to the District Report but contained a summary of data of students who attend SSSH and compared SSSH performance by content area, grade span, and achievement level to overall state performance.

Report packages sent to districts included the mathematics, communication arts, and science reports for students who reside and/or attend in the district.

## Reporting Decision Rules

Reports included achievement levels based upon the application of cut scores that may be found in Appendix C. Table 9 outlines the decision rules used for reporting of MAP-A scores.

**Table 9**

<b>2008 MAP-A Score Reporting Rules</b>	
<b>Achievement Level</b>	
Below Basic	Cut scores applied.
Basic	Cut scores applied.
Proficient	Cut scores applied.
Advanced	Cut scores applied.
Level Not Determined	All four API entries in a content area are unscorable.
<b>Participation</b>	
Participating	Enrolled students for whom MAP-A binders are returned for scoring with evidence of at least a partial attempt to collect data.
Non-participating	Enrolled students for whom empty or no MAP-A binders are returned for scoring.
<b>Accountability</b>	
Accountable	All enrolled students, less those who meet health waiver or enrollment exemptions.
Reportable	All accountable students less Level Not Determined and Non-Participating students.
Health Waiver	Approved on an individual basis by DESE Assessment staff.
Enrollment Exemptions	Students who moved in or out of the district after January 11, 2008.

## Student Performance

The following tables present information regarding 2008 MAP-A Student Performance.

**Table 10: 2008 MAP-A Achievement Level Distribution**

Grade Span	Achievement Level	Mathematics		Communication Arts		Science	
		Count	Percentage	Count	Percentage	Count	Percentage
All Grades	Level Not Determined	73	1.49	64	1.33	53	2.72
	Below Basic	475	9.67	454	9.47	630	32.36
	Basic	660	13.43	966	20.15	345	17.72
	Proficient	1939	39.47	1618	33.74	416	21.37
	Advanced	1766	35.95	1693	35.31	503	25.83
	<b>Total</b>	<b>4913</b>	<b>100</b>	<b>4795</b>	<b>100</b>	<b>1947</b>	<b>100</b>
Elementary School	Level Not Determined	21	0.96	19	0.87	18	2.58
	Below Basic	136	6.20	116	5.29	204	29.18
	Basic	291	13.27	271	12.36	126	18.03
	Proficient	817	37.25	837	38.17	127	18.17
	Advanced	928	42.32	950	43.32	224	32.05
	<b>Total</b>	<b>2193</b>	<b>100</b>	<b>2193</b>	<b>100</b>	<b>699</b>	<b>100</b>
Middle School	Level Not Determined	35	1.74	36	1.79	20	3.05
	Below Basic	275	13.69	246	12.24	230	35.11
	Basic	252	12.54	496	24.69	101	15.42
	Proficient	848	42.21	666	33.15	142	21.68
	Advanced	599	29.82	565	28.12	162	24.73
	<b>Total</b>	<b>2009</b>	<b>100</b>	<b>2009</b>	<b>100</b>	<b>655</b>	<b>100</b>
High School	Level Not Determined	17	2.39	9	1.52	15	2.53
	Below Basic	64	9.00	92	15.51	196	33.05
	Basic	117	16.46	199	33.56	118	19.90
	Proficient	274	38.54	115	19.39	147	24.79
	Advanced	239	33.61	178	30.02	117	19.73
	<b>Total</b>	<b>711</b>	<b>100</b>	<b>593</b>	<b>100</b>	<b>593</b>	<b>100</b>

**Table 11: 2008 MAP-A Mathematics Achievement Level Distribution by Grade Level**

2008 Achievement Level Distribution by Grade Level Mathematics											
Grade Level	Total Students	Level Not Determined		Below Basic		Basic		Proficient		Advanced	
		#	%	#	%	#	%	#	%	#	%
3	759	8	1.05	48	6.32	89	11.73	287	37.81	327	43.08
4	735	9	1.22	40	5.44	98	13.33	270	36.73	318	43.27
5	699	4	0.57	48	6.87	104	14.88	260	37.2	283	40.49
6	669	13	1.94	77	11.51	87	13.00	278	41.55	214	31.99
7	683	9	1.32	112	16.40	75	10.98	285	41.73	202	29.58
8	657	13	1.98	86	13.09	90	13.7	285	43.38	183	27.85
10	711	17	2.39	64	9.00	117	16.46	274	38.54	239	33.61
<b>Totals</b>	<b>4913</b>	<b>73</b>		<b>475</b>		<b>660</b>		<b>1939</b>		<b>1766</b>	

**Table 12: 2008 MAP-A Communication Arts Achievement Level Distribution by Grade Level**

Grade Level	Total Students	Level Not Determined		Below Basic		Basic		Proficient		Advanced	
		#	%	#	%	#	%	#	%	#	%
3	759	7	0.92	35	4.61	97	12.78	272	35.84	348	45.85
4	735	8	1.09	37	5.03	85	11.56	298	40.54	307	41.77
5	699	4	0.57	44	6.29	89	12.73	267	38.20	295	42.20
6	669	14	2.09	77	11.51	173	25.86	197	29.45	208	31.09
7	683	9	1.32	81	11.86	163	23.87	253	37.04	177	25.92
8	657	13	1.98	88	13.39	160	24.35	216	32.88	180	27.40
11	593	9	1.52	92	15.51	199	33.56	115	19.39	178	30.02
<b>Totals</b>	<b>4795</b>	<b>64</b>		<b>454</b>		<b>966</b>		<b>1618</b>		<b>1693</b>	

**Table 13: 2008 MAP-A Science Achievement Level Distribution by Grade Level**

Grade Level	Total Students	Level Not Determined		Below Basic		Basic		Proficient		Advanced	
		#	%	#	%	#	%	#	%	#	%
5	699	18	2.58	204	29.18	126	18.03	127	18.17	224	32.05
8	655	20	3.05	230	35.11	101	15.42	142	21.68	162	24.73
11	593	15	2.53	196	33.05	118	19.90	147	24.79	117	19.73
<b>Totals</b>	<b>1947</b>	<b>53</b>		<b>630</b>		<b>345</b>		<b>416</b>		<b>503</b>	

**Table 14: 2008 MAP-A Mathematics Achievement level Distribution by: Gender, Ethnicity, Primary Disability, Student Status, ELL Status, and Classroom Instruction**

2008 Impact Analysis Grade ALL Mathematics											
Achievement Level		Below Basic		Basic		Proficient		Advanced		Level Not Determined	
		#	%	#	%	#	%	#	%	#	%
<b>Gender</b>	Male	305	9.71	430	13.69	1233	39.24	1125	35.81	49	1.56
	Female	170	9.60	230	12.99	706	39.86	641	36.19	24	1.36
<b>Ethnicity</b>	Native American or Alaska Native	2	10.00	5	25.00	9	45.00	3	15.00	1	5.00
	Asian/Pacific Islander	10	13.16	6	7.89	27	35.53	31	40.79	2	2.63
	Black, not Hispanic	109	11.03	137	13.87	366	37.04	362	36.64	14	1.42
	Hispanic	16	9.47	25	14.79	64	37.87	62	36.69	2	1.18
	White, not Hispanic	338	9.23	487	13.31	1473	40.25	1308	35.74	54	1.48
<b>Primary Disability</b>	MR	251	9.67	349	13.45	1013	39.04	957	36.88	25	0.96
	ED	5	7.81	4	6.25	23	35.94	29	45.31	3	4.69
	Orthopedic	6	15.00	6	15	19	47.5	9	22.5	0	0.00
	Visual	8	26.67	8	26.67	6	20	8	26.67	0	0.00
	Hearing	2	16.67	0	0	6	50	4	33.33	0	0.00
	LD	13	9.92	17	12.98	54	41.22	45	34.35	2	1.53
	Other Health	39	8.48	54	11.74	192	41.74	164	35.65	11	2.39
	Deaf/Blindness	0	0.00	1	11.11	4	44.44	4	44.44	0	0.00
	Multiple Disabilities	75	12.89	95	16.32	227	39	167	28.69	18	3.09
	Autism	66	7.75	109	12.79	341	40.02	325	38.15	11	1.29
	Traum. Brain Injury	5	9.09	9	16.36	30	54.55	10	18.18	1	1.82
	Language	3	4.05	7	9.46	21	28.38	41	55.41	2	2.7
	Speech	2	22.22	1	11.11	3	33.33	3	33.33	0	0.00
<b>Student</b>	Gifted	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

<b>Status</b>	H.S. Career Education	0	0.00	2	50.00	1	25.00	1	25.00	0	0.00
	IAP	0	0.00	0	0.00	1	25.00	3	75.00	0	0.00
	IEP	475	9.67	660	13.43	1939	39.47	1766	35.95	73	1.49
	In building less than a year	41	8.07	64	12.60	201	39.57	188	37.01	14	2.76
	In district less than a year	21	7.78	42	15.56	106	39.26	92	34.07	9	3.33
	Migrant	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SES	118	10.23	168	14.56	438	37.95	412	35.70	18	1.56
	Title I	44	13.46	35	10.70	137	41.9	107	32.72	4	1.22
	Voluntary Transfer Student	2	5.26	6	15.79	15	39.47	14	36.84	1	2.63
	<b>ELL Status</b>	Rcvg Services	3	15.00	1	5.00	9	45.00	6	30.00	1
Monitoring		2	33.33	1	16.67	0	0	3	50	0	0
Title III		5	41.67	0	0.00	3	25.00	4	33.33	0	0.00
<b>Classroom Instruction</b>	Less than 21% of school day	2	3.03	6	9.09	22	33.33	35	53.03	1	1.52
	From 21% to 60% of school day	81	7.16	135	11.93	452	39.93	448	39.58	16	1.41
	More than 60% of school day	257	9.61	335	12.53	1091	40.82	947	35.43	43	1.61
	Separate school	135	12.96	184	17.66	374	35.89	336	32.25	13	1.25

**Table 15: 2008 MAP-A Communication Arts Achievement level Distribution by: Gender, Ethnicity, Primary Disability, Student Status, ELL Status, and Classroom Instruction**

2008 Impact Analysis Grade ALL Communication Arts											
Achievement Level		Below Basic		Basic		Proficient		Advanced		Level Not Determined	
		#	%	#	%	#	%	#	%	#	%
<b>Gender</b>	Male	286	9.31	627	20.42	1009	32.86	1109	36.11	40	1.3
	Female	168	9.74	339	19.66	609	35.32	584	33.87	24	1.39
<b>Ethnicity</b>	Native American or Alaska Native	4	19.05	4	19.05	7	33.33	5	23.81	1	4.76
	Asian/Pacific Islander	9	11.54	12	15.38	27	34.62	28	35.9	2	2.56
	Black, not Hispanic	105	11.08	193	20.36	303	31.96	336	35.44	11	1.16
	Hispanic	11	6.29	32	18.29	73	41.71	58	33.14	1	0.57
	White, not Hispanic	325	9.1	725	20.29	1208	33.81	1266	35.43	49	1.37
<b>Primary Disability</b>	MR	244	9.56	523	20.49	836	32.75	928	36.35	22	0.86
	ED	6	10.71	9	16.07	8	14.29	31	55.36	2	3.57
	Orthopedic	4	10.81	14	37.84	10	27.03	9	24.32	0	0.00
	Visual	11	36.67	6	20	6	20.00	7	23.33	0	0.00
	Hearing	1	7.69	3	23.08	3	23.08	6	46.15	0	0.00
	LD	13	10.00	22	16.92	38	29.23	54	41.54	3	2.31
	Other Health	38	8.6	76	17.19	166	37.56	150	33.94	12	2.71
	Deaf/Blindness	0	0.00	1	12.50	3	37.50	4	50.00	0	0.00
	Multiple Disabilities	70	12.41	140	24.82	193	34.22	147	26.06	14	2.48
	Autism	61	7.31	153	18.35	308	36.93	304	36.45	8	0.96
	Traum. Brain Injury	4	8	16	32	20	40	9	18	1	2
	Language	1	1.45	1	1.45	25	36.23	40	57.97	2	2.9
	Speech	1	11.11	2	22.22	2	22.22	4	44.44	0	0
<b>Student</b>	Gifted	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

<b>Status</b>	H.S. Career Education	0	0.00	2	20.00	5	50.00	3	30.00	0	0.00
	IAP	0	0.00	0	0.00	1	33.33	2	66.67	0	0.00
	IEP	454	9.47	966	20.15	1618	33.74	1693	35.31	64	1.33
	In building less than a year	48	9.84	111	22.75	154	31.56	163	33.40	12	2.46
	In district less than a year	30	11.36	67	25.38	80	30.30	80	30.30	7	2.65
	Migrant	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SES	109	9.96	242	22.12	367	33.55	360	32.91	16	1.46
	Title 1	32	9.76	61	18.60	121	36.89	110	33.54	4	1.22
	Voluntary Transfer Student	2	5.13	5	12.82	5	12.82	26	66.67	1	2.56
<b>ELL Status</b>	Rcvg Services	1	5.56	2	11.11	9	50.00	5	27.78	1	5.56
	Monitoring	2	40.00	0	0.00	0	0.00	3	60.00	0	0.00
	Title III	3	30.00	1	10.00	4	40.00	2	20.00	0	0.00
<b>Classroom Instruction</b>	Less than 21% of school day	3	4.84	10	16.13	17	27.42	31	50.00	1	1.61
	From 21% to 60% of school day	76	6.77	180	16.03	401	35.71	451	40.16	15	1.34
	More than 60% of school day	229	8.70	514	19.53	890	33.81	960	36.47	39	1.48
	Separate school	146	14.93	262	26.79	310	31.70	251	25.66	9	0.92

**Table 16: 2008 MAP-A Science Achievement level Distribution by: Gender, Ethnicity, Primary Disability, Student Status, ELL Status, and Classroom Instruction**

2008 Impact Analysis Grade ALL Science											
Achievement Level		Below Basic		Basic		Proficient		Advanced		Level Not Determined	
		#	%	#	%	#	%	#	%	#	%
<b>Gender</b>	Male	421	34.14	209	16.95	252	20.44	314	25.47	37	3.00
	Female	209	29.27	136	19.05	164	22.97	189	26.47	16	2.24
<b>Ethnicity</b>	Native American or Alaska Native	3	27.27	2	18.18	3	27.27	2	18.18	1	9.09
	Asian/Pacific Islander	11	27.50	7	17.50	10	25.00	12	30.00	0	0.00
	Black, not Hispanic	136	33.66	71	17.57	74	18.32	111	27.48	12	2.97
	Hispanic	21	35.00	12	20.00	13	21.67	13	21.67	1	1.67
	White, not Hispanic	459	32.05	253	17.67	316	22.07	365	25.49	39	2.72
<b>Primary Disability</b>	MR	378	33.13	212	18.58	236	20.68	298	26.12	17	1.49
	ED	5	27.78	5	27.78	0	0.00	7	38.89	1	5.56
	Orthopedic	4	30.77	3	23.08	3	23.08	3	23.08	0	0.00
	Visual	2	28.57	2	28.57	3	42.86	0	0.00	0	0.00
	Hearing	1	14.29	3	42.86	2	28.57	0	0	1	14.29
	LD	23	45.1	6	11.76	6	11.76	15	29.41	1	1.96
	Other Health	39	24.68	27	17.09	33	20.89	47	29.75	12	7.59
	Deaf/Blindness	0	0.00	1	33.33	1	33.33	1	33.33	0	0.00
	Multiple Disabilities	71	34.80	35	17.16	49	24.02	44	21.57	5	2.45
	Autism	89	30.58	45	15.46	72	24.74	71	24.40	14	4.81
	Traum. Brain Injury	10	40.00	4	16.00	3	12.00	8	32.00	0	0.00
	Language	5	20.00	2	8.00	8	32.00	8	32.00	2	8.00
	Speech	3	75.00	0	0.00	0	0.00	1	25.00	0	0.00
<b>Student Status</b>	Gifted	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	H.S. Career Education	5	50.00	1	10.00	1	10.00	3	30.00	0	0.00

	IAP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	IEP	630	32.36	345	17.72	416	21.37	503	25.83	53	2.72
	In building less than a year	48	34.04	29	20.57	32	22.70	29	20.57	3	2.13
	In district less than a year	40	41.24	21	21.65	21	21.65	11	11.34	4	4.12
	Migrant	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SES	149	35.31	75	17.77	81	19.19	107	25.36	10	2.37
	Title 1	33	33.33	23	23.23	18	18.18	24	24.24	1	1.01
	Voluntary Transfer Student	3	21.43	0	0.00	3	21.43	8	57.14	0	0.00
<b>ELL Status</b>	Revg Services	3	75.00	0	0.00	1	25.00	0	0.00	0	0.00
	Monitoring	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
	Title III	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
<b>Classroom Instruction</b>	Less than 21% of school day	5	20.83	3	12.50	2	8.33	14	58.33	0	0.00
	From 21% to 60% of school day	129	32.41	65	16.33	75	18.84	120	30.15	9	2.26
	More than 60% of school day	361	32.79	185	16.80	246	22.34	277	25.16	32	2.91
	Separate school	135	31.84	92	21.70	93	21.93	92	21.70	12	2.83

# Reliability and Validity

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Validity refers to how well a test does the job it was employed to do. Reliability refers to the consistency of results from an assessment, or the extent to which an assessment provides the same results over repeated administrations and the extent to which various items within a test tend to provide the same results (AERA, 1999). The validity of any assessment is limited by its reliability. That is, if a test does not consistently yield the same results at each administration, it is probably not valid.

## Reliability

Typically the reliability of assessments is determined by correlations among test-retest administrations, parallel forms, and items within the test (e.g., item discrimination, Cronbach's alpha, etc.). Neither parallel forms, test-retest reliability, nor consistency of an individual student's performance over time can be computed for the MAP-A as it is currently designed, administered, and scored. Recall that on each student data summary sheet there are six data points, three data points collected during each of two collection periods. These are averaged for a single entry score.

Internal consistency or homogeneity of the MAP-A can be computed as an estimate of reliability, with caution. Recall that two entries are completed for each of two strands within the mathematics or communication arts domains. Each entry assesses a single API. Thus, each student has four entry scores recorded for each of these two domains. For the science domain there are only two entry scores. Each science entry assesses two APIs representing two different strands. One measure of internal consistency, split-half reliability, is typically computed by dividing the test in half (e.g., odd vs. even items) and correlating scores on half the test items with scores on the other half. This approach could be used to estimate the reliability of the MAP-A in two ways:

1. Treat the two entries as two halves of a test and correlate the two scores. For mathematics and communication arts this would provide an estimate of internal reliability for each of the two strands. For science this is the only estimate of reliability that is possible because there are only two entries.
2. Treat all four entries in mathematics or communication arts as items of a test of the same domain and compute Cronbach's coefficient alpha.

Each API is supposed to represent the same strand, and each strand is supposed to represent the same domain. Thus, correlations between them provide an estimate of how generalizable each entry score is to the strand or to the larger domain. However, there are three concerns regarding the interpretation of these estimates:

1. This method depends upon variation among scores and a normal distribution. The MAP-A has restricted variation and a non-normal distribution. Teachers can select APIs and design assessment activities that they are fairly certain each student can pass. Thus, there is a negative skew on entry average scores, with roughly 40% of the students scoring at ceiling. The distribution of rubric scores is more restricted, with 50-70% scoring at ceiling and 15-35% scoring at floor, or "0."
2. This method underestimates the reliability of very short tests. On the MAP-A the split-half reliability would be based on only two or four items. The Spearman-Brown formula

could be applied to estimate the reliability of the whole test if the test were twice as long (i.e., four or eight items), but even doubled it is a short test.

3. This method is best applied to similar items measuring a single concept. Ideally, the two halves of a test should have similar content and difficulty level. Items measuring each behavior/skill should be on each half of the test. If the two halves are not equivalent, the reliability of the test will be underestimated. On the MAP-A, the halves are not likely to be equivalent because there is only one item on each half and because teachers are free to choose any two APIs from a field of dozens. For example, a 5<sup>th</sup> grader might be given the following two performance indicators: “*Recognize a small collection of 1 or 2 items*” (NO1.1a) and “*Develop fluency with basic number relationships of addition and subtraction for sums up to 10*” (NO9.4). Both of these APIs are designed to measure understanding of numbers and operations. However, they have different content and levels of difficulty.

Noting these limitations to the interpretation of split-half reliability coefficients as applied to the MAP-A, Tables 13 – 17 report reliability estimates. In the mathematics and communication arts domains the split-half reliabilities for Strands 1 and 2 can be thought of as replications of each other. Reliabilities for the rubric scores may be lower because the range is truncated.

**Table 13. Reliability Estimates for the MAP-A, All Grades**

	Mathematics			Communication Arts		
	Strand 1	Strand 2	Alpha	Strand 1	Strand 2	Alpha
<b>Entry Average</b>						
Accuracy	.75	.69	.82	.70	.69	.80
Independence	.78	.78	.87	.73	.69	.80
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.49	.44	.60	.48	.53	.65
Level of Independence (0 – 4)	.51	.48	.63	.51	.57	.68
Connections to Standards (0 – 3)	.54	.47	.64	.51	.54	.66

*Note.* Numbers in the Strand 1 and Strand 2 columns present the Spearman-Brown split-half reliability coefficients for the two APIs within that strand. Alpha refers to Cronbach’s alpha for the 4 API scores within each domain. Although the total sample was 5,506, due to missing data entry average reliabilities are based on 2,554 – 3,692 cases. Rubric score reliabilities are based on 4,775 – 4,897 cases. If there are scoring irregularities, the entry averages get no score and are treated as missing data in the reliability estimates. However, they are recorded as a “0” in the rubric scores. This results in fewer missing cases for reliability estimates of rubric scores.

**Table 14. Reliability Estimates for the MAP-A, Grades 3 – 5**

	Mathematics			Communication Arts		
	Strand 1	Strand 2	Alpha	Strand 1	Strand 2	Alpha
<b>Entry Average</b>						
Accuracy	.73	.68	.81	.68	.69	.78
Independence	.76	.77	.86	.72	.80	.83
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.57	.41	.59	.47	.59	.68
Level of Independence (0 – 4)	.55	.47	.64	.52	.66	.72
Connections to Standards (0 – 3)	.56	.43	.64	.52	.63	.69

*Note.* Numbers in the Strand 1 and Strand 2 columns present the Spearman-Brown split-half reliability coefficients for the two APIs within that strand. Alpha refers to Cronbach’s alpha for the 4 API scores within each domain. Although the total sample for these grades was 2,193, due to missing cases entry average reliabilities are based on 1,216 – 1,869 cases. Rubric score reliabilities are based on 2,171 – 2,190 cases.

**Table 15. Reliability Estimates for the MAP-A, Grades 6 – 8**

	Mathematics			Communication Arts		
	Strand 1	Strand 2	Alpha	Strand 1	Strand 2	Alpha
<b>Entry Average</b>						
Accuracy	.74	.72	.82	.70	.68	.81
Independence	.77	.77	.86	.73	.57	.75
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.45	.39	.58	.48	.51	.63
Level of Independence (0 – 4)	.47	.42	.60	.51	.54	.67
Connections to Standards (0 – 3)	.50	.47	.62	.49	.49	.63

*Note.* Numbers in the Strand 1 and Strand 2 columns present the Spearman-Brown split-half reliability coefficients for the two APIs within that strand. Alpha refers to Cronbach’s alpha for the 4 API scores within each domain. Although the total sample for these grades was 2,009, due to missing data entry average reliabilities are based on 927 – 1,443 cases. Rubric score reliabilities are based on 1,987 – 2,005 cases.

**Table 16. Reliability Estimates for the MAP-A, Grades 10 – 11**

	Mathematics			Communication Arts		
	Strand 1	Strand 2	Alpha	Strand 1	Strand 2	Alpha
<b>Entry Average</b>						
Accuracy	.80	.69	.84	.74	.72	.83
Independence	.88	.82	.93	.75	.56	.78
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.51	.65	.70	.46	.41	.60
Level of Independence (0 – 4)	.51	.67	.71	.49	.37	.61
Connections to Standards (0 – 3)	.56	.57	.69	.52	.38	.60

*Note.* Numbers in the Strand 1 and Strand 2 columns present the Spearman-Brown split-half reliability coefficients for the two APIs within that strand. Alpha refers to Cronbach’s alpha for the 4 API scores within each domain. Although the total sample for these grades was 711 (10<sup>th</sup> grade) and 593 (11<sup>th</sup> grade), due to missing data entry average reliabilities are based on 242 – 554 cases. Rubric score reliabilities are based on 590 – 710 cases.

**Table 17. Reliability Estimates for the MAP-A Science**

	<b>All Grades</b>	<b>5<sup>th</sup> Grade</b>	<b>8<sup>th</sup> Grade</b>	<b>11<sup>th</sup> Grade</b>
<b>Entry Average</b>				
Accuracy	.73	.70	.78	.73
Independence	.80	.80	.83	.77
<b>Rubric Score</b>				
Level of Accuracy (0 – 4)	.42	.43	.47	.34
Level of Independence (0 – 4)	.44	.46	.49	.36
Connections to Standards (0 – 3)	.52	.52	.59	.41

*Note.* These numbers are the Spearman-Brown split-half reliability coefficients for the two science entry scores. Although the total sample for these grades was 699 (5<sup>th</sup> grade), 657 (8<sup>th</sup> grade) and 593 (11<sup>th</sup> grade), due to missing data entry average, reliabilities are based on 288 – 376 cases at each grade. Rubric score reliabilities are based on 584 – 690 cases.

Three steps have been taken to increase the reliability of the MAP-A. First, three data points are collected at each of two collection periods for a total of six data points for each entry. The average for these six data points is taken as the student’s score for that entry. Multiple data points result in a more stable score because the effects of “outlier” data points are minimized, and the average score is closer to what may be the student’s “true” score. Increasing the number of data points should result in higher reliability.

Second, two standard forms, the “Entry/Data Summary Sheet” and the “Student Work Record,” along with actual student work, if appropriate, are used to report data. Test administrators are carefully trained to provide data on these standardized forms. The degree of accuracy and of independence that is required to earn each point on the rating scales is clearly specified, and models are used in training. Data collection, documentation, and submission requirements are prescribed in order to reduce the degree of variance in judgment that is somewhat inevitable in portfolio assessments. This standardized format contributes to reliability, although it has to be balanced with the need to design individualized assessments appropriate to each eligible student.

Third, scorers are carefully trained and monitored to assure inter-rater agreement. This is important because a test cannot have reliability that is higher than the reliability of the scoring. Inter-rater agreement is discussed in detail next.

### **Inter-rater Agreement Among Scorers**

The extent to which two scorers assign the same score to an assessment when using the same rubric is referred to as inter-rater agreement. As part of ARC’s quality control program for scoring MAP-A, inter-rater agreement reports are generated regularly. During scoring, facilitators conduct second scores, or read-behinds, on every communication arts and mathematics submission scored by scorers. Thus, 100% of the MAP-As are checked for inter-rater agreement. Since 2008 is the first operational assessment year for MAP-A science, all submissions are read and scored independently by two scorers. Entries with differing scores are given a third, or resolution read by the facilitators

As a scorer completes a binder, his/her scores for each entry in the binder are scanned to the MAP-A score database. When the second read is conducted and the scores scanned into the database, first scores are compared to second scores. Facilitators review discrepancy logs and agreement reports comparing individual scorers’ assessments with the facilitators’ blind

assessments. Early in the scoring season, agreement reports are reviewed daily with MAP-A program staff. As the season progresses and agreement rates stabilize, reports are reviewed by facilitators daily and with program staff at least twice a week.

Facilitators and program directors use inter-rater agreement reports to identify scorers in need of retraining and calibration and to identify any areas in which the entire scoring panel might have needed recalibration. With this information, retraining can be targeted and delivered quickly. Facilitators determine what retraining is necessary for scorers individually and as a group.

Tables 18, 19, and 20 summarize agreement reports for the MAP-A entries scored during the 2008 scoring season. Each of 21,279 mathematics and 21,235 communication arts entries received a second read by a facilitator. MAP-A science entries were scored using a double-blind strategy; the 4,234 entries with a disagreement between the first two scores received a resolution read and final score from a facilitator. Agreement with facilitator reads for each subject may be found in the tables below. Level of accuracy and level of independence dimensions are scored using a four-point rubric. Connection to the standards is scored using a three-point rubric. The maximum possible score per MAP-A entry is 11 points.

**Table 18**

<b>Mathematics Agreement Rates</b>			
	<b>Perfect</b>	<b>Perfect Plus Adjacent</b>	<b>Non-adjacent</b>
Level of Accuracy	90.88	91.33	8.67
Level of Independence	90.70	91.55	8.45
Connection to the Standards	87.03	89.30	10.70

**Table 19**

<b>Communication Arts Agreement Rates</b>			
	<b>Perfect</b>	<b>Perfect Plus Adjacent</b>	<b>Non-adjacent</b>
Level of Accuracy	93.06	93.52	6.48
Level of Independence	92.31	93.11	6.89
Connection to the Standards	87.55	90.50	9.50

**Table 20**

<b>Science Agreement Rates</b>			
	<b>Perfect</b>	<b>Perfect Plus Adjacent</b>	<b>Non-adjacent</b>
Level of Accuracy	63.60	64.26	35.74
Level of Independence	63.37	65.41	34.59
Connection to the Standards	61.47	74.03	25.97

## Validity

Validity refers to the appropriateness, meaningfulness, and usefulness of inferences made from test scores. It is the extent to which an assessment measures what it is intended to measure for a particular purpose. The purposes of the MAP-A are to (1) document student learning according to state academic standards, and (2) inform instruction. Some of the evidence to support the validity of the MAP-A for these purposes have already been discussed in earlier sections of the report that address test administration, test scoring, and test reliability. Another important piece of evidence to support validity of the MAP-A for these purposes is test content, which is discussed next.

### Test Content

Lissitz & Samuelsen (2007) argue that the test construction process is at the heart of validity. They state “*content validity, or internal validity, should be acknowledged as the critical initial characteristic to consider when evaluating the quality of a test*” (p. 446). While there is controversy regarding whether test content is the most important aspect of validity (Embretson 2007), content validity is widely considered the minimal requirement for a valid test, but not a guarantee that a test is valid.

This aspect of validity refers to whether the content of the assessment corresponds with what content should be covered by the assessment, that is, whether test content is relevant and representative of the construct. It is based on judgment and is not quantifiable. We discuss three aspects of the MAP-A content that support its validity for the purposes discussed above:

1. The alignment of strands with standards;
2. The alignment of APIs with strands;
3. The range of content in portfolios.

First, during development of the MAP-A, a blueprint was used to outline the curriculum and standards for each subject and grade level. This process assured strong alignment of MAP-A strands with Missouri’s Show-Me Standards, GLEs and AGLEs. A summary of the assessment development process may be found in the Overview section of this report; refer to the *2006 MAP-A Technical Manual* for a detailed description of the process. The assessment blueprint may be found in the Operational Assessment Administration section.

Second, two steps have been taken to maximize alignment of APIs with strands. (1) MAP-A administrators are carefully trained so that administration procedures are standardized. This process is described in the Operational Assessment Administration chapter. (2) Each MAP-A portfolio is rated on its “Connection to Standards.” This process is described in the Scoring and Reporting chapter. However, MAP-A administrators can choose what APIs to use to represent each strand with each student. Their choices influence the content validity of the MAP-A. In fact, the validity of each student’s portfolio is potentially unique, depending on the APIs selected by the administrator.

Third, effort has been made to broaden the range of content assessed by the MAP-A. Typically, tests merely sample a portion of the universe of items that could be used to assess a content domain. The larger the sample, the more valid the test. Because lengthy assessments are onerous, particularly for the MAP-A student, a balance must be achieved between number of actual APIs and the universe of possible APIs. A 2006 study of communication arts and mathematics MAP-A

submissions was conducted by Dr. Norman Webb, University of Wisconsin, at DESE's request, to address this issue.

Dr. Webb led an alignment study team using the Webb Alignment Tool (WAT), which has been used to analyze curriculum standards and assessments in over 16 states preparing to meet Title I compliance as required by the USDOE. Overall, the findings from this study indicated need for improvement in the alignment between the collection of portfolios and the Missouri communication arts and mathematics alternate standards. Specifically, the MAP-A had limited range. Teachers are required to assess only two APIs for each of two strands in both communication arts and mathematics, yet there are a large number of APIs.

Although the state determined that the Webb model did not lend itself well to assessing the alignment of an alternate assessment of MAP-A's nature, DESE in 2008 took the following actions to improve alignment.

Teachers were provided with specific guidance in addition to the assessment blueprint, requiring them to select APIs not only from different strands, but also from different goals within the strands. To help teachers implement these new requirements, DESE provided additional training for teachers focusing on the following:

1. selection of APIs and design of activities at an appropriate depth-of-knowledge levels, and
2. creation of assessment activities that closely tie to the content in the given APIs.

DESE provided for the development of additional sample entries and scoring information to be made available to teachers to assist them in their efforts to improve alignment.

Other states have used a variety of approaches to evaluating the alignment of alternate assessments, many based on modifications of the Webb model. DESE plans to conduct a re-review of the mathematics and communication arts in conjunction with the NCLB required alignment study of the science MAP-A, scheduled to take place in summer 2009.

### **Consequences of MAP-A Testing**

The *intended* consequence of the MAP-A is to enhance education outcomes for children with disabilities. To this end reports are provided to parents, teachers, schools, districts, and DESE, as described in the Scoring and Reporting chapter. Achievement Level Descriptors (ALD) provide users with clear reference points for mastery at each grade level, so that scores can be readily interpreted and used to inform curriculum and IEP development. However, different APIs are used from year to year, so annual growth for individual children for specific APIs cannot be tracked.

Assessments can also have both positive and negative *unintended* consequences. Researchers disagree about whether assessment of consequences is an aspect of validity of a test or not, but there is widespread agreement that test designers and users should explore and fully disclose identified consequences of a test's use, including negative consequences, whenever possible (Linn 1997; Popham 1997; Shepard 1997).

Therefore, DESE commissioned a study to evaluate the consequences of its state assessment program. Part of that study addressed the consequences of MAP-A. Focus group discussions and

surveys were used to collect information from several stakeholder groups, among them teachers, parents, students, school board members, superintendents, principals, and personnel from DESE, and its Regional Professional Development Centers. Through this study, other contact with MAP-A stakeholders, a number of findings have emerged, both positive and negative:

1. MAP-A design lends itself to incorporation into IEP goals.
2. Requirements to administer the assessments led to better interventions for some MAP-A students.
3. MAP-A documentation and time requirements are onerous.
4. It is difficult to select appropriate APIs for the most severely disabled students.
5. Teacher's knowledge or lack of knowledge about how to administer the assessment and about the content standards affects student scores.

These findings suggest that stakeholders perceive the MAP-A as valid for the purpose of informing instruction. The findings also suggest that the assessment is challenging for teachers. The study continues, and results are still under analysis. Findings from multiple perspectives made were presented in a symposium at the American Educational Research Association's annual meeting in April 2009.

### Teachers' Role

Teachers have a significant role in administering, reporting, and using the information provided by the MAP-A. Thus, teachers influence the validity of the test. DESE provides training and on-going guidance to help teachers administer and report the assessment validly. Nevertheless, teachers introduce construct-irrelevant variance that may compromise the validity of the MAP-A. There are three ways that administration error can reduce a student's score:

1. If a teacher fails to provide evidence on a student work record, the student would get a "0" on the accuracy and independence scores for that data point. This "0" would be averaged with the other two data points for that collection period. (If the teacher miscalculates, the entry is simply re-calculated, which could lead to a lower or higher score.) Thus, a student who may be fully capable of an API, but whose teacher fails to adequately document this on the student work record, would get a score of "67"  $[(100 + 100 + 0)/3]$  instead of a score of "100." This would result in a lower rubric score, and may or may not result in a lower overall achievement level.
2. If a teacher (a) does not provide enough work records, or (b) gives the student an *acquisition* rather than *application* task, the student would get a lower "Connections to Standards" score, which would reduce the rubric score to 9-10 instead of 11. This may or may not result in a lower overall achievement level.
3. If a teacher (a) chooses an API not in the grade span, or (b) describes an activity that doesn't connect with the API, or (c) assesses the student outside the specified time period, the student would receive a "no score" for that API, which becomes a "0" for the rubric score. For example, the API that "Cody" was assessed on was "*Write simple directions for doing something, considering a given audience* (WP5.4). Cody wrote a grocery list for a recipe to be prepared by his life skills class. Cody showed accuracy and independence, but received a rubric score of "0" because his teacher simply reported that Cody found the ingredients, but did not discuss his writing, nor what kind of prompt was needed. Cody's score of "0" suggests inability to complete this API, when in fact he could write a shopping list. A rubric score of "0" would reduce his overall score by 11 points, out of a possible 44. This is likely to place him in a lower overall achievement level.

Teacher error in administration of the MAP-A could result in artificially low scores for students, whereas a correct administration could have permitted the students to display their competence. Thus, the meaning of a particular student's rubric score is not entirely clear, and may or may not be valid for determining the student's overall achievement level.

In summary, one cannot know all aspects of validity and reliability of the MAP-A because of the nature of this assessment. We cannot compare scores from one student to another. We cannot know how their performance pertains to same-age peers who are completing standardized assessments. However, strong efforts have been made to ensure that the assessment is as valid and reliable as possible for an individualized performance assessment. The evidence described above suggests that the MAP-A's psychometric properties contribute to its intended consequence, that is, to make inferences about student achievement on the Show-Me Standards for communication arts, mathematics, and science and to improve instructional programs.

# MAP-A Information Security

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Although the MAP-A submissions do not contain secure test items, they do contain confidential student information. The security of this information is maintained throughout the MAP-A cycle, from enrollment to receipt and check-in of submissions and through scoring, reporting, and archiving.

## Enrollment

Electronic enrollment was handled by an ASP.NET website with a back-end Oracle database located behind a firewall. The website is protected by 128-bit SSL encryption, and the webserver is protected with IP filters for minimal exposure. The website requires users to login with a username and password assigned by ARC. District test coordinators can elect to create accounts within the system that can be used by their designees to enroll students. Enrollment is limited to students within a district and edit/delete can only be done by the district test coordinator.

## Scoring

MAP-A binders returned to ARC for scoring are shipped to and stored in a secure warehouse adjacent to the rooms where scoring takes place. Access to the warehouse is limited to employees of ARC. Binders are staged for scoring in a secure manner. All ARC staff, including scoring personnel, sign a confidentiality agreement that is legally binding in which they agree not to discuss any aspect of the scoring process or confidential student information. The scoring process and confidential student information are defined to include, but not be limited to, any aspect of scoring, student responses, districts or teachers administering the MAP-A outside the scoring room. In addition, all ARC staff wear security identification name badges at all times during the workday. No cell phones, cameras, or other recording devices are allowed in scoring areas. All materials necessary for scoring, including training materials, rubrics, and MAP-A binders, remain in designated scoring areas. When scoring is concluded, discarded paper and scoring materials are securely shredded.

## Data Storage

The enrollment data and score data are stored on University of Missouri servers which are behind firewalls. Additional network-level protection is provided by IP filters that block access to unauthorized subnets and protocols, regardless of their presence inside the intranet. Data is stored in a combination of Oracle database and flat text file formats. File-level access control lists prevent unauthorized staff from accessing MAP-A data on the network.

## Future Plans

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Changes to the MAP-A assessment program planned for the next year include refining of science assessment resources prepared for teachers. Administration training in all subjects will be updated, based on stakeholder feedback in the 2008 assessment year.

The MAP-A *Instructor's Guide and Implementation Manual*, which is an important resource for teachers who administer the MAP-A, will undergo revision. The administration training which employs this manual as a guide will also be reformatted in an attempt to make it more accessible to teachers administering the MAP-A. In addition to the annual train-the-trainer meeting for RPDC ICs, DESE will conduct a short series of web-based training sessions. These sessions will be designed in three segments: updates since last year, basic administration information, and sample entries. Each session will be recorded and posted for teachers' reference. The mathematics, communication arts, and science sample entries used in all MAP-A training and reference materials will be refined, along with the explanation included with each sample.

DESE plans to continue its efforts to guide teachers in the selection of APIs. Through training materials and resources available at the DESE web site, teachers will be encouraged to select APIs at the most advanced level appropriate for the student and representing as broad a range as possible, given the student's IEP and the content standards required for assessment by the MAP-A blueprint. To assist teachers in this process, APIs on which a student has been assessed with the MAP-A and the year or years in which they were assessed will be provided with the 2008-2009 student-specific assessment materials.

Scorer training materials will be refined as appropriate to include samples of any trends in assessment activities and /or student responses. Based on inter-rater reliability in the 2008 scoring data, and budget concerns, the scoring strategy will change. Each MAP-A submission will be read by two independent scorers. The second read will be conducted by a scoring facilitator (team leader). In the event of disagreement between the first two reads, the facilitator's score will prevail.

Another measure to provide guidance to teachers is an opportunity to participate in professional development meetings to learn how the MAP-A is scored. DESE plans to offer professional development scorer training to teachers who administer the MAP-A. Teachers who participate will receive MAP-A scorer training, take scorer-qualifying examinations, and score samples of MAP-A submissions.

DESE's investigation of the intended and unintended consequences of its assessment system will continue. Future analysis will consider the attitudes, opinions, and practices of stakeholders involved with instruction and assessment of MAP-A students.

## References

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# Appendix A: Science Pilot Assessment Development Process

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## Alternate Grade Level Expectation (AGLE) Expansion

### *Process*

The MAP-A Science Pilot was developed as a collaborative project between Measured Progress, the Assessment Resource Center (ARC) and the Missouri Department of Elementary and Secondary Education divisions of Curriculum and Assessment and Special Education.

### *Stakeholder involvement*

The Science Assessment Development and Review Committee, representing perspectives of parents, teachers, and administrators, provided input during the development of this assessment. In addition, teacher work groups were formed at several points in the development and revision process. Science review work groups, composed of general and special education teachers, were formed for each grade level. These teachers reviewed the AGLE documents that are the basis of the skills evidenced for this assessment. A third group of special education teachers participated in the pilot testing and scoring of this assessment, providing valuable feedback about the test design. (See Attachment 1 for stakeholder lists.)

### *Development of the Science AGLEs*

The AGLEs were developed for students with significant cognitive disabilities not working at the same level as their age level counterparts. The AGLEs were developed using Missouri's Show Me Standards and GLEs for science. Measured Progress curriculum and special education specialists developed a draft of the AGLEs. The review committee participants and DESE staff provided input and recommendations for changes to the original draft. Using these recommendations Measured Progress revised the AGLEs. This document was used to develop the assessment performance indicators. Table A.1 that follows shows how the document is organized and gives an example. The Missouri Show Me Standards and AGLEs are not included in this manual because of the length of each document. They are located on the DESE web site at <http://www.dese.mo.gov/divimprove/assess/mapa.html>.

**Table A.1: Missouri – Alternate Standards and AGLEs**

Terminology	
Term/Description	Examples
<b>Content Area</b>	<b>Science</b>
<b>Strand</b> Learning outcome expected for all students throughout all grades.	“Properties and Principles of Matter and Energy”
<b>Big Idea</b> A statement of the standard separating the essential components.	“Changes in properties and states of matter provide evidence of the atomic theory of matter.”
<b>Concept</b> Expectation for typical students described for each grade level.	“Objects, and the materials they are made of, have properties that can be used to describe and classify them.”
<b>Alternate Performance Indicator (API)</b> Skill or concept expanded from the typical GLE to a basic level.	<p><b>“ME1.1</b> Explore physical properties of objects.</p> <p><b>a.</b> Recognize that objects have specific properties (i.e., size, shape, color, mass, smell, texture, and/or temperature).</p> <p><b>b.</b> Using one or more of the five senses, explore the physical properties of different objects (e.g., identify one physical property of an object- the ball is round; it is red; the box is big; the ice cube is cold; the surface is rough; the feather is light).”</p>

*MAP-A AGLE Development Process Overview*

An overview of the AGLE development process for the MAP-A Science Pilot follows in Table A.2, showing the development process from its initial stages to the completed documents that have been circulated to school and district personnel. (See Attachment 2 for survey results from the July and August review meetings.)

**Table A.2: Science AGLE Development Process Overview**

<b>Development Step</b>	<b>Procedure of the Step</b>
Science Assessment Development and Review Committee Meeting Spring 2006	Measured Progress presented the proposed design for the science MAP-A. Participants reviewed the GLEs and made recommendations to DESE on what science GLEs to expand.
Measured Progress draft expansion was presented for review July and August 2006	Measured Progress curriculum and special education specialists expanded the GLE document to create AGLEs. Review groups in science were convened to review the AGLE documents and make further suggestions.
AGLEs were finalized September 2006	Measured Progress made revisions based on review committee recommendations. DESE gave final approval for the documents. Documents were published on the DESE website.

## **The Pilot**

### *Blueprint and Design of the Pilot Assessment*

Measured Progress presented an initial proposal for the assessment blueprint and design to the Science Assessment Development and Review Committee. The science strands in Missouri consist of 2 process strands and 6 content strands. Discussion was had about how to tie these strands together for assessment. It was decided that the science assessment would consist of assessing four strands at each grade level, but that this would be done within two entries. Teachers would be assigned the four required strands at each grade level, but would have a choice in how to pair the strands so that each entry would be comprised of one process strand API and one content strand API. The Science Assessment Development and Review Committee did not make any changes to the proposed design.

The Missouri TAC was presented with Science design in August of 2006. The blueprint and design follow in Tables A.3 and A.4.

**Table A.3: Pilot Assessment Blueprint**

Content Area	Title of Strand	Grade Focus
<b>Science Pilot</b>	Characteristics and Interactions of Living Organisms <b>(LO)</b>	Required for Elementary Grade 5
	Changes in Ecosystems and Interactions of Organisms with Their Environments <b>(EC)</b>	Required for Elementary Grade 5
	Properties and Principles of Matter and Energy <b>(PP)</b>	Required for Middle School Grade 8
	Properties and Principles of Force and Motion <b>(FM)</b>	Required for Middle School Grade 8
	Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere) <b>(ES)</b>	Required for High School Grade 11
	Composition and Structure of the Universe and the Motion of the Objects Within It <b>(UM)</b>	Required for High School Grade 11
	Scientific Inquiry <b>(SI)</b>	Required at all Grade Levels
	Impact of Science, Technology, and Human Activity <b>(IS)</b>	Required at all Grade Levels

**Table A.4: Pilot Assessment Design**

<b>Science</b>			
Strand 1 (SI and by grade span)		Strand 2 (IS and by grade span)	
Process API 1/Content API 2		Process API 1/Content API 2	
Data Sheet		Data Sheet	
CP 1	CP 2	CP 1	CP 2
WS	WS	WS	WS

API= Alternate Performance Indicator CP= Collection Period WS= Work Sample  
 SI= Scientific Inquiry IS=Impact of Science, Technology, and Human Activity

**Pilot Training**

The pilot included a recruitment effort of up to 200 teachers, with each teacher limited to piloting the MAP-A with one or two students. The pilot was designed to accommodate up to 100 students per grade in grades 5, 8 and 11. All teachers in the pilot were required to attend a one-day training session that was offered at four locations throughout the state. The dates, number of participants, and locations were as follows:

**Table A.5: 2006-2007 Pilot Teacher One-Day Trainings**

<b>Location</b>	<b>Date</b>	<b>Number of Participants</b>
Kansas City	Tuesday, December 11	38
Springfield	Wednesday, December 12	39
Columbia	Thursday, December 13	32
St. Louis	Friday, December 14	26
	TOTAL	135

All pilot teachers were provided a MAP Alternate Examiner's Manual and the training required to administer the pilot. Teachers were further supplied with a CD version of Measured Progress ProFile, a software tool that could be used by teachers to record their data and evidence on the computer and then print out at the end of the collection.

The implementation window for the pilot was from January 8 to March 2, 2007. Teachers were provided information on how and when to return portfolios to the Assessment Resource Center (ARC). Teachers were further asked to complete a survey related to the pilot process and to return it with their pilot portfolios by March 19, 2007. (See survey responses in Attachment 2).

While the recruitment had specifically targeted students in grades 5, 8 and 11 there were teachers who were interested in piloting the new MAP-A Science Pilot that did not have students currently in those grades so the recruitment expanded to allow student in grades 3-8, 10, and 11. Table A.6 indicates the actual number of portfolios that were turned in for the pilot, and the grades covered.

**Table A.6: 2004-2005 MAP-A Pilot Participation**

<b>Grade Level</b>	<b>Number of Students</b>
3, 4, 5	28
6, 7, 8	50
9, 10, 11	15
All Grades	92

## Pilot Scoring

The pilot portfolios were returned to ARC in mid March. The portfolios were logged in and prepared for scoring. The scoring institute took place over three days in June 2007. There were five table leaders and twenty-five scorers. The table leaders and scorers were recruited from individuals involved in either the pilot development process or the piloting process itself.

Table leaders were trained in advance and required to qualify to score. Scorers were involved in a half day training and were also required to qualify to score. Qualifying to score required individuals to score at least 80% agreement with a set of two entries that had been prepared and scored in advance of qualification. DESE staff were on site and available to make any policy decisions that arose and to address any scoring rules that needed to be agreed upon during the scoring process. Scoring took a day and a half. All portfolios were scored by two scorers in a double blind fashion. Any rubric dimensions that were not exact matches between scorer 1 and scorer 2 were scored by the table leader, whose score became the score of record. The inter-rater consistency for the pilot scoring is shown in Table A.7 below.

**Table A.7: Pilot Scoring Inter-rater Consistency**

<b>Subject</b>	<b>Percent of 1st Scores that Matched 2nd Scores</b>	<b>Kappa Coefficient</b>
Science	80.20	0.772

## Pilot Survey Results

Both pilot teachers and pilot scorers were asked to complete extensive surveys about the processes they had been involved in. Pilot teachers were asked questions that ranged from the usefulness of the training and materials provided to the assessment design itself and how well teachers felt it worked for their students. Pilot scorers were asked about the training they received, their understanding of the scoring process and the amount of time it took to score. Both the pilot teacher survey and pilot scorer survey results are provided in Attachment 2. In addition to the scorer survey the state was able to facilitate a focused feedback session at the end of the scoring institute with the scorers.

Two main themes were voiced in the pilot teacher and pilot scorer survey results. Teachers clearly wanted to be provided more examples and samples of science entries, especially focusing on how to connect the process and content APIs within the same entry. The second theme was that teachers felt it would be very important to provide enough training that teachers would feel comfortable completing the science portion of the MAP-A.

## MAP-A Components

### *Required Documentation*

The assessment requirements for the MAP-A include the following documentation:

Table of Contents Checklist acts as a guide for organization of the MAP-A.

Validation Form provides documentation of the individuals who have reviewed and/or contributed to the MAP-A. Teachers obtain the principal verification signature prior to submission of the MAP-A.

Entry/Data Summary Sheet must be used for each API documented within the assessed content area strands. The Data Summary Sheet is used to record student performance on each API assessed. The student's score for Level of Accuracy and Level of Independence for each API is determined based on the percentages recorded on the Entry/ Data Summary Sheet. Student Work Samples must be submitted for each collection period of each assessed API. Each student work sample should demonstrate the **application** of the API in a standards-based activity. Two different options are provided for the submission of the student work samples:

Option 1: Tangible Student Work Product

- Actual product completed by student
  - Worksheets
  - Drawings or writings
  - Journal entries
  - Projects
- Complete and submit Tangible Work Product Label (Attached to actual student work)

Option 2: Written Teacher Observation and Anecdotal Record

- Used when there is no tangible work product to submit
- Teachers complete and submit an Anecdotal Record Form as a student work sample.

Samples of the above forms are on the pages that follow.

## Table of Contents Checklist

# Elementary

Student: _____	School Year: _____	Grade: 5
----------------	--------------------	----------

(Organize MAP-A in the following manner)

- Table of Contents Checklist
- Validation Form

### Communication Arts Strand 1: Reading (RD/RP)

#### Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Communication Arts Strand 1: Reading (RD/RP)

#### Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Communication Arts Strand 2: Writing (WC)

#### Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Communication Arts Strand 2: Writing (WC)

#### Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Mathematics Strand 1: Numbers & Operations (NO)

#### Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Mathematics Strand 1: Numbers & Operations (NO)

#### Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)

#### Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)

#### Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Science Strand 7: Scientific Inquiry (IN) and Strand 3 (LO) or 4 (EC)

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### Science Strand 8: Impact of Science, Technology, and Human Activity (ST) and Strand 3 (LO) or 4 (EC)

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

**MAP-A**

**Page #** \_\_\_\_\_

**Validation Form**

**Student:** \_\_\_\_\_

**Grade:** \_\_\_\_\_

**District & School of Attendance:** \_\_\_\_\_

This form provides documentation of the individuals who have reviewed and/or contributed to this MAP -A.

---

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

Contribution to the MAP-A: Person Responsible for the MAP-A Administration

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

OPTIONAL - Use this space to provide information regarding the student's mode of communication.

Please obtain administrator's (principal, assistant principal, or special education director) signature prior to submission.

Signature \_\_\_\_\_ Date \_\_\_\_\_

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

**MAP-A**

**Page #** \_\_\_\_\_

**Entry/Data Summary Sheet**  
**Science**

<b>Student Name:</b>				<b>Grade:</b>		
<b>Content Area:</b>				<b>Process Strand:</b>		
<b>Content Strand:</b>						
<b>Process API:</b>	<b>Process API Description:</b>					
<b>Content API:</b>	<b>Content API Description:</b>					
	<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>		
	Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.		
<b>Date</b>						
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>						
<b>Independence %</b>						
<b>Average % for Collection Period</b>	Accuracy:			Accuracy:		
	Independence:			Independence:		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	
<b>Level of Independence</b>	

**MAP-A**

**Page #** \_\_\_\_\_

### Student Work Record

### Science

Attach student work sample if appropriate

<b>Student Name:</b>		<b>Grade:</b>	<b>Date:</b>
<b>Content Area:</b>		<b>Process Strand:</b> <b>Content Strand:</b>	
<b>Process API:</b> <b>Content API:</b>	<b>Process API Description:</b> <b>Content API Description:</b>		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.)			
<b>Evaluation of Student's Performance:</b>			
Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b> .		Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b> .	
<b>Level of Accuracy:</b> _____%		<b>Level of Independence:</b> _____%	

**MAP-A**

**Page #** \_\_\_\_\_

## **Administrator Training**

On September 5, 2007, an administration training was provided through a train-the-trainer model to a selected group of trainers involved with the state's Regional Professional Development Centers (RPDCs), State Schools' staff and the Department of Elementary and Secondary Education Curriculum and Assessment and Special Education staff. Participants represented all nine regions of the state.

The training encompassed the Mathematics, Communication Arts and Science content areas. Science was a focus of the training due to it being operational for the first time. Updates were made to the Instructor's Guide and Implementation Manual for 2007-2008 including the addition of a science glossary, and a section with entries that demonstrated "flawed" and "repaired" science samples.

Training focused on updates to the manual, lessons learned through the scoring process, the addition of science and updated samples. Trainers were also informed of the common mistakes evidenced in the MAP-As, the updates to the ProFile software tool for evidence collection and the MAP-A Enrollment site. (Trainer feedback from the session is found in Attachment 2.)

Draft

## Attachment 1

### Stakeholder Lists

- Design and Review Committee
- AGLE Review Committee
- Pilot Scorers

Draft

## Design and Review Committee

Name	Role
Cheryl McCutcheon	Special Education Administrator
Katie Cook	RTAC
Bev Woodhurst	SAEP Member
Karen Allan	Special Education Director
Lynn Fain	Curriculum Coordinator
Lisa Buschart	Special Education Teacher
Barbara Stevens	Interim Superintendent
Robin Krick	Curriculum Coach
Susie Register	Special Education Teacher
Eric Hadley	Science Teacher
Charlotte Spencer	RTAC
Catherine McCormack	
John Palmer	Special Education Administrator
David Fager	Special Education Teacher
Kathie Wolff	Special Education Administrator
Janice Putman	RTAC
Eric Remelius	MO Parent Involvement Coordinator
Shirley Woods	Parent
Karen Willits-McCormack	Science
Tammy Boyt	

## AGLE Review Committee

Name	Role
Katie Cook	RTAC
Karen Allan	Special Education Director
Lynn Fain	Curriculum Coordinator
Lisa Buschart	Special Education Teacher
Robin Krick	SLPS
Susie Register	Special Education Teacher
Charlotte Spencer	RTAC
John Palmer	Special Education Administrator
Kelly Fortune	SSD
Janice Putman	RTAC
Karen Willits-McCormack	Science/
Tammy Boyt	Science Teacher (Middle School)
Karen Wells	SSSH
Jackie Snow	Curriculum Specialist, Secondary Science 7-12
Karen Leigh-Kral	
Pam Mills	Earth Science Teacher (8th Grade)
Tracy Brown Hager	Science Teacher (Elementary)
Cay Miller	Science Curriculum Director
Jamie Edwards	SPED Teacher, 3-7

## Pilot Scorers

Name	School District
Christine Baker	St. Louis Public
Anna Berkbuegler	Fredericktown R-I
Suzanne Bodkins	Dixon R-I
Katherine Bradley	Iberia
Terri Bradley	Archie R-V
Mindy Brown	Meadow Heights R-II
Linda Cook	Miller R-II
Tracy Cooper	State School
Glenn Dalton	Ste Genevieve R-II
Tanya Deering	Lincoln County R-III
David Fager	East Buchanan
Lynn Fain	Columbia Public
Kelly Fortune	Spec. Sch Dst
Shannon Grubb	Grain Valley R-5
Judith Hallmark	Seymour
Jane Harrington	Park Hill
Jennifer Johnson	Junction Hill C-12
Robin Krick	St. Louis Public
Sally LaVigne	Camdenton R-III
Thelma Livesay	Louisiana R-II
Nicole Martinez	North Kansas City
Marsha Meeker	Shelby County R-II
Julie Moore	Cassville R-IV
Linda Newman	Hillsboro R-III
Jennifer Siem	Spec. Sch Dst
Lisa Stevenson	Shelby County R-IV
Lori Wallace	Knox County R-I
Lynn Wapelhorst	Columbia Public
Jaime Edwards	Columbia Public

## Attachment 2

### Survey Results:

- Science AGLE Review Committee Survey Results: July
- Science AGLE Review Committee Survey Results: August
- Pilot Training Survey Results
- Pilot Teacher Survey Results
- Pilot Scorer Survey Results
- Train-the-Trainer Survey Results

Draft

**MAP-A**  
**Science AGLE Review Committee Evaluation**  
**July 11 and 12, 2006**  
**17 Respondents**

	Strongly Disagree (1)	Disagree (2)	Neither nor Disagree (3)	Agree (4)	Strongly Agree (5)	
Overall the AGLE review worked well.	1		3	4	6	11
The overview on the first day with the whole group was helpful.	1	2	3	4	6	9
Once in the small groups the task at hand was clearly defined.	1	2	3	4	4	13
The facilitation of my small group went well.	1	2	3	4	3	13
The materials provided were helpful in the process.	1	2	3	4	4	12
The facility worked well for this meeting.	1	2	3	4	4	13
The food was great.	1	2	3	4	7	7
Three things I liked best about this experience...	1	2	3	4		
			<ul style="list-style-type: none"> <li>• Great learning experience (3)</li> <li>• Gaining more insight and knowledge of the subject</li> <li>• New perspective</li> <li>• Overall , an enlightening and enjoyable experience</li> <li>• Small group work (2)</li> <li>• Working with the science teachers (2)</li> <li>• High level of professionalism of participants (3)</li> <li>• Being with other professionals- blend of roles and experience (4)</li> </ul>			

	<ul style="list-style-type: none"> <li>• Excellent facilitation- whole and small group, very patient (4)</li> <li>• Skilled leadership provided by MP and ARC</li> <li>• Having definitions for the teacher</li> <li>• Organization</li> <li>• Flow of sessions</li> <li>• Timeline for meeting was followed</li> <li>• Discussion</li> <li>• Facility (5)</li> </ul>	
Three things I would change about this experience...	<ul style="list-style-type: none"> <li>• Establish vocabulary first (5)</li> <li>• Would like to see the Division of Special Education of DESE represented</li> <li>• Clear assignments for facilitator and recorder</li> <li>• Establish norms</li> <li>• Bring in those not familiar with MAP-A early, more info for those unfamiliar (3)</li> <li>• Full copy of GLEs for everyone (2)</li> <li>• Break into smaller groups- get work done faster</li> </ul>	
Other comments...	<ul style="list-style-type: none"> <li>• Cover use of i.e. and e.g. at training for teachers</li> <li>• Meeting well designed and planned</li> <li>• Facility was great and pleasant</li> <li>• Have stakeholder present and at the table (not in hall or leaving early)</li> <li>• APIs for science may be the same as APIs in math and Com Arts- how will this be addressed when individual teacher chooses APIs in each area?</li> <li>• Room temperature (2)</li> <li>• More bottled water</li> </ul>	



	<ul style="list-style-type: none"> <li>• Everyone’s opinion was valued and we were comfortable sharing ideas.</li> <li>• Small group work – organization of materials with color coding – obvious expertise of group/team leaders.</li> <li>• 1. The people we worked with – leaders &amp; teachers; 2. the 2<sup>nd</sup> location was great! 3. Working in small groups then reporting to large group format.</li> <li>• Food &amp; cleanliness &amp; friendliness were wonderful.</li> </ul>
Three things that I would change about this experience...	<ul style="list-style-type: none"> <li>• Have coffee, sodas, &amp; bottled water in each breakout room. Have fruit out for snacking on, not chocolate.</li> <li>• Use audio/visual projection to record changes for all to see (no repeats &amp; recaps); have GLEs in our packet.</li> <li>• Location.</li> <li>• The meeting room was too cold. The temperature was not regulated.</li> <li>• More pre-review time to look over drafts of July work. ( I got the materials in plenty of time but had not anticipated allowing time in my schedule to review).</li> <li>• Room temperature on 1<sup>st</sup> day was chilly (but not on the second).</li> <li>• 1. A little more moving us along from the facilitator on Aug 8<sup>th</sup> when we were stagnating a bit. 2. warmer room.</li> <li>• Room was cold.</li> <li>• Receiving the GLEs on Aug.8 was delayed.</li> </ul>
Other Comments...	<ul style="list-style-type: none"> <li>• Color coded GLEs worked well, Suggest that DESE keep color coding in final draft.</li> <li>• Great accommodations.</li> <li>• The final copy of the strands given back to us in color- that was really helpful! Thanks.</li> <li>• Again, this was a great learning experience for me.</li> <li>• Overall the accommodations were great. I appreciate the opportunity to participate in this enriching learning activity.</li> <li>• Can the final copies of the AGLEs be in color?</li> <li>• Could I have the names &amp; emails of the Missouri group for my CEC mailing list re: CEC Spring Conference Mailings? – Lynn Fain</li> <li>• I liked separating the 4 days into 2 groups of 2 days. We were able to read &amp; reflect on our July work before the Aug. work &amp; we were able to come back with a fresh perspective.</li> </ul>

**MAP-A**  
**Science Pilot Training Kansas City**  
**December 11–14, 2006**

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)	Average
Overall the training worked well.	0	0	1	17	8	4.27
The overview and manual walk through were helpful.	0	0	2	11	13	4.42
Applying the Step-by-Step procedures to a student sample helped me understand the new MAP-A process.	1	0	5	10	10	4.08
The Writing Activity was helpful.	0	0	0	9	5	4.00
The Planning Worksheet Activity was helpful.	0	2	10	3	13	4.04
The questions I had about the pilot were answered.	0	0	0	12	13	4.46
The materials provided were helpful.	0	0	1	11	13	4.42
The facility worked well for this meeting.	3	0	2	10	9	3.81

<p>Three things I liked best about this experience...</p>	<ul style="list-style-type: none"> <li>• Location</li> <li>• Information</li> <li>• Working with others</li> <li>• Paired with grade level MAP-A people</li> <li>• Knowledge people in charge</li> <li>• Willingness to answer individual questions</li> <li>• Informative</li> <li>• Close location</li> <li>• Relevant material</li> <li>• Manual was helpful</li> <li>• Helpful trainer</li> <li>• Great food</li> <li>• Very useful</li> <li>• Materials</li> <li>• Food</li> <li>• Informal atmosphere</li> <li>• Interaction and discussion with people from other districts</li> <li>• Other perceptions of the MAP-A</li> <li>• Materials</li> <li>• Getting this info early enough to process</li> <li>• Not your fault (facility) hopefully you can get money back because of the band. Room temp was also uncomfortable</li> <li>• PowerPoint</li> <li>• Training materials</li> <li>• Meeting other teachers from the field</li> <li>• Getting other ideas.</li> <li>• Knowledgeable staff</li> <li>• Excellent food</li> <li>• Collaboration with others visual presentations, exploring real life activities for students.</li> <li>• It gave me a chance to talk to other high school teachers and get their input into completing a science MAP-A</li> <li>• Having time to choose API's</li> </ul>
<p>Three things I would change about this experience....</p>	<ul style="list-style-type: none"> <li>• Shorter time</li> <li>• Workshop closer to my school</li> <li>• Earlier start and leave times</li> <li>• Bring elementary teacher</li> <li>• Working on individuals in own classroom was most helpful</li> </ul>

	<ul style="list-style-type: none"> <li>• Next door people were loud</li> <li>• Slower pace</li> <li>• Too much chatting at my table</li> <li>• Amount of time – I think a morning would have been enough</li> <li>• Writing about another kiddo is hard and I can process in a room full of people</li> <li>• Afternoon was a waste</li> <li>• Since we all have done MAP-A, the “pretend” exercise (Kathy) was unnecessary. We were all ready and eager to roll on our own kids.</li> <li>• Music next door</li> <li>• Time length ( too long)</li> <li>• I wish I knew more about science.</li> <li>• Ministers next door too loud.</li> <li>• Work in small groups of 2 -3</li> <li>• We needed more time for the writing activities and the planning activity</li> </ul>
Questions I still have...	

Draft

**MAP-A  
Science Pilot Training Springfield  
December 11–14,2006**

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)	Average
Overall the training worked well.	0	0	0	15	11	4.42
The overview and manual walk through were helpful.	0	1	0	14	11	4.35
Applying the Step-by-Step procedures to a student sample helped me understand the new MAP-A process.	0	0	1	12	13	4.46
The Writing Activity was helpful.	0	1	3	13	9	4.15
The Planning Worksheet Activity was helpful.	0	0	4	15	7	4.12
The questions I had about the pilot were answered.	0	0	3	12	10	4.28
The materials provided were helpful.	0	0	1	12	13	4.46
The facility worked well for this meeting.	0	1	1	14	10	4.27

0

0

<p>Three things I liked best about this experience...</p>	<ul style="list-style-type: none"> <li>• I understand better because of the step by step walk through</li> <li>• The writing activity was so helpful and being able to share with others</li> <li>• More in dept than the MAP-A math and comm.. arts</li> <li>• Able to converse with others</li> <li>• Time to work with grade level colleagues</li> <li>• Students samples</li> <li>• Collaborating with peers, becoming knowledgeable for my district, clear guidelines.</li> <li>• Sharing ideas with others</li> <li>• Getting ideas from others</li> <li>• Receiving reassurance on activities</li> <li>• Gaining practice experience.</li> <li>• Breakfast, lunch, talking to colleagues</li> <li>• Group work</li> <li>• Hands on writing activities</li> <li>• Trainers were well informed professional. All questions were answered.</li> <li>• Still absorbing the information. Overall good training.</li> <li>• Lunch, mileage, manual</li> <li>• Handouts, work samples, soda</li> <li>• I appreciate that we were able to do a write up for our own student. The hands on of working with API'S</li> <li>• Collaboration</li> <li>• Length</li> <li>• Fairly well paced</li> </ul>
<p>Three things I would change about this experience....</p>	<ul style="list-style-type: none"> <li>• More user friendly API's</li> <li>• More time to look over API's</li> <li>• Clearer on activities 1 and 2 on last worksheet. Math and Comm Arts have been taught.</li> <li>• You have a roomful of teachers who are familiar with MAP-A. Perhaps don't spend as much time on basic MAP-A Science.</li> <li>• Tables were a little cramped.</li> <li>• Processing the info takes time, there is no changing that.</li> <li>• I won't tell a group to stop talking and get on task when they already were on task!</li> </ul>
<p>Questions I still have...</p>	<ul style="list-style-type: none"> <li>• I will let you know as I go along</li> <li>• I'm having a problem being able to match the process and content areas</li> <li>• How to combine the IS strand. API's with the PP and FM</li> <li>• To use same activity. I understand some students could have tweaking, didn't know it was an option.</li> <li>• How to assess those included in Reg. Ed. Classes</li> </ul>

**MAP-A**  
**Science Pilot Training Columbia**  
**December 11–14, 2006**

	Strongly Disagree (1)	Disagree (2)	Neither Agree (3)	Agree (4)	Strongly Agree (5)	Average
Overall the training worked well.	0	0	1	14	14	4.45
The overview and manual walk through were helpful.	0	0	2	10	17	4.52
Applying the Step-by-Step procedures to a student sample helped me understand the new MAP-A process.	0	0	1	12	16	4.52
The Writing Activity was helpful.	0	0	0	11	15	4.38
The Planning Worksheet Activity was helpful.	0	1	2	14	13	4.39
The questions I had about the pilot were answered.	0	0	3	12	14	4.38
The materials provided were helpful.	0	0	0	9	20	4.69
The facility worked well for this meeting.	0	1	1	5	22	4.66

<p>Three things I liked best about this experience...</p>	<ul style="list-style-type: none"> <li>• ProFile walkthrough</li> <li>• Examples</li> <li>• Time to work on API's for my specific students</li> <li>• Presenter explained things and was knowledgeable.</li> <li>• Lunch was great</li> <li>• Materials.</li> <li>• Presenter did great. I wasn't so confused as I was from MAP-A last year. This year training for MAP-A has been good.</li> <li>• Questions were answered helped me understand what they were looking for, and materials area a great self help.</li> <li>• Didn't go page by page in manual</li> <li>• Lots of examples were gone over</li> <li>• Sat with same grade level ]</li> <li>• Clear and concise information</li> <li>• Help and input from fellow teachers.</li> <li>• All the resources!</li> <li>• Nice accommodations</li> <li>• Grouped by grade level</li> <li>• Food was much better at this location than in the past</li> <li>• Gaining more insight into the science pilot</li> <li>• The communication of the staff/materials</li> <li>• Possibly because I had done this before it was easier to understand</li> <li>• Well organized and flowed smoothly so that time was not wasted.</li> <li>• Chocolate</li> <li>• Facilitators with knowledge</li> <li>• Ways contact help</li> <li>• Working with a partner</li> <li>• Time to collaborate knowledge staff (Susan, Lisa)</li> <li>• Speed of training, good speaking voice</li> <li>• Information presented in good manner</li> <li>• Writing a sample activity</li> </ul>
<p>Three things I would change about this experience....</p>	<ul style="list-style-type: none"> <li>• Lunch (buffet style)</li> <li>• Maybe a microphone. I'm not for sure everyone heard everything.</li> <li>• I couldn't see the info when you had the web site on the screen</li> <li>• Worked well maybe have a training for those who have never done MAP-A separately for computer program basics of process</li> <li>• Ask teacher who can't bring a science teacher to bring information about what curriculum will be covered</li> </ul>

	during the collection period
Questions I still have...	<ul style="list-style-type: none"><li>• The only question I still have is....we have to click yes on the ye and no each time eve though we done submit student tangible work? Is this on the science MAP-A only?</li><li>• Still somewhat overwhelming</li><li>• Using ProFile</li></ul>

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**MAP-A**  
**Science Pilot Training St. Louis**  
**December 11 -14, 2006**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Average
	(1)	(2)	(3)	(4)	(5)	
Overall the training worked well.	0	0	0	15	15	4.50
The overview and manual walk through were helpful.	0	0	0	10	20	4.67
Applying the Step-by-Step procedures to a student sample helped me understand the new MAP-A process.	0	0	0	14	17	4.55
The Writing Activity was helpful.	0	1	2	15	14	4.31
The Planning Worksheet Activity was helpful.	0	0	1	10	20	4.61
The questions I had about the pilot were answered.	0	0	2	10	19	4.55
The materials provided were helpful.	0	0	0	10	21	4.68
The facility worked well for this meeting.	0	0	1	8	22	4.68

0

0

<p>Three things I liked best about this experience...</p>	<ul style="list-style-type: none"> <li>• Very clear explanation</li> <li>• Knowledgeable presenters</li> <li>• Color coding and organization of materials</li> <li>• Workshop was very practical.</li> <li>• Working with other teachers</li> <li>• Having questions answered receiving resources</li> <li>• Working with groups who had our aged kids</li> <li>• Working with other teachers from other schools that materials the instructional leaders were very informative.</li> <li>• This is easier than math</li> <li>• More obtainable than I expected.</li> <li>• Having questions answered professionally</li> <li>• Being given contact information</li> <li>• The professionalism exhibited.</li> <li>• The presenters presented in an effective precise manner at a good pace.</li> <li>• The presenter was very knowledgeable about the context.</li> <li>• The interactive activity was a good learning experience.</li> <li>• The drive with Sheila</li> <li>• Visiting with Susan and Lisa</li> <li>• Listening to the teachers.</li> <li>• Meeting others.</li> <li>• Seeing API's for science, getting ideas from others.</li> <li>• More info.</li> <li>• Stress on application</li> <li>• Knowledgeable instructors</li> <li>• Clarification of application</li> <li>• Working with teams of professionals of same grade.</li> <li>• The extent to which things were explained.</li> <li>• The good step by step examples.</li> <li>• Planning worksheet</li> <li>• Application explanation</li> <li>• Talking about Map A process with other teachers.</li> <li>• Divided by grade level; PowerPoint paper copy</li> <li>• The best thing was being able to network with other professionals.</li> <li>• Going into ProFile to practice</li> <li>• Good clear instruction and use of technology.</li> <li>• Organization, place, writing activity</li> </ul>
-----------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<ul style="list-style-type: none"> <li>• Planning, working with other 8<sup>th</sup> grade teachers</li> <li>• Facility</li> <li>• Good location</li> <li>• Informative</li> <li>• Green sheets</li> <li>• Interactions with peers</li> <li>• CD for input</li> <li>• Examples of applications</li> <li>• The presenters were very helpful!</li> <li>• Materials</li> <li>• The food was excellent.</li> <li>• Color coded</li> <li>• Seen others from out student populations</li> <li>• No manuals</li> </ul>
<p>Three things I would change about this experience....</p>	<ul style="list-style-type: none"> <li>• Possibly more group processing (pair/share) to check for understanding.</li> <li>• Better coffee for Sheila</li> <li>• Later start time for the drive ins</li> <li>• More colored sheets of paper</li> <li>• Have at a facility with computers.</li> <li>• Not so much sitting.</li> <li>• Bring an additional person from my school.</li> <li>• I think the manual could use some color coding for certain top pages even using post it tabs the flipping back and forth can be tedious and confusing.</li> <li>• Laptops available to use</li> <li>• Go closer to home</li> <li>• More trainings</li> <li>• Change scoring times</li> <li>• Two lines at lunch</li> <li>• No interactive work with peers; students are too different</li> <li>• More examples</li> <li>• Need more bathrooms</li> <li>• Have more trainings</li> <li>• More examples</li> <li>• Fill out with teachers</li> <li>• Have follow up before they are due.</li> </ul>
<p>Questions I still have...</p>	<ul style="list-style-type: none"> <li>• I really need to get started, I'm sure I will have questions.</li> <li>• On going....how best to find the time.</li> <li>• Acquisition and application are still confusing.</li> </ul>

- |  |                                                                                                                                                                      |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>• I'm sure they will come up but you have given me tools to find them out.</li><li>• I'll be in touch if I have any.</li></ul> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Draft

**Missouri Assessment Program-Alternate, Science Pilot**  
**Teacher Survey**

The Missouri Department of Elementary and Secondary Education, Measured Progress, and the Assessment Resource Center wish to thank you for your participation in the MAP-A Science Pilot and for taking the time to complete the following survey. This survey is instrumental for teacher input and feedback regarding the MAP-A Science Pilot. Information gathered through this survey will be helpful in determining any changes that may be necessary before full implementation of this process in the 2007-2008 school year.

If you have any questions regarding this survey, please contact Susan Izard at Measured Progress either through email ([sizard@measuredprogress.org](mailto:sizard@measuredprogress.org)) or by phone (1-800-431-8901).

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**PART 1      Background Information**

1. How many years have you taught students with significant cognitive disabilities?  
1-5 - **6**      6-10 - **4**      11-15 - **4**      16-20 - **2**      21+ - **4**
2. How many years of experience do you have with the MAP-A?  
1 - **3**      2 - **5**      3 - **4**      4 - **2**      5+ - **6**
3. Where do you currently teach?  
Public School - **20**      State-operated School      Other \_\_\_\_\_
4. What is the grade level(s) of the student(s) to whom you administered the MAP-A Science Pilot?  
Elementary (5) - **13**      Intermediate (8) - **5**      High School (11) - **2**
5. In what kind of community do you teach?  
Rural - **6**      Urban - **1**      Suburban - **13**
6. How many students completed the MAP-A Science Pilot?  
1 - **17**      2 - **3**
7. Approximately how much time outside of your school day did you use assembling the MAP-A Science Pilot?  
0-5 hours - **11**      6-10 hours - **5**      11-15 hours - **1**      16-20 hours - **3**  
More than 20 hours - **0**

**PART 2 Pilot Information** (Rate each of the following statements. In the comment section provided after each statement please give specific feedback.)

**TRAINING**

1. The training prepared me for completing the MAP-A Science Pilot.	Strongly Disagree	Disagree	Agree	Strongly Agree
	0	2	12	6
<p>What worked?</p> <ul style="list-style-type: none"> <li>• The specific examples, and the discussion of what to consider.</li> <li>• I found this to be pretty straight forward after having done math/reading.</li> <li>• Knowing how to read and interpret strands how to make it “applicable”.</li> <li>• Getting together with other teachers and coming up with activities.</li> <li>• Although we do Science activities in my classroom we don’t have a specific time set aside for that. At first I wasn’t sure anything I was doing was correct after having others look at it, I felt much better.</li> <li>• Group discussions.</li> <li>• Practice.</li> <li>• Loved the computer program.</li> <li>• The examples and the time to work on planning for the students we would be testing with the trainers there to help us.</li> <li>• API’s gave a good scope and sequence base.</li> <li>• Ideas to mix the two API’s together.</li> <li>• Having time to write out assessment activities with a group where we could brainstorm.</li> <li>• Going over the API’s and suggestions being given to use for the API’s.</li> </ul>				
<p>What did not work?</p> <ul style="list-style-type: none"> <li>• Completing it during the testing window.</li> <li>• Not sure – thought I got it, but just peeked at my pilot submission and got a NS. Confusion...</li> <li>• Not having “reference”/example MAP-A’s.</li> <li>• Too vague and hard to understand.</li> <li>• It was difficult to match a process standard to the content standard.</li> </ul>				
<p>What would you change?</p> <ul style="list-style-type: none"> <li>• Need more specific examples of what’s acceptable as matching API’s.</li> <li>• Give a scoring training in conjunction with training.</li> <li>• More examples of what’s right.</li> <li>• More practice needed.</li> <li>• The order of the standards. I would put the content standard first and the process standard second.</li> <li>• Difficulty connecting API’s – Teach staff to obtain content strand – then match to process strand – this may increase staff’s ability to connect API’s and reduce NS.</li> <li>• Given suggestions about how to implement 2 separate strands at the same time.</li> <li>• More samples on showing application.</li> <li>• Give numerous examples of matching API’s to process standards.</li> </ul>				

<b>2. The training materials were useful once I began work on the MAP-A Science Pilot.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	0	0	12	8
What worked? <ul style="list-style-type: none"> <li>• It gave me something to look back at and help this old mind remember the topics we talked about.</li> <li>• They were exactly the same easy to follow.</li> <li>• I was able to go back and check to see if I was on track.</li> </ul>				
What did not work? <ul style="list-style-type: none"> <li>• Making the connection of activities to the standards was challenging.</li> </ul>				
What would you change? <ul style="list-style-type: none"> <li>• More examples.</li> <li>• There needs to be more training on connecting API's to standards and application.</li> </ul>				

<b>3. The manual was helpful to me as I assembled the MAP-A Science Pilot.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	0	1	11	7
What worked? <ul style="list-style-type: none"> <li>• I don't remember.</li> <li>• Didn't need it too much.</li> <li>• Step by Step.</li> <li>• Using ProFile was a big help – It wouldn't let you picks API's that didn't go together.</li> <li>• Exact order.</li> <li>• Showed me how to assemble.</li> </ul>				
What did not work?				
What would you change? <ul style="list-style-type: none"> <li>• Need more examples to refer to @ each grade level.</li> <li>• Move beginner friendly to new MAP-A admin.</li> </ul>				

<b>4. The sample entries provided in Chapter 3 and Appendix C were helpful.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>14</b>	<b>6</b>
What worked? <ul style="list-style-type: none"> <li>• I don't remember.</li> <li>• Helped to get ideas of right/wrong.</li> <li>• Seeing how to correlate and make it application.</li> <li>• Samples – Great.</li> <li>• Gave me ideas!</li> </ul>				
What did not work? <ul style="list-style-type: none"> <li>• More examples.</li> </ul>				
What would you change? <ul style="list-style-type: none"> <li>• Need more.</li> <li>• Give more.</li> <li>• More examples – phrases to assist in application and accuracy/independence levels.</li> <li>• Need more differences between acquisitions and applications.</li> </ul>				

**PROFILE Did you use ProFile? YES - 13 NO - 7**  
**(If no, proceed to question 8)**

<b>5. The directions provided with ProFile were easy to follow.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>6</b>	<b>13</b>
What worked? <ul style="list-style-type: none"> <li>• I had no problems.</li> <li>• It seems like the bugs from earlier LA and Mat have been worked out.</li> <li>• Made it hard to mess up – liked the drop down box.</li> <li>• Using ProFile was easy! I don't understand why someone wouldn't use it. I like that it checks off what's been done and that it wouldn't let you pick API's you can't use.</li> <li>• ProFile was great.</li> </ul>				
What did not work? <ul style="list-style-type: none"> <li>• Not always user friendly at times.</li> </ul>				
What would you change? <ul style="list-style-type: none"> <li>• Easier movement from computer to computer.</li> </ul>				

6. ProFile was easy to use.	Strongly Disagree	Disagree	Agree	Strongly Agree
		0	1	3

What worked?

- I had no problems.
- Drop down boxes.
- Loved ProFile.
- The fact that it does not let you make a mistake on the strands.
- ProFile makes this process so much easier.

What did not work?

- Not always user friendly at times.
- I had problems when I had entered dates and score but the content sheet did not mark.
- It was confusing to me when I clicked on the first one and then moved to the second strands. I had difficulty with being consistent when entering the program and recording information.

What would you change?

- Have it print page numbers.

7. ProFile made printing the required forms simple.	Strongly Disagree	Disagree	Agree	Strongly Agree
		0	0	2

What worked?

- I had no problems.
- The “print all” button was a big help keeping papers organized this year.
- No problems with printer reading program.
- It showed you exactly what you needed. Print all button was good.
- Everything in one place.

What did not work?

What would you change?

**OTHER**

<b>8. E-mails and phone calls were returned and/or responded to promptly by... DESE</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>ARC</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>2</b>	<b>7</b>
<b>MEASURED PROGRESS</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>
<p>Comments:</p> <ul style="list-style-type: none"> <li>• I did not call either DESE or Measured Progress.</li> <li>• I only needed to call Measured Progress for a ProFile problem and they called me right back and fixed the problem.</li> <li>• Lisa and Becky always got right back to me when I emailed them.</li> <li>• I never emailed or called anyone.</li> <li>• Didn't have to use this.</li> <li>• We tried to contact ARC about a question and were not able to reach anyone.</li> </ul>				

<b>9. Questions I had were answered clearly by... DESE</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>
<b>ARC</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>
<b>MEASURED PROGRESS</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>
<p>Comments (What types of questions did you have?):</p> <ul style="list-style-type: none"> <li>• What ways to complete MAP-A &amp; how to mail back.</li> <li>• Didn't have any experience with this.</li> </ul>				

<b>10. I preferred the plastic case for pilot materials over a binder.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>1</b>	<b>0</b>	<b>3</b>	<b>14</b>

What worked?

- It was easier to handle, and carry around.
- Smaller and can be re-used multiple years.
- Binders took up a lot of space in the classroom and required the additional step of going to the office to use the 3 hole punch.
- Ease of use, need of space.
- Takes up less space.
- I liked the binder because it took up less space and it was able to hold all the required materials.
- Slender and workable.
- The plastic case was easier to handle, did not require punching.
- It was small.
- Much easier to manage.
- Thinner – can be reused.

What did not work?

- I wonder if grades lose or mix up papers if they're not stapled at least.
- I forgot to put them into the plastic cases.
- If I had my math and comm. Arts be too much to keep in order.

What would you change?

- I think binders make it easier to look through and organize.

<b>11. The return materials were easy to use.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>5</b>	<b>15</b>

What worked?

- Very easy.
- Too the point.
- The postage paid packet was very easy to use.

What did not work?

- Having to pay for pick –up (we didn't but that is what they tried to tell us).

What would you change?

## ASSESSMENT DESIGN

12. The Alternate Performance Indicators were easy to understand.	Strongly Disagree	Disagree	Agree	Strongly Agree
		1	3	8

What worked?

- Similar to others.
- Most all verbs and explanations worked.

What did not work?

- Not being a science major, makes understanding some of the API's more difficult.
- Some need clarification i.e. the computer is not a measurement tool.
- Like I said earlier, apparently I missed something if mine was NC because API didn't match activity because I felt confident it did.
- While grading/scoring, teachers need to clarify how a child "explored" etc.
- I think that many people didn't look at the big idea of the API's they chose.
- They are very broad – not specific enough.

What would you change?

- Questions we had as scorers that need to be addressed in training?
  1. Is looking on the internet or a website measuring temperature?
  2. Is looking at pictures of animals "exploring objects in nature?"
  3. Is feeding a pet frog "explaining the environment?"
- Training on teachers clarifying how a child explored.
- In training, perhaps that could be stressed more.
- Suggestions or definitions of each.
- Example to clarify a little more.
- Some need to be clarified in training with teachers ie...cannot use internet to measure temperature, exploring objects in nature.
- More details – possibly more specific examples after statement.

<b>13. I was able to pair process and content Alternate Performance Indicators in ways that made sense.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>1</b>	<b>13</b>	<b>6</b>

What worked?

- It was fairly easy.
- I believed it made it easier to make it an application activity.
- I was able to do this but at times it was difficult because I wanted to use them again.
- Working backwards by choosing the content standard and then finding a process standard to work with it.
- The “asking questions” API was easy to pair.

What did not work?

- Some took longer, the first set was easy.
- I kept second guessing and questioning. It took a lot of time to mix and match.
- Sometimes matching was hard.
- Difficult to match with activities the kids can do.
- The other set “impact of Science”.
- It was some what difficult to connect the IS standard.

What would you change?

- The order of process standards and content standards on ProFile and in the manual.

<b>14. The amount of information required as evidence of student performance on the 4 required strands for the MAP-A Science Pilot was manageable.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>1</b>	<b>3</b>	<b>11</b>	<b>3</b>

What worked?

- It wasn't overwhelming.

What did not work?

- Again the “IS” made it difficult to get correct data.
- I like the way it is organized much better than the way CA and Math is done

What would you change?

<b>15. I was able to develop science activities that made sense for both the content and process APIs.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>2</b>	<b>5</b>	<b>9</b>	<b>3</b>
<p>What worked?</p> <ul style="list-style-type: none"> <li>• Process API's were ok.</li> <li>• Making them applicable.</li> <li>• Many things we were already doing went right along – weather, measurement, etc. I hadn't thought of them as science though.</li> <li>• At 8<sup>th</sup> level, not enough choices. Etc.</li> </ul>				
<p>What did not work?</p> <ul style="list-style-type: none"> <li>• Some were harder than others.</li> <li>• For 8<sup>th</sup> grade, it was hard to create FM and PP activities that were appropriate for an MR student.</li> <li>• Trying to keep it functional.</li> <li>• Difficult.</li> <li>• The Impact of science paired with an alternate API.</li> <li>• I struggled somewhat with the IS Strand.</li> <li>• It was difficult considering the how sever the students disability was. It did force me to think of activities that were appropriate for my students.</li> </ul>				
<p>What would you change?</p> <ul style="list-style-type: none"> <li>• Are there any other content API's from the middle school to choose from?</li> <li>• I think many people probably feel they are not addressing science but actually they are. I don't know that there is anything to change but just give examples.</li> <li>• More training.</li> <li>• Develop instruction for MAP-A Science.</li> <li>• Provide science activities – ideas that match API's.</li> </ul>				

<b>16. The MAP-A Science Pilot provided an accurate assessment of the student's abilities and/or performance.</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<p>What worked?</p> <ul style="list-style-type: none"> <li>• I loved having a science teacher as a team leader.</li> <li>• Flexibility in tasks.</li> <li>• This test provides an assessment for the MAP-A teacher not the student.</li> </ul>				
<p>What did not work?</p> <ul style="list-style-type: none"> <li>• Not necessarily. It might for the activities listed, but does not show in an accurate assessment of students abilities?</li> <li>• Any teacher will tell you that MAP-A's provide an assessment of the teacher's ability to complete the parameters of the MAP-A correctly. I also question the graders abilities.</li> </ul>				
<p>What would you change?</p> <ul style="list-style-type: none"> <li>• I feel it graded the teacher's paperwork skills more than student ability.</li> </ul>				

<b>17. Additional Comments</b>
<p>What worked?</p> <ul style="list-style-type: none"> <li>• Pilot Science was at a different time than the LA &amp; Math, decreasing the time crush a little.</li> </ul>
<p>What did not work?</p> <ul style="list-style-type: none"> <li>• In KC, general MAP-A training closed out before everyone who needed/wanted it could sign up. Every teacher needs the opportunity to be trained.</li> <li>• Mostly grading the teacher on his/her picks.</li> </ul>
<p>What would you change?</p> <ul style="list-style-type: none"> <li>• If it is at all possible for this to be done before or after the other two assessments. It is a ton of work for teachers who have a large number of MAP-A's.</li> <li>• Need more specific examples/training.</li> <li>• Need more opportunities for training.</li> <li>• More training on API's data collection, connecting to standards.</li> <li>• Take out blind scores.</li> <li>• Saw another scorer looking off and changing her answers.</li> </ul>
<p>Other:</p> <ul style="list-style-type: none"> <li>• This was my first MAP-A and it was not what I had expected. ProFile was user friendly and made my job much easier.</li> <li>• It is hard to do all 3 subjects at the same time.</li> <li>• For names on the test either have it be first then last or last then first.</li> </ul>

MAP-A 2007 Science Pilot Scoring  
June 5-7, 2007  
Scorer Feedback

**1. Do you have comments or suggestions regarding the science portion of the MAP-A?**

- It was user friendly. This was my first experience with MAP-A but heard it was much better than former MAP-A's.
- More training on connecting API's.
- Content training.
- Some of the API's are vague.
- I like the way it was organized grouping strands together.
- Teachers need to make sure they pay attention to the terms used in the indicators to be accurate in activities.
- Teachers may benefit from more examples combining the 2.
- 8th grade was difficult to combine.
- The main difficulty appeared to be connecting API's .
- Also noted difficulty in abstaining application.
- Make sure everyone must attend training.
- Encourage use of ProFile by all means necessary
- Make sure that all teachers attend training!
- All teachers will need to be trained\*. Teachers will need to work with a science teacher to help understand the concepts
- \*Not "train the trainer"
- Schedule enough trainings so no one gets closed out.
- All teachers should attend training.
- Create a data base of activities and what API's it could assess.

**2. Do you have comments or suggestion regarding science content training, MAP-A science assessment training, or other related training-including training materials-for teachers?**

- More examples of good MAP-A projects.
- The training was a little confusing but once I got started it wasn't as bad as I anticipated .
- Have content API and process API switch places so teachers look at the content first. It will help teachers have API apply.
- Many teachers used tools such as the internet for inquiry instead of tools such as thermometers. Teachers need to be trained on science materials.
- Examples of activities (what is science and what is not for example sorting silverware).
- Is there anyway that you can run workshops to "mock score?" Learning to score helps me so much more .
- Need more training in how the API's can connect with each other.
- More training in how what we are accessing relates to the API's.
- The plastic folders were much nicer than the binders easier to keep track of materials.
- The training sessions allowing for brainstorming and collaboration were extremely helpful.
- Need more variety of grade level samples.
- How to pair IS with other API required.
- Difference between grading for accuracy and independence.
- If RPDC is going to train teachers make sure they have training from the state, not their peers. I have found that misinformation is being given during training.
- Staff should be taught to obtain content strand then match to process strand.

- Difficulty in application maybe eliminated by listing application ideas/phrases as examples.
- Give plenty of opportunities for teachers collaborate on their ideas for activities. This gives them a chance to learn and check their ideas for matching API's and verify application.
- Let teachers know to simplify – not reinvent the wheel!
- Give examples of correct MAP-A's stress during training to look at the big idea for API's and how individual API relates to it.
- Emphasize how to make the strands show application.
- Acquisition vs. application – how it was talked about today and yesterday.
- I think teachers need to know the difference between a task specific prompt and a non specific prompt and be (training) encouraged to use that vocabulary. I also think that it needs to stress teachers that the activities must connect to both the content and process standard.
- Internet is not a measuring tool
- Show examples of wood specific scoring like 1 pt, 1 pt = 2 100%
- Give us many examples at all levels.
- Go over: Internet not a tool to measure temp. What exactly is expected on “explore” nature? Is looking at pictures enough, or do you have to look at the actual object/animal?
- Teachers need to know:
  - Internet is not a tool to measure temperature
  - Clarify “explore objects in nature”
- Remind (stress) to the teachers to refer to the “big Idea” and glossery. This may help them design the task.

**3. Do you have hints or tips for teachers regarding science instruction or assessment? Do you have suggestions for science activities for MAP-A students?**

- Teachers: Don't make it harder than it is!
- Relax.
- Get together with others giving MAP-A to collaborate.
- Make sure you API's connect!
- Use ProFile Check to make sure both API's are covered.
- Go to the content training and MAP-A training.
- Provide some very basic concepts and provide some activities to coincide with the API's.
- Working with general education science teachers may be helpful in designing activities that connect to the API's.
- Use the science assessment and spawn off in to activities for CA and Math based on the science activity. Ex. Sink or float experiment – Sci; chart data – math; write about it – CA.
- QC before turning it in.
- Make application a part of your instruction all the time.
- Realize this test can actually be scored low because of teacher failure, not student.
- Also keep it simple! Some went way over what was needed!
- I would say that many teachers don't feel that they are doing science but when they look closely they see they are...weather, (calendar), measurement, etc.
- Keep it simple.
- It is beneficial to do large group experimental activities. That way it becomes application and you are collecting data for a group of children instead of having to do them on at a time.
- Do not include the prompt in any way in accuracy.
- Clarify prompt – content specific prompt.
- Clarify independence + no help

- Clarify activity must be within a science experiment – e.g. sorting cutlery: is that science?
- Have to do both API's in same student work record not one on one and one on the other.
- Prompts effect only independence not accuracy.
- I have seen several science task description in this Pilot that would easily lend it self to CA & MA assessment as well.

**4. Do you have comments or suggestion related to the pilot scoring process?**

- Excellent.
- It was a great experience.
- Much smoother process that I thought it would be.
- After the first scorer has finished scoring, place those papers in a manner such that the second scorer is unable to see.
- Going through the scoring process has allowed me to see things I could do or things I could do differently in my class.
- It helped me to understand how to better give the test.
- Scores need to be removed each time.
- I saw a scorer changing her score compare to another.
- I really enjoyed the process, the accommodations were wonderful.

**MAP-A  
Train-the-Trainer Workshop  
September 5<sup>th</sup>, 2007**

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
1. Overall the training worked well. <b>Comment:</b>	1	2		4 7/20 = <b>35%</b>	5 13/20 = <b>65%</b>
2. The <b>Overview and Manual Walk Through</b> were helpful. <b>Comment:</b>	1	2	3	4 5/20 = <b>25%</b>	5 15/20 = <b>75%</b>
3. The addition of the <b>Justification Form and Individual Student History Report</b> for duplicate APIs was clearly explained. <b>Comment:</b>	1	2	3	4 4/20 = <b>20%</b>	5 16/20 = <b>80%</b>
4. Applying the <b>Step-by Step</b> procedures to student <b>Sample Entries</b> helped me understand the MAP-A process. <b>Comment:</b>	1	2	3	4 7/20 = <b>35%</b>	5 13/20 = <b>65%</b>
5. The student <b>Sample Entries</b> were helpful. <b>Comment:</b>	1	2	3 2/20 = <b>10%</b>	4 4/20 = <b>20%</b>	5 14/20 = <b>70%</b>
6. The <b>Science Sample Entries</b> helped me understand how to connect Process and Content Strands to Science Activities. <b>Comment:</b>	1	2 1/20 = <b>5%</b>	3 3/20 = <b>15%</b>	4 3/20 = <b>15%</b>	5 13/20 = <b>65%</b>
7. The <b>Lessons Learned</b> portion was helpful. <b>Comment:</b>	1	2	3	4 5/20 = <b>25%</b>	5 15/20 = <b>75%</b>

8. The <b>Process Information</b> was helpful. <b>Comment:</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20%;">1</td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;">1/20 = <b>5%</b></td> <td style="text-align: center; width: 20%;">8/20 = <b>40%</b></td> <td style="text-align: center; width: 20%;">11/20 = <b>55%</b></td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> <td style="text-align: center;">5</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> </tr> </table>	1			1/20 = <b>5%</b>	8/20 = <b>40%</b>	11/20 = <b>55%</b>		2				5			3			
1			1/20 = <b>5%</b>	8/20 = <b>40%</b>	11/20 = <b>55%</b>														
	2				5														
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9. The questions I had about the MAP-A were answered. <b>Comment:</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20%;">1</td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;">2/20 = <b>10%</b></td> <td style="text-align: center; width: 20%;">8/20 = <b>40%</b></td> <td style="text-align: center; width: 20%;">10/20 = <b>50%</b></td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> <td style="text-align: center;">5</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> </tr> </table>	1			2/20 = <b>10%</b>	8/20 = <b>40%</b>	10/20 = <b>50%</b>		2				5			3			
1			2/20 = <b>10%</b>	8/20 = <b>40%</b>	10/20 = <b>50%</b>														
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10. The materials provided were helpful. <b>Comment:</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20%;">1</td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;"></td> <td style="text-align: center; width: 20%;">3/20 = <b>15%</b></td> <td style="text-align: center; width: 20%;">17/20 = <b>85%</b></td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> <td style="text-align: center;">5</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> </tr> </table>	1				3/20 = <b>15%</b>	17/20 = <b>85%</b>		2				5			3			
1				3/20 = <b>15%</b>	17/20 = <b>85%</b>														
	2				5														
		3																	
11. Three things that worked well in this experience...	<ul style="list-style-type: none"> <li>• Hands on, Flawed activities/Samples (14)</li> <li>• Discussions, Q &amp; A (4)</li> <li>• Planning Worksheet Activity (4) – would like to revise for use with Math and Com Arts</li> <li>• Poster (from Diana Humphrey)</li> <li>• Group Work (4)</li> <li>• The opportunity to allow the group to ask questions as we went through the training.</li> <li>• The pace of the training (2)</li> <li>• Thanks for listening and answering questions.</li> <li>• Clear manual and power point (2)</li> <li>• LOVED the improvements to the manual, especially the flawed/corrected examples (4)</li> <li>• Food, treats, refreshments (2)</li> <li>• Professional materials – easy to read and understand (2)</li> <li>• Manual walk through (4)</li> <li>• Writing an actual Science activity (3)</li> <li>• Power Point with page numbers easy to follow!</li> <li>• New Forms</li> <li>• NEW APIs</li> <li>• The Glossaries</li> <li>• Doing the Student Work Record</li> <li>• ProFile Review &amp; Updates (2)</li> <li>• Good information on “Big Idea”</li> <li>• Very well organized presentation.</li> <li>• “This was the first meeting (training) that I’ve attended where the assistant commissioner of Education attended. I really appreciate Heidi’s attendance and her willingness to seek input on the MAP-A process from us.”</li> <li>• Extra Handouts</li> </ul>																		



- |  |                                                                                                                                                                                                                                                                                                                                            |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>• How does MAP-A actually assess student skills for those students who have severe disabilities as oppose to assessing the teacher's ability to gather information?</li><li>• Very good training overall – Thanks so much! (2)</li><li>• Just hope I can do a good job when I do training.</li></ul> |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# **Appendix B: Science Standard-Setting Report**

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## **2007-08 Missouri Assessment Program - Alternate (MAP-A)**

**Science Standard-Setting Report  
June 3 & 4, 2008  
Columbia, Missouri**



Prepared by Measured Progress for the  
Missouri Department of Elementary and Secondary Education

## Introduction

In response to requirements outlined in the Individuals with Disabilities Education Act (IDEA) Amendments of 1997, the reauthorization of IDEA in 2004, and the No Child Left Behind Act of 2001 (NCLB), states have developed alternate assessments for students with disabilities. A variety of measurement formats have been implemented in these assessment systems (Thompson & Thurlow, 2001; Roeber, 2002; Smith, 2003; Malehorn, 1994; Navarrete, Wilde, Nelson, Martinez, & Hargett, 1990). Due to differential requirements within their Individual Education Plans (IEPs), students with disabilities may be administered different assessments appropriate to their level of ability. The test scores and performance level categories of these students, however, are reported as a single group. Given the nature of the alternate assessments, setting performance level standards for the alternate assessments can be challenging in terms of educational and policy considerations.

A number of standard setting methods have been developed over the last 30 years (Berk, 1986; Reckase, 2000; Hambleton, Jaeger, Plake, & Mills, 2000; Cizek, 2001; Hambleton & Powell, 1983; Kane, 1994; Livingston & Zieky, 1982; Lunz, 1995). Most of the methods (e.g., Bookmark, Body of Work, etc.) were developed in large-scale assessment settings. Each has its advantages as well as a number of limitations. The choice for a particular application should be based on a thorough review of existing methods in terms of their pros and cons for the concrete testing situation at hand (Cizek, 1996; Reckase, 2000; Hambleton, 2001). The most important criteria are:

- (a) The appropriateness of the method for the concrete situation;
- (b) The feasibility of the method implementation under the current circumstances;
- (c) The existing validity evidence for the quality of the selected method.

Given the complexity of alternate assessments (e.g., differential assessments, unique learning attributes of this population, etc.), there is increased emphasis on developing new

standard setting methods, or modifying existing methods, appropriate to these new conditions. Not many methods can address the complexity, so states tend to retrofit existing methods to their alternate assessment programs. Some of the very popular standard setting methods used in alternate assessment programs so far include Modified Angoff (Angoff, 1971), Bookmark (Lewis, Mitzel, & Green, 1996), Body of Work (Kingston, Kahl, Sweeney, & Bay, 2001), and Judgmental Policy Capturing (Jaeger, 1995).

Feasibility and validity are of great importance when evaluating a standard setting method (Cizek, 1996). The modified Body of Work (mBoW) procedure was chosen for the Standard setting activities for the Missouri Alternate Assessment in Science. In this method, panelists review student portfolios that represent the range of student scores. The panelists independently classify each student portfolio into one of four performance levels based on their understanding of the alternate performance level descriptors. Because the logistic burden of classifying each portfolio into one of four performance levels at the outset, as outlined in the BoW approach, is quite high, a modified approach was implemented. Panelists first focused on the middle cut, classifying portfolios above or below this cut. As a second step they took the portfolios they had classified below the middle cut and classified them into the lower two achievement levels. As a final step panelists took the portfolios they had classified above the middle cut and classified them into the upper two achievement levels. This modified version of the method has been in use for a number of years, substantially reduces the logistical burden of the method, and has been found to yield reasonable and defensible cut points. This report documents the procedures and results of the mBoW procedure implemented for the Missouri Alternate Assessment in Science.

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## Standard Setting Process

The Missouri Alternate Assessment in Science occurred June 3<sup>rd</sup> and 4<sup>th</sup>, 2008. At the June standard-setting meeting, cut-points were recommended for the alternate Science assessment in grades five, eight, and eleven using the data from the spring 2008 administration. This report documents the procedures and results of the June standard-setting meeting.

Each panel consisted of eleven to twelve participants. Each panel completed the standard-setting process for one grade level for two days. The modified Body of Work (mBoW) standard-setting method (Kingston, Kahl, Sweeney, & Bay, 2001) was implemented for all grades. In the Body of Work method, panelists are presented with a set of actual student work (in this case, student science entries) and make their judgments based on those work samples. Specifically, panelists examine each student work sample and determine which performance level best matches the particular skills and abilities the student exhibits through his/her performance on the work sample.

The Body of Work standard setting method was developed specifically for use with assessments that are designed to allow for a range of student responses, such as a portfolio and performance based assessments. The modified BoW procedure was used for science standard-setting in the same manner that it had been utilized for setting standards on the MAP-A mathematics and communication arts in 2006.

To help ensure consistency of procedures between panels, all participants attended a large-group training session at the beginning of the meeting. In addition, each panel was led through the standard setting process by a trained facilitator from Measured Progress.

This report is organized into three major sections, describing tasks completed prior to, during, and following the standard-setting meeting.

## **1. TASKS COMPLETED PRIOR TO THE STANDARD-SETTING MEETING**

### **1.1 Creation of Achievement Level Descriptors (ALDs)**

The ALDs presented to panelists provided the official description of the set of knowledge, skills, and abilities that students are expected to display in order to be classified into each performance level. These descriptors were created prior to the standard-setting meeting by staff of the Missouri Department Elementary and Secondary Education (DESE). The draft descriptors were created to mirror the already existing mathematics and communication arts descriptors. The draft descriptors are provided as Appendix A of this report.

### **1.2 Preparation of Materials for Panelists**

The following materials were assembled for presentation to the panelists at the standard setting-meeting:

- Meeting Agenda
- Draft Alternate Achievement Level Descriptors (ALDs) for grades 5, 8 and 11
- MAP-A Portfolios representing the range of possible scores
- Rating Forms for each step in the process
- Evaluation Form for panelists to respond to the overall process, the factors that influenced their decisions and their overall confidence in the cut scores being recommended

The ALDs, meeting agenda, rating forms, and evaluation form are provided in Appendix A through D of this report, respectively.

### **1.3 Preparation of Presentation Materials**

The PowerPoint presentations used in the opening session were prepared prior to the meeting. Two sets of PowerPoint slides are included as Appendix E of this document: the first set provides an overview of the Missouri Alternate Assessment, the criteria for participation in the assessment, and an explanation of the administration and scoring procedures. The second set

provides an overview of the issues of standard setting, specifics about the standard setting process, and an overview of the activities the panelists would be completing during the standard-setting meeting.

#### **1.4 Preparation of Instructions for Facilitators Documents**

A document was created for the group facilitators to refer to while working through the process. This document outlines the step-by-step process that the facilitator leads the panelists through during standard setting. Facilitators are provided a training prior to the standard setting meeting where they become familiar with the process, materials and facilitator script. The facilitators for the MO standards setting meeting consisted of two program managers and an assistant director. Responsibilities during the meeting include: time management, keeping participants on task, interacting with participants, and facilitating the group discussions. The facilitators are also responsible for the security of the materials and collecting panelist rating forms. The facilitator document for Science is provided in Appendix F.

#### **1.5 Preparation of Systems and Materials for Analysis During the Meeting**

The computational programming to carry out all analyses during the standard-setting meeting was completed and thoroughly tested prior to the standard-setting meeting. The program designed to calculate cuts and impact data was written using SAS statistical software.

#### **1.6 Selection of Panelists**

Panelists were recruited and selected to reflect as diverse of a population as possible. The Assessment Resource Center (ARC) and Missouri DESE staff worked together to recruit panelists, with DESE's final approval over participant selection.

The goal of the panelist recruitment was to assemble panels of approximately 12 participants. Ideally, each panel was to include a minimum of six special education teachers

experienced in working with students with significant disabilities, three subject area content teachers, and three school administrators, higher education personnel, stakeholders from interest groups related to significant disabilities, and/or parents of students with significant cognitive disabilities. An additional goal was for the panels to reflect a balance of gender, race/ethnicity, and geographic location. Finally, panelists were selected who were familiar either with the grade level subject matter or the special education population for which they would be setting standards. The numbers of panelists who participated in the standard setting ranged from eleven to twelve per group, as shown in Table 1 below. A list of the panelists' affiliations and their roles can be found in Appendix G.

**Table 1: Numbers of Participants by Group**

Panel	Number of Panelists
Science - Grade 5	12
Science - Grade 8	12
Science - Grade 11	11
Total	35

### 1.6.1 Participant Demographics

As part of the application process for panelist recruitment panelists were asked to self-report demographic information. Table 2 shows the gender of the participants in each grade group, and Table 3 shows their ethnicity. Table 4 shows the work experience of the participants in each grade group based on the number of years of teaching experience of the participants.

**Table 2: Gender of Participants by Group**

Panel	N	Male	Female
Science - Grade 5	12	8.3%	91.7%
Science - Grade 8	12	16.7%	83.3%
Science - Grade 11	11	27.3%	72.7%

**Table 3: Ethnicity of Participants by Group**

Panel	N	Asian/Pacific Islander	African American	American Indian	Hispanic	White	Other	No Response
Science - Grade 5	12	0.0%	0.0%	0.0%	0.0%	91.7%	0.0%	8.3%
Science - Grade 8	12	8.3%	0.0%	0.0%	0.0%	83.3%	0.0%	8.3%
Science - Grade 11	11	0.0%	0.0%	9.1%	0.0%	91.9%	0.0%	0.0%

**Table 4: Number of Years Teaching of Participants by Group**

Panel	N	1-5	6-10	11-15	16-20	21+	No Response
Science - Grade 5	12	8.3%	16.7%	16.7%	16.7%	33.3%	8.3%
Science - Grade 8	12	41.7%	25%	8.3%	0.0%	16.7%	8.3%
Science - Grade 11	11	9.1%	36.4%	9.1%	27.3%	18.2%	0.0%

## **2. TASKS COMPLETED DURING THE STANDARD-SETTING MEETING**

### **2.1 Orientation**

The standard-setting meeting began with a general orientation session that was attended by all panelists. The purpose of the orientation was to ensure that all panelists heard the same message about the need for and goals of standard setting and about their part in the process. The orientation consisted of three parts. First, DESE welcomed the panelists and thanked them for participating, provided some context about the Missouri Alternate Assessment and the need for setting standards, and some general information about their role in the process. Next, a Measured Progress Special Education Assistant Director provided an overview of the MAP-As, including participation criteria, and administration and scoring procedures. Finally, a Measured Progress psychometrician gave an introduction to the issues of standard setting and to the standard-setting method that was being used for Missouri, and provided an overview of the activities that the standard-setting panelists would be completing. Panelists were given an opportunity to ask questions at the end of the session.

Once the general orientation was complete, each panel reconvened into its breakout room, where the panelists received more detailed training and completed the standard-setting activities.

### **2.2 Standard-Setting Process**

The standard-setting process included three rounds; in the first round, panelists reviewed and discussed the ALDs and then recommended cut-points individually without discussion. Then, in Rounds 2 and 3, they recommended cut-points individually, following extensive group

discussion. Because of the large quantity of assessment materials the panelists had to familiarize themselves with, the three rounds of ratings were further broken down into smaller tasks. Panelists started with the middle cut, between *Basic* and *Proficient*, by sorting the MAP-As into two piles: those they felt represented below proficient performance and those they felt represented performance that was proficient or above. Once the MAP-As were sorted into two piles, they then sorted each of those piles into two piles, starting with the subset of MAP-As they had classified as below proficient. Each of these sorting tasks was done in two rounds; after the two rounds were completed for all three cuts, Round 3 was completed simultaneously for all three cuts.

### **2.2.1 Discuss Achievement Level Descriptors**

The first step in the process, once the panelists convened into their grade groups, was to discuss the Achievement Level Descriptors. This important step of the process was designed to ensure that panelists thoroughly understood the needed knowledge, skills, and abilities for portfolios to be classified as *Below Basic*, *Basic*, *Proficient*, and *Advanced*. Panelists began by reviewing the descriptors individually and then discussed them as a group, clarifying each level and coming to consensus as to the definitions of each. Bulleted lists of characteristics for each level were generated based on the group discussion and posted in the room for panelists to refer to during Round 1.

### **2.2.2 Round 1 & 2 : Middle Cut Judgments**

In the first round, panelists worked individually with the ALDs, the rating form for the middle cut, and the set of MAP-As ordered from easiest to most difficult by total score. Each set of MAP-As consisted of approximately 35 portfolios (34 in grade 5, 36 in grade 8, and 35 in grade 11), with two portfolios for each observed score ranging from the minimum observed

score to the maximum possible score (22). For each portfolio, the panelists considered the skills and abilities demonstrated by a student, and decided which performance level was the best match for each portfolio.

The panelists began the rating process by individually reviewing the set of MAP-As, beginning with the first (the lowest scoring MAP-A in the set), then every fifth MAP-A after that up through the highest scoring MAP-A. This step enabled panelists to familiarize themselves with MAP-As across the full range of performance represented and also to narrow in on the set of MAP-As they felt was near the cut between *Basic* and *Proficient*. Once they identified the subset of MAP-As around the *Basic* and *Proficient* cut, they reviewed all of them in the subset, sorting them into the two piles. All of the MAP-As below their chosen subset were placed into the below proficient pile, and all those above were placed into the proficient or above pile. This allowed the panelists to separate the MAP-As into two piles without being overwhelmed by having to review all of them. Panelists were told that they would have multiple opportunities later in the process to move MAP-As between piles.

Once the panelists were finished working their way through the portfolios individually, without consulting with their colleagues, they completed the rating form, recording their ratings for each portfolio in the “Round 1” column of the rating form. While the portfolios were presented in order of total score, panelists were not required to rate them in strictly increasing order. Instead, panelists were encouraged to take a holistic look at the *portfolio*, rather than making a judgment based primarily on the ordering of the portfolios.

Panelists were given the following materials:

- Administration Manual to be used as a reference tool as needed
- MAP-As that represented the possible range of scores
- Rating Form – Middle Cut

Prior to beginning the group discussion, and using a show of hands, the facilitator recorded how many panelists placed each portfolio into each performance level on chart paper. Starting with the first portfolio for which there was disagreement as to how it should be categorized, the panelists began discussing the categorization of the portfolios according to their initial ratings. Panelists were encouraged both to share their own point of view as well as to listen to the thoughts of their colleagues. The goal was to allow each panelist the opportunity to explain why he or she sorted a particular MAP-A into one pile or the other. Facilitators made sure the panelists knew that the purpose of the discussion was not to come to consensus: at every point throughout the standard-setting process, panelists were asked to provide their own individual best judgment.

Once the discussions were complete, the panelists filled in the Round 2 column of their portfolios rating form, making any necessary adjustments to their Round 1 ratings.

### **2.2.3 Round 1 & 2: Lower Cut Judgments**

Once Rounds 1 and 2 were completed for the middle cut, the panelists set the pile of MAP-As they had categorized as proficient or above aside, and began reviewing the full set of MAP-As in their below proficient pile. The task was to separate that pile of MAP-As into two sub-groups, representing the lower two achievement levels: *Below Basic* and *Basic*. As with the middle cut, the task for the lower cut was done in two rounds and, after each round, each panelist's categorizations were recorded on the Lower Cut Rating Form. For the first round panelists recorded their initial individual judgments, then there was discussion on any portfolios where panelists were not in agreement. Panelists were then given the opportunity to record their Round 2 ratings. Panelists may or may not have made any adjustments to their Round 1 ratings.

## 2.2.4 Round 1 & 2: Upper Cut Judgments

In this step, the panelists separated the pile of proficient or above MAP-As into an additional two piles representing the upper two achievement levels: *Proficient* and *Advanced*. As with the previous two cuts, the ratings were done in two rounds and each panelist recorded his/her Round 1 and Round 2 judgments on the Upper Cut Rating Form.

## 2.2.5 Tabulation of Round 2 Results

After all panelists had completed their individual ratings, Measured Progress staff calculated the mean cut-points for the group based on the Round 2 ratings. (The full Round 2 ratings can be found in Appendix I). Cuts were calculated using SAS statistical software by first determining each panelist's individual cuts using logistic regression (PROC LOGISTIC), then averaging across panelists to get the overall cuts. In statistics, logistic regression is a model used for prediction of the probability of occurrence of an event by fitting data to a logistic curve. In standard setting, an event consists of a panelist's classification of a portfolio. Each panelist classified each portfolio into an achievement level. By setting up dichotomies, denoting whether a portfolio is classified below or above each category, a logistic curve can be established. This logistic curve essentially represents the empirical relationship among the total score of each portfolio and a panelist's ratings. The inflection point of the logistic curve corresponds to an estimate of the panelists cut point. For each panelist, a logistic curve was fit for each cut point (*Below Basic/Basic*, *Basic/Proficient*, and *Proficient/Advanced*) and the estimates for each cut point were averaged across panelists.

Finally, impact data were calculated, consisting of the percentage of students who fell into each performance level based on the group mean Round 2 ratings. A psychometrician shared the percent of students who fell in each performance level with the group to assist them in their

group discussion and Round 3 ratings. The psychometrician also informed panelists which portfolios the mean cut scores fell between. Panelists were not given the raw score range of the performance levels, as this information often leads to panelists re-scoring the portfolios. Please note that participants were only shown the Round 2 results for their own grade. The Round 2 results are outlined in Table 5.

**Table 5: Round Two Results**

Grade	Achievement Level	Mean Cut	Standard Error	Raw Score		Percent of Students
				Min	Max	
5	Below Basic	N/A	N/A	0	14	54.7
	Basic	14.41	0.25	15	17	3.4
	Proficient	17.67	0.39	18	21	18.8
	Advanced	21.56	0.01	22	22	23.1
8	Below Basic	N/A	N/A	0	8	23.0
	Basic	9.00	0.15	9	14	27.4
	Proficient	14.67	0.23	15	21	30.1
	Advanced	21.69	0.36	22	22	19.5
11	Below Basic	N/A	N/A	0	12	50.2
	Basic	12.14	0.68	13	16	4.8
	Proficient	16.54	0.20	17	20	25.1
	Advanced	20.31	0.13	21	22	19.9

The mean panelist cut score and the spread or dispersion of the panelist cut scores are outlined in columns three and four, respectively. The mean panelist cut score gives precise information about where each cut was placed between its adjacent raw score points. The mean scores are rounded up to the nearest whole number to obtain the minimum raw score required to be classified in each achievement level. It is for this reason that a mean cut is not calculated for *Below Basic*: Examinees simply need to obtain a score of 0 to be classified as below basic. The percent of students classified in each achievement level is displayed in the final column of Table 5. For example, in Grade 5, 54.7% of students scored between zero and 14.

### 2.2.6 Round 3 Judgments

Once the panelists completed their Round 2 ratings, the facilitator once again asked for a show of hands and tallied the number of panelists who categorized each portfolio into each performance level on chart paper. As in Round 2, starting with the first portfolio for which there was disagreement as to its categorization, the panelists discussed their rationale for how they rated the Round 2 portfolios. Again, the purpose of the discussion was for the panelists to benefit from the points of view of their colleagues, not to come to consensus about the ratings.

Panelists were also asked to include the impact data (percent of students classified in each category) as part of their discussion. In presenting the impact data, the psychometrician explained to the panelists that its purpose was to provide a “reasonableness check,” and that they should resist letting it influence their decisions in isolation. Instead, if any of the percentages seemed too high or too low, they were told to return to the assessment and to the Achievement Level Descriptors, and consider whether they needed to make adjustments to their Round 2 ratings.

Once the discussions had been completed, the panelists recorded their ratings in the Round 3 rating sheet and the sheets were submitted for data analysis. The results of the panelists’ Round 3 ratings are outlined in Table 6. The full panelist ratings for Rounds 2 and 3 can be found in Appendix I.

**Table 6: Round Three Results**

Grade	Achievement Level	Mean Cut	Standard Error	Raw Score		Percent of Students
				Min	Max	
5	Below Basic	N/A	N/A	0	13	53.9
	Basic	13.02	0.26	14	17	4.2
	Proficient	17.67	0.39	18	21	18.8
	Advanced	21.56	0.01	22	22	23.1
8	Below Basic	N/A	N/A	0	8	23.0
	Basic	8.97	0.20	9	15	27.7
	Proficient	15.24	0.38	16	21	29.8
	Advanced	21.58	0.17	22	22	19.5
11	Below Basic	N/A	N/A	0	10	34.5
	Basic	10.61	0.43	11	16	20.5
	Proficient	16.54	0.20	17	20	25.1
	Advanced	20.35	0.13	21	22	19.9

A graphical display of the results across grades is also provided in Figures 1 and 2. The percent of students in each performance level, based on the panelist recommendations is outlined in Figure 1, while the proportion of the total score that each performance level represents is outlined in Figure 2.

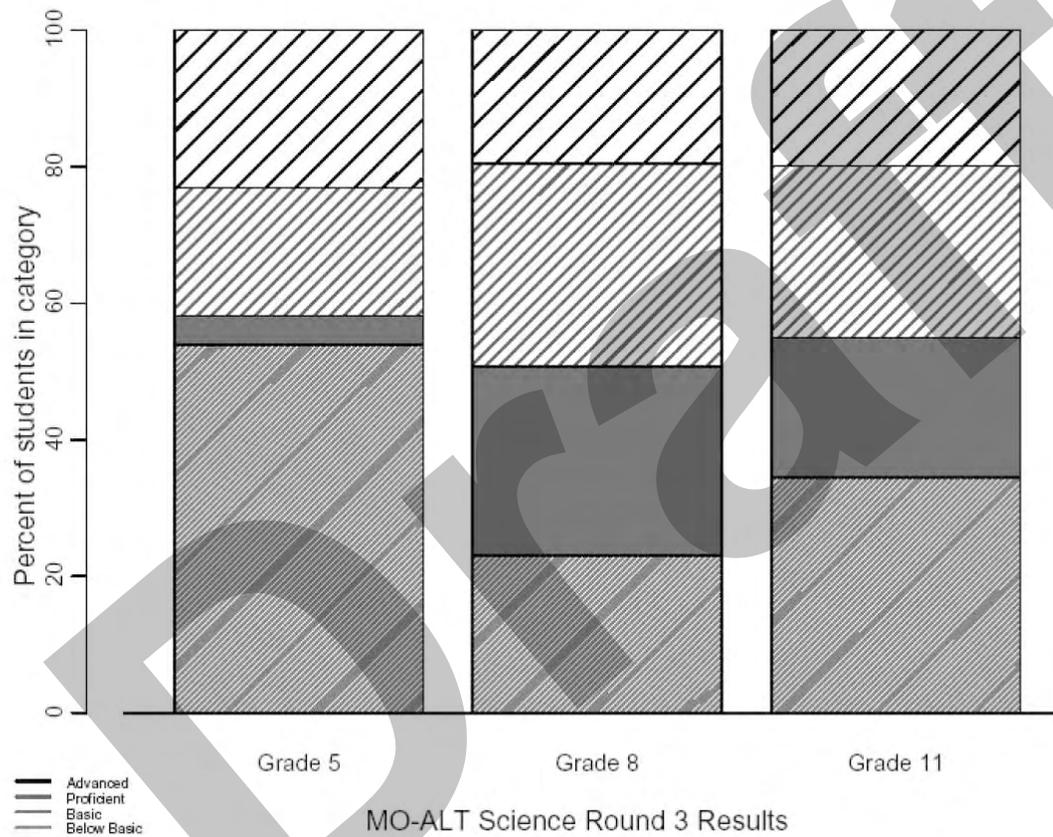


Figure 1: The percent of students falling at each achievement level

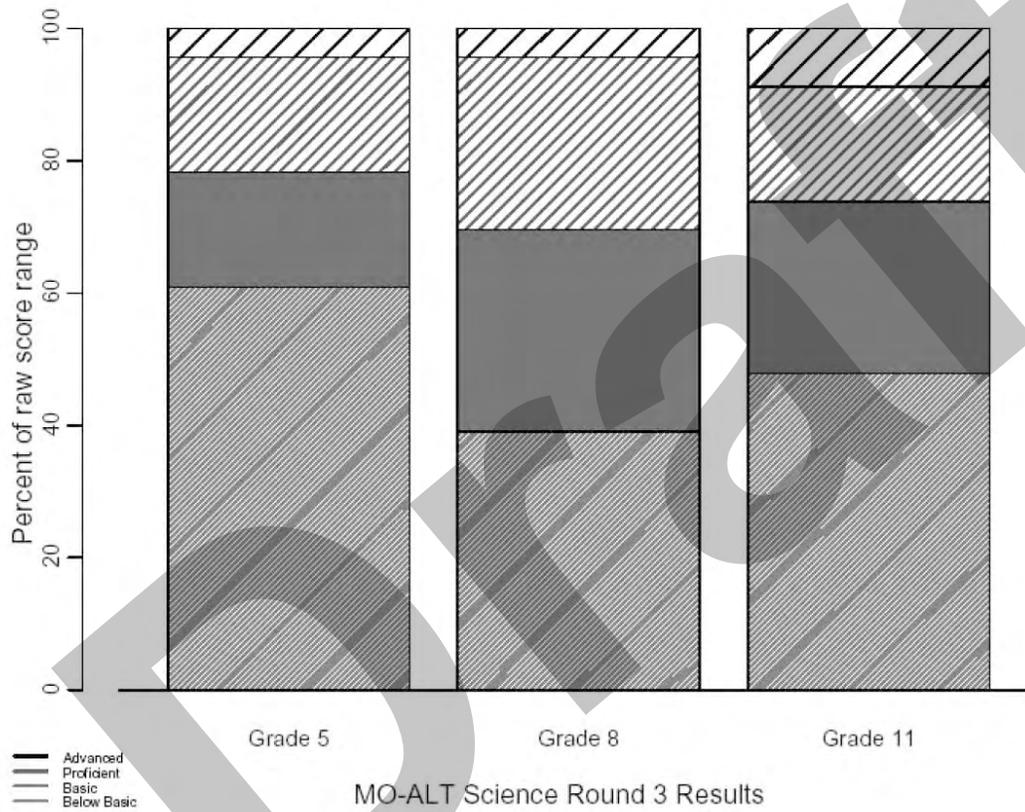


Figure 2: The percent of total raw score range for each achievement level

### **2.2.7 Recommendations for Modifications to ALDs**

After completing Round 3, the panelists were given an opportunity to provide feedback on the Achievement Level Descriptors. Panelists were asked to focus on providing language that is clearer and more teacher- and parent-friendly. Panelists were informed that the suggestions they made were just recommendations and that they may or may not be implemented by DESE. The descriptor recommendations provided by the panelists are included in Appendix H.

### **2.2.8 Complete the Evaluation**

As the last step in the standard-setting process, panelists in all three groups anonymously completed an evaluation form. A copy of the evaluation is presented as Appendix D, and the results of the evaluations are presented as Appendix I. Further discussion about some of the results can be found in section 3.1.

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### **3. TASKS COMPLETED AFTER THE STANDARD-SETTING MEETING**

Upon conclusion of the standard-setting meeting, several important tasks were completed. These tasks centered on reviewing the standard-setting meeting and addressing anomalies that may have occurred in the process or in the results and making any final revisions or adjustments.

#### **3.1 Analysis and Review of Panelists' Feedback**

Upon completion of the evaluation forms, panelists' responses were reviewed. This review did not reveal any anomalies in the standard-setting process or indicate any reason that a particular panelist's data should not be included when the final cut-points were calculated. It appeared that all panelists understood the rating task and attended to it appropriately.

The results of the evaluations for each of the three panels were somewhat mixed. Some of the panelists made comments about not feeling that they understood the process until the first afternoon or the second day of the process. It appears, based on the conversations that took place in the small groups, that some of the misunderstanding about the process had more to do with the portfolios that panelists were asked to look at and rate. Not all of the portfolios fell neatly into one of the Achievement Level Descriptors. This was especially true of the lower scoring portfolios with the lowest total raw scores. In this case many of these raw scores came about from one entry being unscorable and the other entry being scored. Panelists discussed how this should impact their decisions. The one scorable entry taken by itself met a higher Achievement Level Descriptor, however the fact that half of the required evidence was unscorable had to be factored in for a final decision by each panelist. During these types of conversations staff from

DESE, the Assessment Resource Center and Measured Progress were brought into the room to help panelists get to a place where they felt they could continue with the process.

When taking a look at the overall process questions, the factors that were used to make decisions and the overall feeling by panelists as to whether or not they had placed the cuts correctly it appears that the majority of panelists were comfortable with the standard setting process. Panelists were asked to respond to their overall impression of the process used for setting the science standards. The majority of panelists, 67% felt the overall process was good or very good, 23% were unsure and 9% (3 panelists) felt it was poor or very poor. Seventy-seven percent of the panelists found the assessment samples to be the most influential factor in setting standards, followed by their own experience in the field (65%). Eighty-nine percent of the panelists felt that the discussion with other panelists was useful or very useful. Overall when asked whether or not they felt that the cut scores their panel had set were correctly placed 71% felt they were probably or definitely placed correctly, 23% were unsure and 6 % (or 2 panelists) felt they were probably or definitely not correctly placed.

The above results have been somewhat typical in standard setting activities for science alternate assessments. As a whole, many participants and educators have had difficulty with the measurement of science content. This issue tends to be further exacerbated in alternate assessments. Complete results of the evaluations, presented for all groups combined, and by grade level, are provided in Appendix I.

### **3.2 Preparation of Recommended Cut Scores**

The results of the June standard setting activities for the Missouri Assessment Program-Alternate (MAP-A) Science assessment raised a few areas of concern. First, the Grade 5 and 8 panelists set the *Proficient/Advanced* cut at 22, the maximum possible score. This meant that a

perfect score was required to be classified as *Advanced*. It is not believed that this was the panelists' intention. At no time were the panelists presented with the raw score cut points or the raw score ranges of the achievement levels. They were provided with the location of the cut points, in relation to the portfolios that they fell between. In Grades 5 and 8, the panelist placed the *Proficient/Advanced* cut so that the two highest portfolios (both of which had a perfect score) were classified as *Advanced*. Panelists were also provided with the percent of students that would be classified in each performance level. The percent of students classified as *Advanced* was quite high for all three grades. None of the impact data provided any indication that a perfect score was required to be classified as *Advanced*. Second, the Grade 5 panelists set the *Below Basic/Basic* and *Basic/Proficient* cuts in such a way that only four percent of the students who took the assessment were classified as *Basic* and almost 60% of students were classified below proficient. The Grade 5 panelists did not seem to be concerned about this distribution, despite efforts of the on-site psychometrician, DESE representative, and facilitator. In contrast, the panelists in Grade 11, who were faced with a similar issue after the presentation of Round 2 impact data (3.4% of the students were classified as *Basic*), did incorporate the information and adjusted the placement of the cut scores in Round 3. After careful consideration, and discussion with DESE staff, it was determined that the panelist cut scores should be smoothed across grades.

According to the achievement level descriptors, the definitions of *Below Basic*, *Basic*, *Proficient*, and *Advanced* are consistent across grade level. The differences in the descriptors are based on the different Science Strands that are assessed at each grade level. The correspondence of the achievement level descriptors coupled with the small range of possible score points and the desirability of having similar score patterns across grades suggests that similar cuts should be

established for all grade levels. Because the raw score is our best means of linking the scales across the grades, the same raw-score cuts were established for each grade. This was achieved by averaging the Round 3 mean panelist cut scores across grades. For example, the mean Round 3 panelist cut scores for the *Basic/Proficient* Science cuts were 17.67, 15.24, and 16.54 in grades 5, 8, and 11, respectively (Table 6). The mean of these scores is 16.48. This corresponds to an operational *Basic/Proficient* raw score cut of 17 (i.e., a student must receive a score of 17 or higher in order to be classified as *Proficient*). It is worthwhile noting that the recommended cut is rounded for operational use, after the panelist recommendations have been averaged across grades. An mean cut score across grades was calculated for the *Below Basic/Basic* cut and the *Basic/Proficient* cut. A summary of the Round 3 mean panelist cuts and the mean of these cuts is outlined in Table 7.

**Table 7: A Summary of Round 3 and Smoothed Cuts.**

Grade	Round 3			Smoothed	
	Grade 05	Grade 08	Grade 11	Mean	Operational
Below Basic/Basic	13.02	8.97	10.61	10.87	11
Basic/Proficient	17.67	15.24	16.54	16.48	17
Proficient/Advanced	21.56	21.58	20.35	21.16	22

Unfortunately, averaging the three *Proficient/Advanced* cuts (21.56, 21.58, and 20.35 for Grades 5, 8, and 11, respectively) led to an operational cut score of 22. Averaging the Round 3 results did not eliminate the need for a perfect score to be classified as advanced. After much discussion with the Department, it was determined, from a policy standpoint that “perfection” should not be required to be classified as advanced. Consequently, it was decided that the Round

3 Grade 11 results for the *Proficient/Advanced* cut would be applied to the other two grades. The *Proficient/Advanced* cut was set at 21 for all three grades.

The result of the smoothed cuts, including raw score ranges and impact data are presented in Table 8. A graphical display of the smoothed results across grades is also provided in Figures 3 and 4. The percent of students in each performance level, based on the panelist recommendations is outlined in Figure 3, while the proportion of the total score that each performance level represents is outlined in Figure 4.

**Table 8: Final Results**

Grade	Achievement Level	Mean Cut	Raw Score		Percent of Students
			Min	Max	
5	Below Basic	N/A	0	10	35.7
	Basic	10.87	11	16	21.0
	Proficient	16.48	17	20	14.9
	Advanced	20.35	21	22	28.4
8	Below Basic	N/A	0	10	36.6
	Basic	10.87	11	16	15.6
	Proficient	16.48	17	20	22.0
	Advanced	20.35	21	22	25.7
11	Below Basic	N/A	0	10	34.5
	Basic	10.87	11	16	20.5
	Proficient	16.48	17	20	25.1
	Advanced	20.35	21	22	19.9

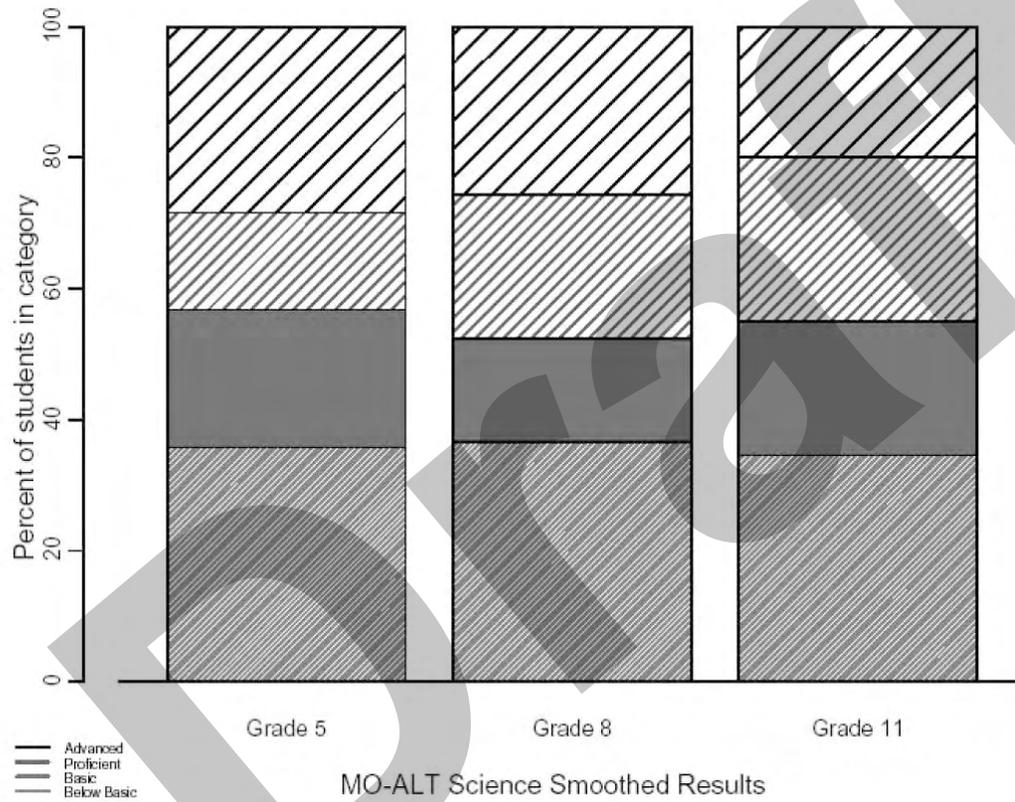


Figure 3: The percent of students falling at each achievement level

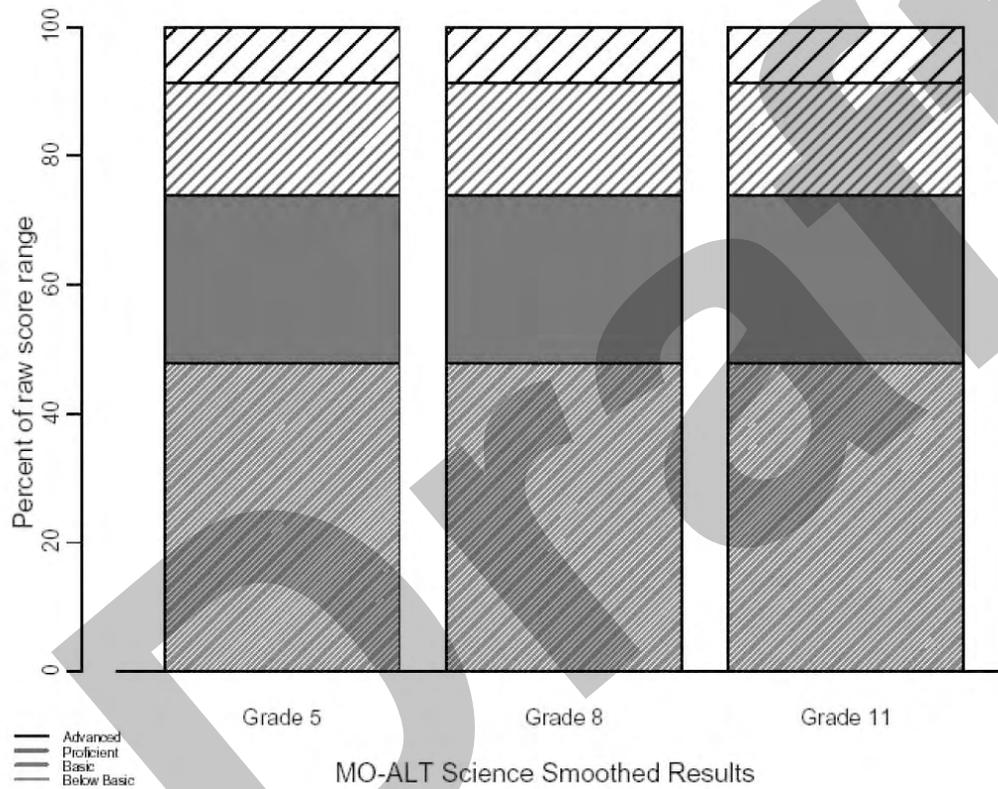


Figure 4: The percent of total raw score range for each achievement level

### **3.3 Preparation of Standard-Setting Report**

Following final compilation of standard-setting results, Measured Progress prepared this report, which documents the procedures and results of the June 2008 standard-setting meeting in order to establish performance standards for the Missouri Assessment Program-Alternate in Science.

Experiences in other states, where science has been added to alternate assessments for the first time, show that many teachers are struggling with the science content and therefore the student samples that are available for setting science standards in the first year are not of the best quality. This is true of the samples that were available for standard setting in Missouri. Based on this issue and further conversations with DESE, Measured Progress recommends that a validation focus group be convened to review the science cuts in another year or two.

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## APPENDIX A: DRAFT ACHIEVEMENT LEVEL DESCRIPTORS

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<b>Grade 5</b>	<b>Science</b>
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Grade 8	Science
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

<b>Grade 11</b>	<b>Science</b>
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Processes and Interactions of the Earth's Systems and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Processes and Interactions of the Earth's Systems and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Processes and Interactions of the Earth's Systems and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Processes and Interactions of the Earth's Systems and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

## APPENDIX B: AGENDA

Draft

**MISSOURI ASSESSMENT PROGRAM- ALTERNATE STANDARD SETTING  
SCIENCE  
June 3&4, 2008  
AGENDA**

**TUESDAY, JUNE 3**

8:30 – 9:00	Registration & Breakfast
9:00 – 10:30	Introduction, Overview, and Training of Standard Setting Process
10:30 – 10:45	Break
10:45 – 12:00	Move to Grade Level/Content Area Work Rooms
12:00 – 12:45	Lunch
12:45 – 2:30	Continue in Work Rooms
2:30 – 2:45	Break
2:45 – 4:00	Continue in Work Rooms
4:00	Adjourn

**WEDNESDAY, JUNE 4**

8:00 – 8:30	Breakfast
8:30 – 10:30	Move to Grade Level/Content Area Work Rooms
10:30 – 10:45	Break
10:45 – 12:00	Continue in Work Rooms
12:00 – 12:45	Lunch
12:45 – 2:30	Continue in Work Rooms
2:30 – 2:45	Break
2:45 – 4:00	Continue in Work Rooms
4:00	Adjourn

## APPENDIX C: RATING FORMS

Draft

Complete this form FIRST

ID Number: \_\_\_\_\_

MAP-A Science Grade 05  
Rating Form – Middle Cut

	Round 1		Round 2	
	Below Proficient	Proficient or Above	Below Proficient	Proficient or Above
1				
2				
3				
4				
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33				
34				

Transcribe these figures into the appropriate columns on the Lower and Upper Cut Rating Forms



Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form SECOND

ID Number: \_\_\_\_\_

**MAP-A Science Grade 05  
Rating Form – Lower Cut**

	Round 1			Round 2		
	BB	B	Proficient or Above	BB	B	Proficient or Above
1						
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Transcribe your Round 2 "Proficient or Above" Ratings from the Middle Cut Rating Form Here



Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form **THIRD**

ID Number: \_\_\_\_\_

**MAP-A Science Grade 05  
Rating Form – Upper Cut**

	Round 1			Round 2		
	Below Proficient	P	A	Below Proficient	P	A
1						
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Transcribe your Round 2 “Below Proficient” ratings from the Middle Cut Rating Form here

Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form FIRST

ID Number: \_\_\_\_\_

**MAP-A Mathematics Science 05  
Rating Form – All Cuts**

	Round 3			
	BB	B	P	A
1				
2				
3				
4				
5				
6				
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31				
32				
33				
34				

BB: *Below Basic*  
B: *Basic*  
P: *Proficient*  
A: *Advanced*

**MAP-A Science Grade 08  
Rating Form – Middle Cut**

Complete this form FIRST

ID Number: \_\_\_\_\_

	Round 1		Round 2	
	Below Proficient	Proficient or Above	Below Proficient	Proficient or Above
1				
2				
3				
4				
5				
6				
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35				
36				

Transcribe these figures into the appropriate columns on the Lower and Upper Cut Rating Forms



Below Proficient includes:  
 BB: *Below Basic*  
 B: *Basic*

Proficient or Above includes:  
 P: *Proficient*  
 A: *Advanced*

Complete this form SECOND

ID Number: \_\_\_\_\_

MAP-A Science Grade 08  
Rating Form – Lower Cut

	Round 1			Round 2		
	BB	B	Proficient or Above	BB	B	Proficient or Above
1						
2						
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36						

Transcribe your Round 2 “Proficient or Above” Ratings from the Middle Cut Rating Form Here



Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form **THIRD**

ID Number: \_\_\_\_\_

MAP-A Science Grade 08  
Rating Form – Upper Cut

	Round 1			Round 2		
	Below Proficient	P	A	Below Proficient	P	A
1						
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3						
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36						



Transcribe your Round 2 “Below Proficient” ratings from the Middle Cut Rating Form here

Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form FIRST

ID Number: \_\_\_\_\_

MAP-A Mathematics Science 08  
Rating Form – All Cuts

	Round 3			
	BB	B	P	A
1				
2				
3				
4				
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35				
36				

BB: *Below Basic*  
B: *Basic*  
P: *Proficient*  
A: *Advanced*

Complete this form FIRST

ID Number: \_\_\_\_\_

MAP-A Science Grade 11  
Rating Form – Middle Cut

	Round 1		Round 2	
	Below Proficient	Proficient or Above	Below Proficient	Proficient or Above
1				
2				
3				
4				
5				
6				
7				
8				
9				
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35				

Transcribe these figures into the appropriate columns on the Lower and Upper Cut Rating Forms



Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form **SECOND**

ID Number: \_\_\_\_\_

MAP-A Science Grade 11  
Rating Form – Lower Cut

	Round 1			Round 2		
	BB	B	Proficient or Above	BB	B	Proficient or Above
1						
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Transcribe your Round 2 “Proficient or Above” Ratings from the Middle Cut Rating Form Here



Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form **THIRD**

ID Number: \_\_\_\_\_

MAP-A Science Grade 11  
Rating Form – Upper Cut

	Round 1			Round 2		
	Below Proficient	P	A	Below Proficient	P	A
1						
2						
3						
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Transcribe your Round 2 “Below Proficient” ratings from the Middle Cut Rating Form here

Below Proficient includes:  
BB: *Below Basic*  
B: *Basic*

Proficient or Above includes:  
P: *Proficient*  
A: *Advanced*

Complete this form **FOURTH**

ID Number: \_\_\_\_\_

MAP-A Mathematics Science 11  
Rating Form – All Cuts

	Round 3			
	BB	B	P	A
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35				

BB: *Below Basic*  
B: *Basic*  
P: *Proficient*  
A: *Advanced*

Draft

## APPENDIX D: EVALUATION

Draft

## Science Standard Setting Panel Evaluation Form

Evaluation of the Standard setting Procedures for the Missouri Alternate Assessment

1. What is your overall impression of the process used to set performance standards for the Missouri Alternate Assessment? *(Circle one)*

- A. Very Good
- B. Good
- C. Unsure
- D. Poor
- E. Very Poor

2. How clear were you with the achievement level descriptors? *(Circle one)*

- A. Very Clear
- B. Clear
- C. Somewhat Clear
- D. Not Clear

3. How would you judge the length of time of this meeting for setting performance standards? *(Circle one)*

- A. About right
- B. Too little time
- C. Too much time

4. What factors influenced the standards you set? (For each, circle the most appropriate rating from 1=Not at all Influential to 5=Very Influential)

A. The achievement level descriptors

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

B. The assessment samples

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

C. Other panelists

Not at all Influential			Moderately Influential		Very Influential
1	2	3	4	5	

D. My experience in the field

Not at all Influential			Moderately Influential		Very Influential
1	2	3	4	5	

E. Other (*please specify* \_\_\_\_\_)

Not at all Influential			Moderately Influential		Very Influential
1	2	3	4	5	

5. Do you believe the cut scores set by the panel are correctly placed?

- A. Definitely Yes
- B. Probably Yes
- C. Unsure
- D. Probably No
- E. Definitely No

Please explain your answer:

---



---



---

6. How could the standard setting process have been improved?

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For each statement below, please circle the rating that best represents your judgment.

7. The opening session was:

Not at all Useful					Very Useful
1	2	3	4	5	

8. The achievement level descriptors were:

Not at all Clear					Very Clear
1	2	3	4	5	

9. Providing additional details to the achievement level descriptors was:
- |                   |   |   |   |   |             |
|-------------------|---|---|---|---|-------------|
| Not at all Useful |   |   |   |   | Very Useful |
| 1                 | 2 | 3 | 4 | 5 |             |
10. The discussion with other panelists was:
- |                   |   |   |   |   |             |
|-------------------|---|---|---|---|-------------|
| Not at all Useful |   |   |   |   | Very Useful |
| 1                 | 2 | 3 | 4 | 5 |             |
11. The portfolio rating task was:
- |                  |   |   |   |   |            |
|------------------|---|---|---|---|------------|
| Not at all Clear |   |   |   |   | Very Clear |
| 1                | 2 | 3 | 4 | 5 |            |
12. The impact data provided prior to the last round of ratings was:
- |                   |   |   |   |   |             |
|-------------------|---|---|---|---|-------------|
| Not at all Useful |   |   |   |   | Very Useful |
| 1                 | 2 | 3 | 4 | 5 |             |

**Additional Comments**

13. Please provide any additional comments or suggestions about the standard setting process. Use extra paper if necessary.

## APPENDIX E: OPENING SESSION POWER POINTS

Draft

Slide 1

Missouri Assessment  
Program Alternate (MAP-A)  
Science Standard Setting

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Slide 2

**Who are MAP-A students?**

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To be eligible for the MAP-A, a student with a disability must meet the following criteria:

- ❑ The student has a demonstrated significant cognitive disability and adaptive behavioral skills. Therefore, the student has difficulty acquiring new skills, and skills must be taught in very small steps.
- ❑ The student does not keep pace with peers, even with the majority of students in special education, with respect to the total number of skills acquired.

Slide 3

**Who are MAP-A students?**

---

- ❑ The student's educational program centers on the application of essential skills to the Missouri Show-Me Standards.
- ❑ The IEP team, as documented in the IEP, does not recommend participation in the MAP subject area assessments or taking the MAP with accommodations.
- ❑ The student's inability to participate in the MAP subject-area assessments is not primarily the result of excessive absences; visual or auditory disabilities; or social, cultural, language, or economic differences.

Slide 4

### Video Clips

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Slide 5

### What is the MAP-A?

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The MAP-A is

- required by federal law;
- designed only for students with significant cognitive disabilities who meet age and participation criteria;
- administered at the same grade levels as students participating in Missouri's general assessment;

Slide 6

### What is the MAP-A?

---

- scored using the MAP-A Scoring Rubric to obtain student performance levels which are then used to determine reportable scores; and
- reflective of input from an instructional team, which may include teachers, physical therapists, speech therapists, occupational therapists, paraprofessionals, job coaches, parents or guardians, and the student, if appropriate.

Slide 7

### What is assessed?

Content Area	Grade Focus	Title of Strand
<b>PROCESS STRANDS</b>		
Science	Required at Grades 6, 8, and 11	Strand 7: Scientific Inquiry (IN)
	Required at Grades 5, 8, and 11	Strand 8: Impact of Science, Technology, and Human Activity (ST)
	<b>CONTENT STRANDS</b>	
	Required for Elementary Grade 5	Strand 3: Characteristics and Interactions of Living Organisms (LO)
	Required for Elementary Grade 5	Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)
	Required for Middle School Grade 8	Strand 1: Properties and Principles of Matter and Energy (ME)
	Required for Middle School Grade 8	Strand 2: Properties and Principles of Force and Motion (FM)
	Required for High School Grade 11	Strand 5: Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)
Required for High School Grade 11	Strand 6: Composition and Structure of the Universe and the Motion of the Objects Within It (UN)	

Slide 8

### What is the design?

<b>Science</b>			
Process Strand 7 and Content Strand		Process Strand 8 and Content Strand	
Process API 1	Content API 1	Process API 2	Content API 2
Entry/Data Summary Sheet		Entry/Data Summary Sheet	
Collection Period 1	Collection Period 2	Collection Period 1	Collection Period 2
Student Work Record	Student Work Record	Student Work Record	Student Work Record

Slide 9

### What are the MAP-A requirements?

Content	Description
Entry/Data Summary Sheet	Serves as a record of student performance on each API assessed. The student's score for Level of Accuracy and Level of Independence for each API will be determined based on the percentages recorded on the Entry/Data Summary Sheet.
Student Work Records	Provides documentation of student work for each API assessed in both collection periods. Student Work Records should demonstrate the application of the API/s in a standards-based activity. You may show evidence of student work by:  collecting student work samples such as worksheets, drawings, writings, journal entries, or projects; or  observing the student and recording his or her performance.

Slide 10

Entry/Data Summary Sheet Science						
Student Name: Andl			Grade: 5			
Content Area: Science			Process Strand: IN Content Strand: LO			
Process API: IN.1 Content API: LO.3a Process API Description: Communicate observations and/or events Content API Description: Identify the life cycle that animals go through						
Collection Period 1 January 14 - February 8			Collection Period 2 February 11 - March 7			
Dates below do not need to be in chronological order:			Dates below do not need to be in chronological order:			
Date	2/15/2008	1/29/2008	2/8/2008	2/22/2008	2/19/2008	2/28/2008
Data Type	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
Accuracy %	100	80	60	80	80	80
Independence %	100	100	100	100	100	100
Average % for Collection Period	Accuracy: 87 Independence: 100			Accuracy: 80 Independence: 100		
						API Entry Average
						74
						Level of Independence
						100

Slide 11

Student Work Record Science		
<input type="checkbox"/> Actual student product is attached		
Student Name: Andl	Grade: 5	Date: 2/01/2008
Content Area: Science		Process Strand: IN Content Strand: LO
Process API: IN.1 Content API: LO.3a Process API Description: Communicate observations and/or events Content API Description: Identify the life cycle that animals go through		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.) The class pet gerbils had babies. The students observed the baby gerbils shortly after birth. Each student selected one baby to observe, and using a data chart and picture or symbol cards recorded color, length, presence/absence of fur, whether the gerbil's eyes were opened or closed, and point in the life cycle (adult or adult). The class then discussed their observations and their data charts were combined and placed on the bulletin board as part of the living organisms unit.		
<b>Evaluation of Student's Performance:</b>		
Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for Level of Accuracy. Andl observed the baby gerbil and discussed how it looked. She identified point in life cycle as baby and correctly recorded color and length. 3/5.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. Andl independently completed each portion of the data chart.	
Level of Accuracy: 60 %	Level of Independence: 100 %	

Slide 12

Student Work Record Science		
<input type="checkbox"/> Actual student product is attached		
Student Name: Andl	Grade: 5	Date: 2/22/2008
Content Area: Science		Process Strand: IN Content Strand: LO
Process API: IN.1 Content API: LO.3a Process API Description: Communicate observations and/or events Content API Description: Identify the life cycle that animals go through		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.) The students continued observing the baby gerbils, using a data chart and picture or symbol cards to record color, length, presence/absence of fur, and whether the gerbil's eyes were opened or closed, and point in the life cycle.		
<b>Evaluation of Student's Performance:</b>		
Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for Level of Accuracy. Andl observed the baby gerbil and discussed how it looked. She was able to describe point in the life cycle and correctly recorded color, length, and whether the gerbil's eyes were opened. 4/5.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. Andl independently completed each portion of the data chart.	
Level of Accuracy: 80 %	Level of Independence: 100 %	

Slide 13

### What does the MAP-A Assess?

- The MAP-A documents student learning directly connected to the Show-Me Standards through the Alternate Grade-Level Expectations (Alternate-GLEs) for students who are MAP-A eligible. The assessment has three criteria:
  - Level of Accuracy
  - Level of Independence
  - Connection to the Standards

Slide 14

### MAP-A Rubric

SCORE	4	3	2	1	N-Score
Level of Accuracy	Student performance of skills based on Alternate Performance Indicators™ demonstrates a high level of understanding of concept: 76-100% Accuracy	Student performance of skills based on Alternate Performance Indicators™ demonstrates some understanding of concept: 51-75% Accuracy	Student performance of skills based on Alternate Performance Indicators™ demonstrates a limited understanding of concept: 26-50% Accuracy	Student performance of skills based on Alternate Performance Indicators™ demonstrates a minimal understanding of concept: 0-25% Accuracy	Entry contains insufficient information to determine a score.
Level of Independence	Student requires minimal verbal, visual, and/or physical assistance to demonstrate skills and concept: 76-100% Independence	Student requires some verbal, visual, and/or physical assistance to demonstrate skills and concept: 51-75% Independence	Student requires frequent verbal, visual, and/or physical assistance to demonstrate skills and concept: 26-50% Independence	Student requires extensive verbal, visual, and/or physical assistance to demonstrate skills and concept: 0-25% Independence	Entry contains insufficient information to determine a score.
Connection to the Standards	There is evidence of applying the Alternate Performance Indicator in two standards-based activities, one per collection period.	There is evidence of applying the Alternate Performance Indicator in at least one standards-based activity, one out of two collection periods.	There is some evidence of a connection to the Alternate Performance Indicator.	There is insufficient evidence of a connection to the Alternate Performance Indicator.	There is insufficient information to determine a score.

Slide 15

### Who scored the MAP-As?

- The Assessment Resource Center hired scorers in Missouri and provided training.
- DESE staff were present at the training and available as needed to answer questions.

Slide 1

Missouri Assessment Program -  
Alternate

Setting Performance Standards  
for Science

Measured Progress

This slide features a dark background with a light-colored wave at the bottom. The text is centered and white. The logo for Measured Progress is in the bottom right corner.

Slide 2

Purpose of Standard Setting Meeting

- Provide data to establish the following cut scores for Science at grades 5, 8 and 11:
  - *Below Basic* ← Cut Score
  - *Basic* ← Cut Score
  - *Proficient* ← Cut Score
  - *Advanced* ← Cut Score

2

Measured Progress

This slide has a light background with a dark wave at the bottom. The title is bold. The list item is followed by four sub-items, each with a horizontal arrow pointing left to the text 'Cut Score'. The number '2' is in the bottom left, and the Measured Progress logo is in the bottom right.

Slide 3

What is Standard Setting?

- Set of activities that result in the determination of threshold or cut scores on an assessment
- We are trying to answer the question:
  - How much is enough?

3

Measured Progress

This slide has a light background with a dark wave at the bottom. The title is bold. The list item is followed by a sub-item with a horizontal arrow pointing left to the text 'Cut Score'. The number '3' is in the bottom left, and the Measured Progress logo is in the bottom right.

Slide 4



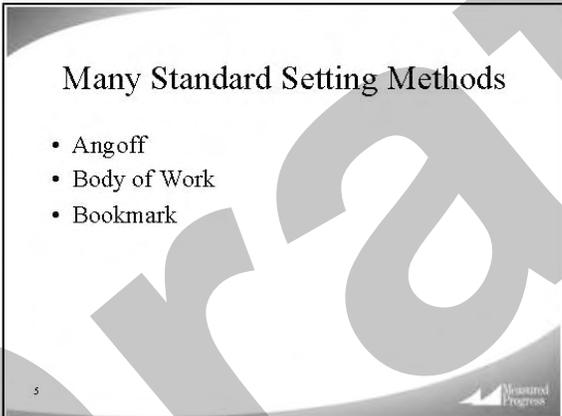
**Two Key Phases**

- Data collection phase
  - Your job for the next two days
- Policy/Decision making phase
  - State Department
  - Legislature

4

Missouri Progress

Slide 5



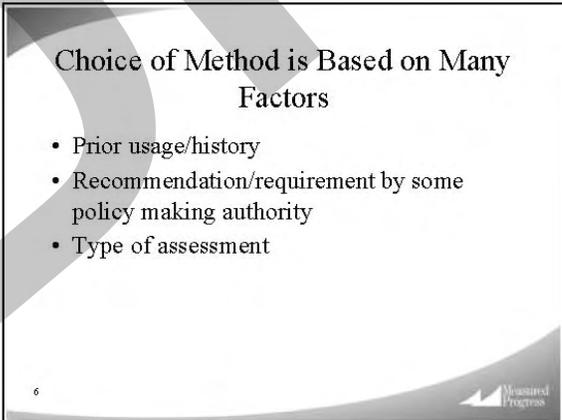
**Many Standard Setting Methods**

- Angoff
- Body of Work
- Bookmark

5

Missouri Progress

Slide 6



**Choice of Method is Based on Many Factors**

- Prior usage/history
- Recommendation/requirement by some policy making authority
- Type of assessment

6

Missouri Progress

Slide 7

### Body of Work Method

- Is especially useful for assessments that consist primarily or entirely of constructed-response items
- Has been used successfully by Measured Progress in the past
- Allows panelists to use samples of actual student work to make their determinations
- Was used for setting standards in Mathematics and Communication Arts

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Slide 8

### Body of Work Method

- You will be basing your decisions on a set of student portfolios (MAP-As)
- MAP-As cover the range of possible scores and are presented in order from lowest to highest total score

8



Slide 9

### What is your role in this process?

- To classify each MAP-A into the achievement level in which you feel it belongs:
  - *Below Basic*
  - *Basic*
  - *Proficient*
  - *Advanced*

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Slide 10

### Body of Work Method

- Prior to beginning the process of rating the MAP-As, you will:
  - thoroughly review and discuss the Achievement Level Descriptions (ALDs)
  - create bulleted lists on chart paper of the knowledge, skills and abilities that a student must demonstrate in order to be categorized into a given achievement level.
- It is critical that panelists come to a common understanding of the ALDs.

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Slide 11

### Overview

- Middle Cut: Below Proficient/Proficient or Above
  - Round 1 (individual)
  - Round 2 (group)
- Lower Cut: Below Basic/Basic
  - Round 1 (individual)
  - Round 2 (group)
- Upper Cut: Proficient/Advanced
  - Round 1 (individual)
  - Round 2 (group)
- Round 3 Ratings (all three cuts; group)

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Slide 12

### Steps for Body of Work Method

- Round 1:
  - Panelists individually review the MAP-As
  - There is no discussion with colleagues
  - Panelists make their first set of ratings
- Round 2:
  - All panelists in the group will discuss the Round 1 ratings
  - Panelists make their second set of ratings

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Slide 13

### Steps for Body of Work Method

- Rounds 1 and 2 will be completed first for the middle cut (below proficient vs. proficient or above)
- Rounds 1 and 2 will next be completed for the lower cut (*Below Basic vs. Basic*)
- Finally, Rounds 1 and 2 will be completed for the upper cut (*Proficient vs. Advanced*)

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Slide 14

### Steps for Body of Work Method

- Once Rounds 1 and 2 have been completed for all three cuts, Round 3 occurs:
  - Group discussion of the Round 2 ratings
  - Look at all three cuts simultaneously: more holistic approach
  - You will also be given impact data, indicating the percentage of students who would fall into each category according to the Round 2 ratings
  - Final round of ratings

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Slide 15

### A few final notes:

- You may disagree about the order of the MAP-As; that's fine
- You will categorize the MAP-As as you see fit, whether your ratings agree with the order or not
- However, it is not your job to rescore the MAP-As: you need to stay focused on the task at hand; Categorizing the MAP-As.

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Slide 16

**A few final notes**

- Your group does not need to come to consensus about how the MAP-As should be categorized
- You may change your ratings as a result of the discussions, or you may not
- You should be open-minded when listening to your colleagues' rationales for their ratings
- However: we want your individual best judgment in each round of rating

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Slide 17

**Steps for Body of Work Method**

- Note also:
  - This session is intended to be an overview
  - Your room facilitator will give you lots more details and will guide you through the process step by step

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Slide 18

**Any Questions about the Body of Work Procedure?**

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Slide 19

**What Next?**

- Some meeting logistics
- After this session, you will break into grade level groups

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Slide 20

**What Next?**

- Once in your breakout room, you will:
  - Review the Achievement Level Descriptions and create your bulleted lists
  - Complete Rounds 1 & 2 for the middle cut
  - Complete Rounds 1 & 2 for the lower cut
  - Complete Rounds 1 & 2 for the upper cut
  - Complete Round 3 for all three cuts

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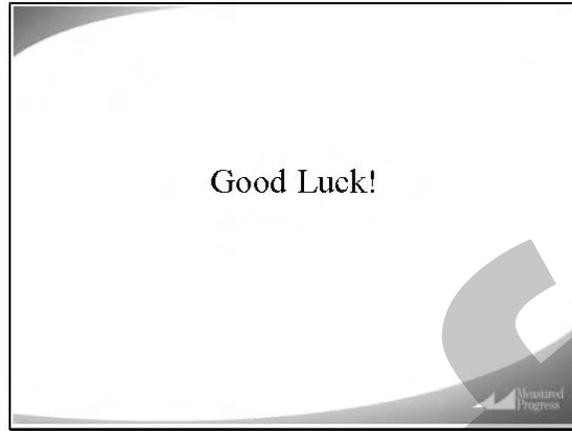
Slide 21

**What Next?**

- Provide feedback on the Achievement Level Descriptions
- As the final step, we will ask you to complete an evaluation of the standard setting process
  - Your honest feedback is important for us, both for improving future standard settings, and for evaluating the results of this one

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Slide 22



Draft

## APPENDIX F: FACILITATOR SCRIPT

Draft

## GENERAL INSTRUCTIONS FOR GROUP FACILITATORS (MAP-A) SCIENCE STANDARD SETTING

June 3 and 4, 2008

### Introductions

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask participants to complete Non-Disclosure Forms. Collect forms

### Review Assessment Materials

*Overview:* Some of the panelists administered the assessment to students, while others did not. In order to ensure that all panelists have an understanding of the knowledge and skills assessed, thoroughly review the student portfolios and APIs with the group.

- 1) Review the student portfolios
- 2) Review the APIs

### Discuss Achievement Level Descriptions

*Overview:* In order to establish a thorough understanding of the expected performance of students on the test, panelists must have a clear understanding of:

- 1) the definition of the four achievement levels, and
- 2) what the key characteristics are that distinguish students in adjacent achievement level categories.

The purpose of this activity is for the panelists to come to consensus about what characterizes students in each of the four achievement level categories. This activity is critical since the ratings panelists will be making in Rounds 1 through 3 will be based on these understandings.

Activities:

1. Introduce task. In this activity they will:
  - a. Individually review the Achievement Level Descriptions;
  - b. discuss Descriptions as a group; and
  - c. generate bulleted lists that describe the main characteristics that define students in each achievement level category.
2. Have panelists individually review all Achievement Level Descriptions. They can make notes if they like. The goal here is for the panelists to come to a common understanding of what it means to be in each achievement level. It is not unusual for panelists to

disagree with the descriptions they will see; almost certainly there will be some panelists who will want to change them. However, the task at hand is for panelists to have a common understanding of what knowledge, skills, and abilities are described by each Achievement Level Description. Panelists will have an opportunity to provide feedback and suggestions for edits to the Descriptors after the standard setting activities are completed.

3. After individually reviewing the Descriptions, have the panelists discuss each one as a group, starting with *Basic*, and provide clarification. The purpose of this is to have a collegial discussion in which to bring up/clarify any issues or questions that any individual may have and to reach consensus on an understanding of the description.
4. During the discussion for each achievement level, using chart paper, create a bulleted list for each level, specifying the characteristics that best describe students in that level. The panelists want to answer the question, what characteristics must a student demonstrate in order to be classified in the *Basic* category. Or, put another way, what are the most important characteristics that distinguish a *Below Basic* student from a student in the *Basic* category. They will then repeat this process for the *Proficient* and *Advanced* categories.

### **Ratings: Middle Cut**

**Overview of Middle Cut Ratings:** The panelists will begin the rating process by separating the MAP-As into two piles, those that represent performance that is below proficient (*Below Basic* or *Basic*) vs. proficient or above (*Proficient* or *Advanced*). The ratings will be done in two rounds. The first round will be done individually, without consulting with their colleagues. In the second round, they will have an opportunity to discuss their Round 1 ratings with the other panelists.

**Middle Cut Round 1:** The first step in the process will be for the panelists to individually review the MAP-As, beginning with #1, and then every fifth MAP-A after that (i.e., #6, #11, etc.). Once they have narrowed in on the MAP-As they feel are near the cut point between below proficient and proficient or above, they will review all the MAP-As in that range. As they proceed through the MAP-As, the panelists should ask themselves whether the knowledge, skills and abilities demonstrated in each are consistent with performance that is below proficient, or proficient or above. At the end of Round 1, each panelist will complete the Round 1 section of the Middle Cut Rating Form, indicating the level they feel each MAP-A should be categorized into.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Middle Cut
2. Orient panelists to the set of MAP-As. Explain that the MAP-As are ordered by the student's total raw score, which was obtained using a straight forward summing of the 2

content entries (3 domain scores summed = content entry score.) Make sure they know that, if they disagree with the order of the MAP-As, they are free to categorize them as they feel appropriate, regardless of their ordering. For example, if they feel that MAP-A #15 represents performance that is proficient or above, but #16 (which has a higher total score) represents below proficient performance, they should categorize them as such.

3. Provide an overview of Round 1. Emphasize the following:
  - a. The primary purpose is to separate the MAP-As into two piles.
  - b. Panelists will be working individually in this round, without consulting with their colleagues. They will have opportunities in Rounds 2 and 3 to discuss their categorizations and make changes.
  - c. Each panelist needs to base his/her judgments on his/her experience with the content, understanding of students, and the Achievement Level Descriptions.
  - d. If panelists are struggling with categorizing a particular MAP-A, they should use their best judgment and move on. They will have an opportunity to revise their categorizations.
  - e. Panelists should feel free to take notes if there are particular points about a certain MAP-A and how they think it should be categorized that they would like to discuss in Round 2.
4. Go over the rating form with panelists:
  - a. Have panelists write their ID number on the rating form. The ID number is on their name tag.
  - b. Lead panelists through a step-by-step demonstration of how to fill in the rating form.
  - c. There should be one and only one checkmark in each row for each round of ratings.
5. Give panelists an opportunity to ask questions about their task in Round 1, then tell them they may begin.
6. Have panelists individually review the MAP-As, beginning with #1, and then every fifth one after that (i.e., #6, #11, etc.), ending with the last MAP-A. It is important that panelists continue all the way through the last MAP-A so they have a good sense of the entire range of performance represented. As they are reviewing the MAP-As, the panelists should keep in mind the Achievement Level Descriptions. They should consider the knowledge, skills and abilities demonstrated by each and how they relate to the definitions of the achievement levels. As they complete each MAP-A, have them place it into one of two piles: below proficient, vs. proficient or above.
7. Once they have narrowed in on the MAP-As they feel are near the cut point between below proficient and proficient or above, they will review all the MAP-As in that range, again placing each in the appropriate pile. **Note:** the panelists will not be reviewing all of the MAP-As at this time; this is done intentionally, to break the work into more manageable pieces.

8. Panelists may want to take notes as they work.
9. Once panelists have finished sorting the MAP-As, they will fill in the Round 1 section of the Middle Cut Rating Form.
10. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
  - a. The ID number must be filled in.
  - b. Each MAP-A must be assigned to one and only one achievement level.
  - c. Although the MAP-As are presented in order from lowest- to highest-scoring, the panelists' category assignments do not need to be in strictly increasing order.

**Middle Cut Round 2:** In Round 2, the panelists will discuss their categorizations of the MAP-As into the two levels as a large group. After the discussions are complete, the panelists will do their second round of ratings.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Middle Cut
2. Using a show of hands, indicate on a piece of chart paper how many panelists assigned each MAP-A to each category (below proficient vs. proficient or above).
3. Beginning with the first MAP-A for which there was disagreement as to its categorization, the panelists will discuss their rationale for categorizing it as they did.
  - a. Panelists only need to discuss those MAP-As for which there was disagreement as to how they should be categorized.
  - b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
  - c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.
  - d. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.
  - e. As they finish the discussion for each MAP-A, each panelist should once again place it into the appropriate pile.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is categorizing MAP-As consistently higher or lower than the group, he/she may have a different understanding of the Achievement Level Descriptions than the rest of the group. **It is O.K. for panelists to disagree,**

**but that disagreement should be based on a common understanding of the Achievement Level Descriptions.**

4. Once the discussions have been completed, each panelist will complete the Round 2 section of the Middle Cut Rating Form, again indicating the level they feel each MAP-A should be categorized into.

### **Ratings: Lower Cut**

**Overview of Lower Cut Ratings:** Once Rounds 1 and 2 have been completed for the middle cut, the process will be repeated for the lower cut. The panelists will set aside the pile of MAP-As that they have classified as proficient or above, and work only with the MAP-As they feel are below proficient. Working their way through each MAP-A in the pile, the panelists will subdivide them into two new piles: *Below Basic* and *Basic*. As with the middle cut ratings, in the first round of ratings, panelists will work individually and, in the second round, they will have an opportunity to discuss their categorizations before making their second round ratings.

**Lower Cut Round 1:** The process here will be basically the same as for the middle cut, except that they will be subdividing the MAP-As they categorized as below proficient into two achievement levels: *Below Basic* and *Basic*. They will individually work their way through each of the MAP-As they categorized as below proficient. As they proceed through the MAP-As, the panelists should ask themselves whether the knowledge, skills and abilities demonstrated in each are consistent with performance that is *Below Basic*, or *Basic*. At the end of Round 1, each panelist will complete the Round 1 section of the Lower Cut Rating Form, indicating the level they feel each MAP-A should be categorized into.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Middle Cut
  - d. Rating Form for the Lower Cut
  - e. Rating Form for the Upper Cut (they will be preparing it for when they get to the upper cut ratings)
2. Ask the panelists to transfer their ratings in the Round 2: Proficient or Above column of the Middle Cut Rating Form into the Proficient or Above columns of the Lower Cut Rating Form; the ratings should be entered into the Proficient or Above column for both rounds. Once they have done that, have them transfer their Below Proficient ratings onto the Upper Cut Rating Form, again placing them in the Below Proficient columns for both rounds.
3. Have the panelists place the pile of MAP-As they categorized as above proficient, as well as the Upper Cut Rating Form, aside, where they will be out of their way.

4. Have the panelists individually review each MAP-A in their below proficient pile; they will have reviewed some of them while doing their middle cut ratings, but they should revisit those briefly to refresh their memory.
5. As they are reviewing the MAP-As, the panelists should keep in mind the Achievement Level Descriptions. They should consider the knowledge, skills and abilities demonstrated by each and how they relate to the definitions of the achievement levels. As they complete each MAP-A, have them place it into one of two piles: *Below Basic* or *Basic*.
6. **Note:** Because the panelists will be reviewing some MAP-As for the first time in this step, it is possible that they may feel that one or more should have been placed in the proficient or above pile in the previous step. Tell them that, in that case, they should categorize it as *Basic* for the time being, but make a note on it indicating that it needs to be recategorized. They will have an opportunity in Round 3 to change any of the categorizations; for now, however, they may not move MAP-As out of the below proficient category.
7. Once panelists have finished sorting the MAP-As, they will fill in the Round 1 section of the Lower Cut Rating Form.
8. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
  - a. The ID number must be filled in.
  - b. Each MAP-A must be assigned to one and only one achievement level.
  - c. Although the MAP-As are presented in order from lowest- to highest-scoring, the panelists' category assignments do not need to be in strictly increasing order.

**Lower Cut Round 2:** In Round 2, the panelists will discuss their categorizations of the MAP-As into the two levels as a large group. After the discussions are complete, the panelists will do their second round of ratings.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Lower Cut
2. Using a show of hands, indicate on a piece of chart paper how many panelists assigned each MAP-A to each category. In this case, you will be including three categories: *Below Basic*, *Basic*, and proficient or above. Even though the panelists will be confining their discussions to the *Below Basic/Basic* cut, including all three categories on the chart paper should help minimize any confusion.

3. Beginning with the first MAP-A for which there was disagreement as to whether it should be categorized as *Below Basic* or *Basic*, the panelists will discuss their rationale for categorizing it as they did.
  - a. Panelists only need to discuss those MAP-As for which there was disagreement as to whether it should be categorized as *Below Basic* or *Basic*.
  - b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
  - c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.
  - d. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.
  - e. As they finish the discussion for each MAP-A, each panelist should once again place it into the appropriate pile.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is categorizing MAP-As consistently higher or lower than the group, he/she may have a different understanding of the Achievement Level Descriptions than the rest of the group. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Achievement Level Descriptions.**

4. Once the discussions have been completed, each panelist will complete the Round 2 section of the Lower Cut Rating Form, again indicating the level they feel each MAP-A should be categorized into.
5. Check the Round 2 section of the Lower Cut Rating Form to ensure they have been completed properly and deliver the forms to the war room for data entry. These forms will be returned to the panelists to facilitate with Round 3.

### Ratings: Upper Cut

**Overview of Upper Cut Ratings:** Once Rounds 1 and 2 have been completed for the middle and lower cuts, the process will be repeated one more time for the upper cut. The panelists will set aside the two piles of MAP-As that they have classified as either *Below Basic* or *Basic*, and work only with the MAP-As they feel are proficient or above. Working their way through each MAP-A in the pile, the panelists will subdivide them into two new piles: *Proficient* and *Advanced*. As with the middle and lower cut ratings, in the first round of ratings, panelists will work individually and, in the second round, they will have an opportunity to discuss their categorizations before making their second round ratings.

**Upper Cut Round 1:** The process here will be basically the same as for the lower cut, except that they will be subdividing the MAP-As they categorized as proficient or above into two achievement levels: *Proficient* and *Advanced*. They will individually work their way through each of the MAP-As they categorized as proficient or above. As they proceed through the MAP-

As, the panelists should ask themselves whether the knowledge, skills and abilities demonstrated in each are consistent with performance that is *Proficient*, or *Advanced*. At the end of Round 1, each panelist will complete the Round 1 section of the Upper Cut Rating Form, indicating the level they feel each MAP-A should be categorized into.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Upper Cut
2. Have the panelists place the piles of MAP-As they categorized as *Below Basic* or *Basic* aside, where they will be out of their way.
3. Have the panelists individually review each MAP-A in their proficient or above pile; they will have reviewed some of them while doing their middle cut ratings, but they should revisit those briefly to refresh their memory.
4. As they are reviewing the MAP-As, the panelists should keep in mind the Achievement Level Descriptions. They should consider the knowledge, skills and abilities demonstrated by each and how they relate to the definitions of the achievement levels. As they complete each MAP-A, have them place it into one of two piles: *Proficient* or *Advanced*.
5. **Note:** Because the panelists will be reviewing some MAP-As for the first time in this step, it is possible that they may feel that one or more should have been placed in the below proficient pile in the first step. Tell them that, in that case, they should categorize it as *Proficient* for the time being, but make a note on it indicating that it needs to be recategorized. They will have an opportunity in Round 3 to change any of the categorizations; for now, however, they may not move MAP-As out of the proficient or above category.
6. Once panelists have finished sorting the MAP-As, they will fill in the Round 1 section of the Upper Cut Rating Form.
7. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
  - a. The ID number must be filled in.
  - b. Each MAP-A must be assigned to one and only one achievement level.
  - c. Although the MAP-As are presented in order from lowest- to highest-scoring, the panelists' category assignments do not need to be in strictly increasing order.

**Upper Cut Round 2:** In Round 2, the panelists will discuss their categorizations of the MAP-As into the two levels as a large group. After the discussions are complete, the panelists will do their second round of ratings.

Activities:

1. Make sure panelists have the following materials:
  - a. Set of MAP-As
  - b. Achievement Level Descriptions
  - c. Rating Form for the Upper Cut
2. Using a show of hands, indicate on a piece of chart paper how many panelists assigned each MAP-A to each category. In this case, you will be including three categories: below proficient, *Proficient*, and *Advanced*. Even though the panelists will be confining their discussions to the *Proficient/Advanced* cut, including all three categories on the chart paper should help minimize any confusion.
3. Beginning with the first MAP-A for which there was disagreement as to whether it should be categorized as *Proficient* or *Advanced*, the panelists will discuss their rationale for categorizing it as they did.
  - a. Panelists only need to discuss those MAP-As for which there was disagreement as to whether they should be categorized as *Proficient* or *Advanced*.
  - b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
  - c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.
  - d. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.
  - e. As they finish the discussion for each MAP-A, each panelist should once again place it into the appropriate pile.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is categorizing MAP-As consistently higher or lower than the group, he/she may have a different understanding of the Achievement Level Descriptions than the rest of the group. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Achievement Level Descriptions.**

4. Once the discussions have been completed, each panelist will complete the Round 2 section of the Upper Cut Rating Form, again indicating the level they feel each MAP-A should be categorized into.
5. Check the Round 2 section of the Upper Cut Rating Form to ensure they have been completed properly and deliver the forms to the war room for data entry. These forms will be returned to the panelists to facilitate with Round 3.

### **Tabulation of Round 2 Results**

Once Round 2 has been completed for all three cuts, the data will be analyzed and information will be provided that the panelists will use for Round 3.

### **Ratings: Round 3 – All Cuts**

**Overview of Round 3:** The primary purpose of Round 3 is to ask the panelists to discuss their Round 2 ratings for all three cuts as a whole group and to revise their ratings on the basis of that discussion. They will discuss their ratings in the context of the ratings made by other members of the group. Prior to beginning the Round 3 discussions, using a show of hands, indicate on a piece of chart paper how many panelists assigned each MAP-A to each of the four achievement level categories. Also show on the chart paper which MAP-As will be assigned to each level according to the group mean cut points from Round 2 (you will be provided this information by the data analysis team). Focusing on the MAP-As that are near the cut points, the panelists will discuss why they categorized each MAP-A as they did, making sure that all different points of view are included in the discussion.

To aid with the discussion, panelists will also be given impact data, showing the approximate percentage of students who would be classified into each achievement level category based on the room mean cut points from Round 2.

This round will be similar to the Round 2 discussions, except that the panelists will be discussing all three cut points. The purpose of this round is to look at the results holistically, rather than each cut individually. Therefore, the panelists should start the discussions with the lower cut, then proceed to the middle cut and, finally, the upper cut.

Once panelists have reviewed and discussed the Round 2 categorizations, they will be given the opportunity to change or revise their Round 2 ratings.

#### **Activities:**

1. Make sure panelists have the following materials:
  - a. The Round 3 rating form
  - b. Set of MAP-As
  - c. Achievement Level Descriptions
2. Have panelists write their ID number on the rating form.
3. Provide an overview of Round 3. Paraphrase the following:
  - a. As in Rounds 1 and 2, the primary purpose is to categorize each MAP-A into the achievement level category where you feel it belongs.
  - b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, discussions with other panelists and the knowledge, skills, and abilities required to answer each item.
  - c. In addition to the categorization of each MAP-A, panelists should also consider the impact data: based on their knowledge of students and the Achievement Level Descriptions, do the percentages of students falling into each category make

sense? If they do, that is an indication that the cut points are placed appropriately. If they don't, the panelists may want to consider revising their ratings.

4. Review the feedback information with the panelists.
  - a. Show the panelists how the MAP-As will be categorized based on the room mean Round 2 cut point placements.
  - b. Go over the impact data, explaining that if the Round 2 ratings were to be used to set the final cut points, these are the approximate percentages of students who would be classified into each achievement level category.
5. Give panelists an opportunity to ask questions about the feedback information or about the task for Round 3.
6. Beginning with the MAP-As for which there was disagreement as to whether they should be categorized as *Below Basic* or *Basic*, the panelists should begin discussing the categorization of the MAP-As according to the Round 2 ratings. Once they have completed the discussion for the lower cut, they will then proceed to the middle cut and then, finally, to the upper cut.
  - a. Panelists only need to discuss those MAP-As for which there was disagreement as to how they should be categorized.
  - b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
  - c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.
  - d. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.
  - e. As they finish the discussion for each MAP-A, each panelist should place it into one of four piles: *Below Basic*, *Basic*, *Proficient*, or *Advanced*.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is categorizing MAP-As consistently higher or lower than the group, he/she may have a different understanding of the Achievement Level Descriptions. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Achievement Level Descriptions.**
7. Once the discussions are complete for the full set of MAP-As, have the panelists fill in the Round 3 Rating Form. When you collect the rating forms, carefully inspect them to ensure they are filled out properly.
  - a. The ID number must be filled in.
  - b. Each MAP-A for Round 3 must have one (and only one) rating.

### **Grade Level Achievement Level Descriptors**

After recommended cut scores have been established for the grade spans, the panels will be asked to revisit the draft achievement level descriptors. They will be asked to make recommendations for language that is teacher and parent friendly.

### **Complete Evaluation Form**

Upon completion of the standard setting process, have panelists fill out the evaluation form. Emphasize that their honest feedback is important.

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**APPENDIX G: STANDARD SETTING PANELISTS**

Draft

2008 MAP-A Science Standard Setting Panelist Distribution									
	Elementary Panel		RPDC #	Middle School Panel		RPDC #	High School Panel		RPDC #
<i>Science Teachers</i>	Amy	Barlow	1	Dennis	Kocher	9	Paul	Rutherford	3
	John	Dyck	9	Melissa	Eckert	8			
<i>Parents</i>				Ellen	Rowland	3			
<i>Administrators</i>	Sheryl	Alermatt		Regina	Higgins	9	Walt	Brown	3
	Kathie	Wolff	8	John	Palmer	8	Christine	Taylor	6
	Meg	Sneed	3				Becky	Killian	7
	Mary	Gage	9				Diana	Humphreys	2
<i>Spec. Ed. Teachers</i>	Christine	Bates	6	Glenn	Dalton	1	Mindy	Brown	3
	Ronda	Brown	3	Jennifer	Siem	8	John	Cox	6
	Jennifer	Johnson	6	Nicole	Martinez	3	Lynn	Wapelhurst	2
	Catherine	McCormack	4	Leslie	Laws	7	Marsha	Meeker	4
	Susie	Register	2	Sneh	Kothari	8	Rachael	Thompson	6
	Laura	Borghardt	2	Heather	Suerig		Ronda	McDaniel	1
				Kathy	Gregory	8			

RPDC Code Key	
SE-Cape Girardeau	1
Heart of MO-Columbia	2
Kansas City	3
NE/Truman-Kirkville	4
NW-Maryville	5
S Central-Rolla	6
SW-Springfield	7
St. Louis	8
Central-Warrensburg	9

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## APPENDIX H: PANELIST DESCRIPTOR RECOMMENDATIONS

Draft

**MAP-A Draft Achievement Level Descriptors  
Recommendations**

<b>Science</b>	
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work evidence may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work evidence is somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work evidence is connected to the strands and demonstrates application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work evidence is strongly connected to the strands and demonstrates strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

## APPENDIX I: EVALUATION RESULTS

Draft

**OVERALL**

	Very Good	Good	Unsure	Poor	Very Poor	N
What is your overall impression of the process used to set performance standards for the Missouri Alternate Assessment?	7	17	8	2	1	35
	<b>Very Clear</b>	<b>Clear</b>	<b>Somewhat Clear</b>	<b>Not Clear</b>		<b>N</b>
How clear were you with the achievement level descriptors?	8	17	9	1		35
	<b>About Right</b>	<b>Too little time</b>	<b>Too much time</b>			<b>N</b>
How would you judge the length of time of this meeting for setting performance standards	26	7	2			35
What factors influenced the standards you set?	<b>Not at all Influential</b> 1	2	<b>Moderately Influential</b> 3	4	<b>Very Influential</b> 5	<b>N</b>
The achievement level descriptors		3	20	12		35
The assessment samples			8	13	14	35
Other panelists	1	4	18	10	2	35
My experience in the field		2	10	17	5	34
	<b>Definitely Yes</b>	<b>Probably Yes</b>	<b>Unsure</b>	<b>Probably No</b>	<b>Definitely No</b>	<b>N</b>
Do you believe the cut scores set by the panel are correctly placed on the exam score scale?	4	21	8	1	1	35
How could the standard setting process have been improved?	<b>See GradeSpan/Content Area Results</b>					

For each statement below, please circle the rating that best represents your judgment.	Not at all Useful/Clear 1	2	3	4	Very Useful/Clear 5	N
The opening session was:		1	13	17	3	34
The achievement level descriptors were:	1	1	7	21	4	34
Providing additional details to the achievement level descriptors was:	2	2	9	14	8	35
The discussion with other panelists was:			4	16	15	35
The portfolio rating task was:		3	9	20	2	34
The impact data provided prior to the last round of ratings was:			10	15	6	31

### GRADE 5

	Very Good	Good	Unsure	Poor	Very Poor	N
What is your overall impression of the process used to set performance standards for the Missouri Alternate Assessment?	1	7	4			12
	<b>Very Clear</b>	<b>Clear</b>	<b>Somewhat Clear</b>	<b>Not Clear</b>		<b>N</b>
How clear were you with the achievement level descriptors?	2	5	5			12
	<b>About Right</b>	<b>Too little time</b>	<b>Too much time</b>			
How would you judge the length of time of this meeting for setting performance standards	10	2				12
What factors influenced the standards you set?	<b>Not at all Influential</b> 1	2	<b>Moderately Influential</b> 3	4	<b>Very Influential</b> 5	<b>N</b>
The achievement level descriptors				8	4	12
The assessment samples			3	4	5	12
Other panelists		3	5	3	1	12
My experience in the field		2	5	4		11
	<b>Definitely Yes</b>	<b>Probably Yes</b>	<b>Unsure</b>	<b>Probably No</b>	<b>Definitely No</b>	<b>N</b>
Do you believe the cut scores set by the panel are correctly placed on the exam score scale?	1	7	4			12

~ I've looked at ALL aspects of the portfolio to make a determination.  
 ~ We had a variety of people with different backgrounds, providing input.  
 ~ There were very few numbered MAP-A's that I had to place in a higher or level cut score category.  
 ~ We had a little trouble coming to a consensus, but overall I believe we had a good cut scores.  
 ~ Some people in our group have done work in scoring MAP-A and I think they lowered our cut scores.  
 ~ Yes - but it is concerning that so many were below basic because they didn't connect to the standards - it seems the teachers were not clear on how to set up their MAP-A.  
 ~ We seemed somewhat sure but still had some voiced concerns.  
 ~ I felt that everyone put time and their knowledge to make the best judgment. The decisions made were pretty clear cut.  
 ~ There was some disagreement on a few items. Also, the way they were scored (ordered) was not necessarily the way I felt they should have been.  
 ~ We had lots of discussion about the portfolios and had great difficulty with understanding why portfolio #17 ranked so high.  
 ~ Questionable due to being 1st year for science other than pilot - appears that more training needed regarding connection to standards. Facilitator needs to be either trained or experienced to expedite process to ask guiding questions.

**How could the standard setting process have been improved?**~ More descriptive (measureable words) achievement level descriptors.~ A more clearly defined explanation of what factors should not influence our rating. For example, should we consider data errors, should we penalize for activity descriptions not matching accuracy and independence explanations.~ Note: one panelist was very unprofessional in that she put feet upon another chair with shoes off. Very distracting and took away from the setting. ~ Additionally training on how the portfolios were scored. What made some unscorable, etc!~ Explain more about the scores at the beginning. Being a first time standard setter, I did not really understand the process and why we were making cut scores. ~ Maybe more insight into the scoring process before we did our part. It was hard to tell why some of the portfolios were ranked high or low and with out knowing what made part of a portfolio "unscorable" we were unsure of how to rate the other part. ~ Our facilitator needed a bit ore training and knowledge regarding the process. When the tests are given to us are #1 low to ? high are we not somewhat biased? ~ The facilitator did a good job - but I think it would have helped her to have more training herself in the actual MAP-A. She stated she was unfamiliar with our test. ~ Our leader from Measured Progress, Amanda was very nervous. I feel she needed more training. She was not familiar with the assessment.~ By perhaps not giving the panelist the portfolio in scored order - it seems to influence the decisions.

For each statement below, please circle the rating that best represents your judgment.	Not at all Useful/Clear 1	2	3	4	Very Useful/Clear 5	N
The opening session was:		1	7	4		12
The achievement level descriptors were:		1	4	5	1	11

Providing additional details to the achievement level descriptors was:			4	4	4	12
The discussion with other panelists was:			1	4	7	12
The portfolio rating task was:		1	6	5		12
The impact data provided prior to the last round of ratings was:			7	3	1	11
<p><b>Please provide any additional comments or suggestions about the standard setting process.</b></p> <p>~ I really need to look at this measurement and process as a whole.</p> <p>~ Many of our MAP-A's were poorly scored. This made it difficult to make a clear decision. A lot of down time.</p> <p>~ Referring to #11 above. The rating task was not explained well, by our Elementary adequately trained and didn't stay with the group throughout the process. Many cell phone interruptions gave the appearance she was more concerned with things out of the room/city than here.</p> <p>~ The proctors need more training!</p> <p>~ I think people who have never given the MAP-A had a great disadvantage in this process. I felt sorry for the science teachers because they really didn't understand or have prior knowledge. Maybe they could have an extra session at the beginning to explain more about the MAP-A in general. We had too much down time in the afternoon of the 2nd day! It took an hour for us to get back our scores. Is there any way this could be organized in a different way so we wouldn't have to wait to get the cut scores back?</p> <p>~ More than 1 statistician is needed.</p> <p>~ May need more than 1 statistician for the process.</p> <p>~ Hard to determine rating with unscorable portfolios. Didn't know if it should be ignored or figured in...Also, felt bad for our leader ---definitely needed more training.</p> <p>~ There was a large amount of down time.</p> <p>~ Having a 2nd statistician would have helped move the process along faster.</p>						

### GRADE 8

	Very Good	Good	Unsure	Poor	Very Poor	N
What is your overall impression of the process used to set performance standards for the Missouri Alternate Assessment?	1	5	3	2	1	12
	Very Clear	Clear	Somewhat Clear	Not Clear		N
How clear were you with the achievement level descriptors?	1	8	2	1		12
	About Right	Too little time	Too much time			
How would you judge the length of time of this meeting for setting performance standards	6	5	1			12
What factors influenced the standards you set?	Not at all Influential 1	2	Moderately Influential 3	4	Very Influential 5	N
The achievement level descriptors			1	7	4	12
The assessment samples			3	4	5	12
Other panelists	1		6	4	1	12
My experience in the field			2	7	3	12
	Definitely Yes	Probably Yes	Unsure	Probably No	Definitely No	N
Do you believe the cut scores set by the panel are correctly placed on the exam score scale?	3	7	2			12

~ Much group discussion  
 ~ The curve is balanced and shows the skill levels of these students appropriately.  
 ~ After discussions within our group I believe the reasons why a panelist put a portfolio in a certain category were justified.  
 ~ Seems like an appropriate proportion  
 ~ I think a lot of this is very subjective not objective.  
 ~ I thought we were right on! Our scores came out 50/50.

**How could the standard setting process have been improved?**~ Simplify~ I think it would have been beneficial to know the process the end result. I don't believe that was explained very well. The first day was very frustrating! We did not see the purpose and we were not sure what we were being asked to do. The second day was much better!~ At times, conversations were rambling and not conducive to overall findings on scorable papers. ~ The purpose was unclear, process seemed random, making it feel unimportant and irrelevant. ~ Anchor papers~ It seems we had different rules for every level and very little consistency. It also seems it is the first year and people wouldn't really know what to do. ~ More clarity on B, BB, P and A levels. ~ Redefining or elaborating the achievement level descriptors was very confusing and made our work get off to a different start.

For each statement below, please circle the rating that best represents your judgment.	Not at all Useful/Clear 1	2	3	4	Very Useful/Clear 5	N
The opening session was:			5	4	2	11
The achievement level descriptors were:	1		2	7	2	12
Providing additional details to the achievement level descriptors was:	2	2	4	3	1	12
The discussion with other panelists was:			2	7	3	12
The portfolio rating task was:		2	2	6	1	11
The impact data provided prior to the last round of ratings was:			2	6	2	10

**Please provide any additional comments or suggestions about the standard setting process.**

- ~ It took much time for me to catch on to the what were to look at and consider as we analyzed each portfolio - some prior and further explanation may have helped - some example.
- ~ Our facilitator was not sure what we were suppose to be doing, it was not until after lunch that she was able to tell us what information we needed to consider. I also felt the "rules" changed between rounds. After we found out what we were supposed to do, it was much better. I just felt sometime was wasted.
- ~ Validity is questioned as there appears to be different rules in almost every round.
- ~ There seemed to be a lack of significance.
- ~ Descriptors were very non-descriptive and having facilitators who weren't allowed to help as very frustrating.

## GRADE 11

	Very Good	Good	Unsure	Poor	Very Poor	N
What is your overall impression of the process used to set performance standards for the Missouri Alternate Assessment?	5	5	1			11
	Very Clear	Clear	Somewhat Clear	Not Clear		N
How clear were you with the achievement level descriptors?	5	4	2			11
	About Right	Too little time	Too much time			
How would you judge the length of time of this meeting for setting performance standards	10		1			11
What factors influenced the standards you set?	Not at all Influential 1	2	Moderately Influential 3	4	Very Influential 5	N
The achievement level descriptors			2	5	4	11
The assessment samples			2	5	4	11
Other panelists		1	7	3		11
My experience in the field			3	6	2	11
	Definitely Yes	Probably Yes	Unsure	Probably No	Definitely No	N
Do you believe the cut scores set by the panel are correctly placed on the exam score scale?		7	2	1	1	11

<p>~ I feel that teacher training is a significant factor in the %'s. Teachers need more training in #1 assessment as well as content. ~ Different factors such as: teacher knowledge science application to goals of student individually. ~ With a variety of expertise in the room, explanations and discussions, the cohesiveness of the group allowed for a positive and productive score setting. ~ Below basic and basic were off balance. ~ Originally the cut between below basic and basic was too broad making the below basic too high ( a lot of unscorable portions). So will depend on how final cut went. ~ We looked at the samples very carefully. However, there were a lot of unscorable entries that messed up the placements. ~ We readjusted. Should fall out okay. ~ The gaps were not as expected. Cut off scores were to unequal at lower level.</p> <p><b>How could the standard setting process have been improved?</b></p> <p>~ using a smaller number of people per grade level - 1 each of all categories of people - 1 science, 1 reg teacher 1 reg. sped, etc.  ~ more chocolate.  ~ Don't make us check out @ noon from the hotel - either stay another night or have us finish @ noon.  ~ This was a learning experience. I see no improvements.  ~ Too much time when some people could not go on and had long wait times between activities.  ~ For us to not have gotten them in order but rather by "letter" so we wouldn't have a pre-conceived idea of ranking.  ~ Training of teachers implementing the MAP-A needs to be more intensive. Many of the errors/unscorables might have been teacher training issues.  ~ no suggestions - it went well.  ~ A training session for those unfamiliar with MAP-A might be helpful.</p>						
For each statement below, please circle the rating that best represents your judgment.	<b>Not at all Useful/Clear</b> 1	2	3	4	<b>Very Useful/Clear</b> 5	<b>N</b>
The opening session was:			1	9	1	11
The achievement level descriptors were:			1	9	1	11
Providing additional details to the achievement level descriptors was:			1	7	3	11
The discussion with other panelists was:			1	5	5	11
The portfolio rating task was:			1	9	1	11

The impact data provided prior to the last round of ratings was:			1	6	3	10
<p><b>Please provide any additional comments or suggestions about the standard setting process.</b></p> <p>~ Being my first time I really have no additional comments or suggestion other than thank you for choosing me. This was an experience and enjoyed the time to meet other people.</p> <p>~ It is always learning experience for me and I hope to continue to be able to be involved in it. Thank you.</p> <p>~ Achievement level Descriptors.</p> <p>~ Maybe connected on proficient clarified.</p> <p>~ Basic (practice skill).</p> <p>~ Good job Susan!</p>						

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## APPENDIX J: PANELIST RESULTS

Draft

Table 1: Round 2 Ratings: Grade 5

Portfolio	Raw Score	Panelist												Performance Level
		id 01	id 02	id 03	id 04	id 05	id 06	id 07	id 08	id 09	id 10	id 11	id 12	
1	6	1	1	1	1	1	1	1	1	1	1	1	1	1
2	6	1	1	1	1	1	1	1	1	1	1	1	1	1
3	7	1	1	1	1	1	1	1	1	1	1	1	1	1
4	7	1	1	1	1	1	1	1	1	1	1	1	1	1
5	8	1	1	1	1	1	1	1	1	1	1	1	1	1
6	8	1	2	2	2	1	1	2	1	1	1	1	2	1
7	9	1	1	1	1	1	1	1	1	1	1	1	1	1
8	9	1	1	1	1	1	1	1	1	1	1	1	1	1
9	10	1	1	1	1	1	1	1	1	1	1	1	1	1
10	10	1	1	1	1	1	1	1	1	1	1	1	1	1
11	11	1	1	1	1	1	1	1	1	1	1	1	1	1
12	11	1	2	2	2	1	1	1	1	1	1	1	1	1
13	12	1	1	1	1	1	1	1	1	1	1	1	1	1
14	12	1	1	1	1	1	1	1	1	1	1	1	1	1
15	13	1	2	2	2	1	1	2	1	1	1	1	2	1
16	13	1	1	1	2	1	1	1	1	1	1	1	1	1
17	14	1	1	1	1	1	1	1	1	1	1	1	1	1
18	14	1	1	1	1	1	1	1	1	1	1	1	1	1
19	15	2	2	2	2	2	2	2	2	2	2	1	2	2
20	15	2	3	3	3	2	2	2	2	2	2	2	3	2
21	16	2	2	2	2	2	2	2	2	2	2	2	2	2
22	16	1	2	1	1	1	1	1	1	1	1	1	1	2
23	17	3	3	3	3	3	3	3	3	3	3	3	3	2
24	17	3	3	3	3	3	2	3	2	3	2	2	3	2
25	18	4	4	4	4	3	4	4	4	4	4	4	4	3
26	18	2	3	3	3	3	2	3	2	3	2	2	3	3
27	19	3	3	3	3	3	3	3	2	3	2	2	3	3
28	19	3	2	2	2	3	2	2	2	3	2	2	2	3
29	20	2	3	3	3	2	2	2	2	3	2	2	3	3
30	20	3	3	3	3	3	3	3	2	3	2	2	3	3
31	21	3	3	3	3	3	3	3	3	3	3	3	3	3
32	21	3	3	3	3	3	3	3	3	3	3	3	3	3
33	22	4	4	4	4	4	4	4	4	4	4	4	4	4
34	22	4	4	4	4	4	4	4	4	4	4	4	4	4

Table 2: Round 2 Ratings: Grade 8

Portfolio	Raw Score	Panelist												Performance Level
		id 01	id 02	id 03	id 04	id 05	id 06	id 07	id 08	id 09	id 10	id 11	id 12	
1	5	1	1	1	1	1	1	1	1	1	1	1	1	1
2	5	1	1	1	1	1	1	1	1	1	1	1	1	1
3	6	1	1	1	1	1	1	1	1	1	1	1	1	1
4	6	1	1	1	1	1	1	1	1	1	1	1	1	1
5	7	1	1	1	1	1	1	1	1	1	1	1	1	1
6	7	1	2	2	1	2	2	1	1	2	2	2	2	1
7	8	2	2	2	2	2	2	2	2	2	2	1	2	1
8	8	1	1	2	1	1	1	1	2	1	1	1	1	1
9	9	1	1	1	1	1	1	1	2	1	1	1	1	2
10	9	2	2	2	2	2	2	2	2	2	2	2	2	2
11	10	2	2	2	2	2	2	2	2	2	2	2	2	2
12	10	1	1	1	1	1	1	1	1	1	1	1	1	2
13	11	2	2	2	2	2	2	2	2	2	2	2	2	2
14	11	2	3	2	1	2	2	2	2	2	2	2	2	2
15	12	2	3	2	2	1	2	2	1	1	2	2	1	2
16	12	2	2	2	2	2	2	2	2	2	2	2	2	2
17	13	2	3	2	2	2	2	2	2	2	2	2	2	2
18	13	3	3	3	3	3	3	3	3	3	2	3	3	2
19	14	2	1	2	2	1	2	2	1	1	2	2	2	2
20	14	3	3	2	3	3	3	3	3	3	3	3	3	2
21	15	3	3	3	3	3	3	3	2	2	3	3	2	3
22	15	3	1	3	2	2	2	2	2	3	3	2	2	3
23	16	3	3	3	3	2	3	3	2	2	2	3	2	3
24	16	3	2	3	3	2	2	3	2	2	3	3	3	3
25	17	4	1	2	2	1	3	3	1	1	2	1	4	3
26	17	3	3	3	4	4	3	3	3	3	3	3	3	3
27	18	4	4	4	4	4	4	4	4	4	4	3	4	3
28	18	3	3	3	4	4	3	3	3	3	3	3	4	3
29	19	3	3	3	4	3	3	3	3	3	3	3	3	3
30	19	3	3	3	3	3	3	3	3	3	3	3	3	3
31	20	3	3	3	3	3	3	3	3	3	3	3	3	3
32	20	3	3	3	3	3	3	3	3	3	3	3	3	3
33	21	4	4	4	4	4	4	4	4	4	4	4	4	3
34	21	3	3	3	3	3	3	3	3	3	3	3	3	3
35	22	4	4	4	4	4	3	4	4	4	4	4	4	4
36	22	4	3	3	4	3	3	3	3	3	3	3	3	4

Table 3: Round 2 Ratings: Grade 11

Portfolio	Raw Score	Panelist											Performance Level
		id 01	id 02	id 03	id 04	id 05	id 06	id 07	id 08	id 09	id 10	id 11	
1	5	1	1	1	1	1	1	1	1	1	1	1	1
2	5	1	1	1	1	1	1	1	1	1	1	1	1
3	6	1	1	1	1	1	1	1	1	1	1	1	1
4	6	1	1	1	1	1	1	1	1	1	1	1	1
5	7	1	1	1	1	1	1	1	1	1	1	1	1
6	7	1	1	1	1	1	1	1	1	1	1	1	1
7	8	1	1	1	1	1	1	1	1	2	1	1	1
8	8	1	1	1	1	1	1	1	1	2	1	1	1
9	9	1	1	1	1	1	1	1	1	2	2	1	1
10	9	1	2	1	1	1	2	1	1	2	2	1	1
11	10	2	2	2	2	1	1	1	1	1	2	1	1
12	10	1	1	1	1	1	1	1	1	2	1	1	1
13	11	1	2	1	1	1	2	1	1	2	2	2	1
14	11	1	2	2	2	2	1	2	2	2	2	2	1
15	12	1	2	1	2	1	1	1	1	1	2	2	1
16	12	1	2	1	1	1	1	1	1	2	2	1	1
17	13	2	2	2	2	2	1	2	2	2	2	2	2
18	14	1	2	1	1	1	2	1	1	2	2	1	2
19	14	1	2	1	2	1	2	1	1	2	2	2	2
20	15	2	2	2	1	1	2	2	2	2	2	2	2
21	15	2	2	3	3	2	3	2	2	2	2	2	2
22	16	2	2	2	2	1	3	2	1	2	2	2	2
23	16	1	3	1	1	1	3	1	1	2	2	2	2
24	17	2	3	2	2	2	3	3	2	3	2	3	3
25	17	3	3	3	3	2	3	3	3	3	3	3	3
26	18	3	3	3	3	3	4	3	3	3	3	3	3
27	18	3	3	3	3	3	3	3	3	3	3	3	3
28	19	3	3	3	3	3	3	3	3	3	3	3	3
29	19	3	4	3	3	3	3	4	4	3	3	4	3
30	20	4	4	4	4	4	4	4	4	4	4	4	3
31	20	3	3	3	3	3	3	3	3	3	3	3	3
32	21	4	4	4	4	4	4	4	4	4	4	3	4
33	21	4	3	3	3	3	3	3	4	3	4	3	4
34	22	4	4	4	4	4	4	4	4	4	4	4	4
35	22	4	4	4	4	4	3	4	4	4	4	4	4

Table 4: Round 3 Ratings: Grade 5

Portfolio	Raw Score	Panelist												Performance Level
		id 01	id 02	id 03	id 04	id 05	id 06	id 07	id 08	id 09	id 10	id 11	id 12	
1	6	1	1	1	1	1	1	1	1	1	1	1	1	1
2	6	1	1	1	1	1	1	1	1	1	1	1	1	1
3	7	1	1	1	1	1	1	1	1	1	1	1	1	1
4	7	1	1	1	1	1	1	1	1	1	1	1	1	1
5	8	1	1	1	1	1	1	1	1	1	1	1	1	1
6	8	1	2	2	2	1	1	2	1	1	1	1	2	1
7	9	1	1	1	1	1	1	1	1	1	1	1	1	1
8	9	1	1	1	1	1	1	1	1	1	1	1	1	1
9	10	1	1	1	1	1	1	1	1	1	1	1	1	1
10	10	1	1	1	1	1	1	1	1	1	1	1	1	1
11	11	1	1	1	1	1	1	1	1	1	1	1	1	1
12	11	2	2	2	2	2	2	2	2	2	2	2	2	1
13	12	2	2	2	2	2	1	2	2	1	2	2	1	1
14	12	1	2	1	1	1	1	1	1	1	1	1	1	1
15	13	2	2	2	2	2	2	2	2	1	2	2	2	1
16	13	2	2	2	2	2	1	2	2	1	1	1	2	1
17	14	1	1	1	1	1	1	1	1	1	1	1	1	2
18	14	1	1	1	1	1	1	1	1	1	1	1	1	2
19	15	2	2	2	2	2	2	2	2	2	2	1	2	2
20	15	2	3	3	3	2	2	2	2	2	2	2	3	2
21	16	2	2	2	2	2	2	2	2	2	2	2	2	2
22	16	1	2	1	2	1	1	1	1	1	1	1	1	2
23	17	3	3	3	3	3	3	3	3	3	3	3	3	2
24	17	3	3	3	3	3	2	3	2	3	2	2	3	2
25	18	4	4	4	4	3	4	4	4	4	4	4	4	3
26	18	2	3	3	3	3	2	3	2	3	2	2	3	3
27	19	3	3	3	3	3	3	3	2	3	2	2	3	3
28	19	3	2	2	2	3	2	2	2	3	2	2	2	3
29	20	2	3	3	3	2	2	2	2	3	2	2	3	3
30	20	3	3	3	3	3	3	3	2	3	2	2	3	3
31	21	3	3	3	3	3	3	3	3	3	3	3	3	3
32	21	3	3	3	3	3	3	3	3	3	3	3	3	3
33	22	4	4	4	4	4	4	4	4	4	4	4	4	4
34	22	4	4	4	4	4	4	4	4	4	4	4	4	4

Table 5: Round 3 Ratings: Grade 8

Portfolio	Raw Score	Panelist												Performance Level
		id_01	id_02	id_03	id_04	id_05	id_06	id_07	id_08	id_09	id_10	id_11	id_12	
1	5	1	1	1	1	1	1	1	1	1	1	1	1	1
2	5	1	1	1	1	1	1	1	1	1	1	1	1	1
3	6	1	1	1	1	1	1	1	1	1	1	1	1	1
4	6	1	1	1	1	1	1	1	1	1	1	1	1	1
5	7	1	2	1	1	1	1	1	1	1	1	1	1	1
6	7	1	2	2	1	2	2	2	1	2	2	2	2	1
7	8	2	2	2	2	2	2	2	2	2	2	2	2	1
8	8	1	1	1	1	1	1	1	1	1	1	1	1	1
9	9	1	1	1	1	1	1	1	1	1	1	1	1	2
10	9	2	3	2	2	3	3	3	2	3	3	2	2	2
11	10	2	2	2	2	2	2	2	2	2	2	2	2	2
12	10	1	1	1	1	1	1	1	1	1	1	1	1	2
13	11	2	2	2	2	2	2	2	2	2	2	2	2	2
14	11	2	2	2	1	2	2	2	2	2	2	2	2	2
15	12	2	2	2	2	1	2	2	1	1	2	2	1	2
16	12	2	2	2	2	2	2	2	2	2	2	2	2	2
17	13	2	2	2	2	2	2	2	2	2	2	2	2	2
18	13	3	3	3	3	3	3	3	3	3	3	3	3	2
19	14	2	2	2	2	1	1	2	1	1	2	2	2	2
20	14	3	3	3	3	3	3	3	2	3	3	3	3	2
21	15	3	3	3	3	2	2	3	2	2	3	3	2	2
22	15	3	2	2	2	2	2	2	2	2	2	2	2	2
23	16	3	3	3	3	3	3	3	2	3	3	3	3	3
24	16	3	2	3	3	1	2	2	2	2	2	3	3	3
25	17	4	2	2	2	1	2	2	1	2	2	1	4	3
26	17	3	3	3	3	3	3	3	3	3	3	3	3	3
27	18	4	4	4	4	4	4	4	4	4	4	4	3	3
28	18	3	3	3	4	4	3	3	3	3	3	3	4	3
29	19	3	2	3	3	2	3	2	2	3	3	3	3	3
30	19	3	3	3	3	3	3	3	3	3	3	3	3	3
31	20	3	4	3	3	2	3	3	2	2	3	3	3	3
32	20	3	3	3	3	2	3	3	2	2	3	3	3	3
33	21	4	4	4	4	4	4	4	4	4	4	4	4	3
34	21	3	3	3	3	3	3	3	3	3	3	3	3	3
35	22	4	4	4	4	4	4	4	4	4	4	4	4	4
36	22	4	3	3	4	3	3	3	3	3	3	3	3	4

Table 6: Round 3 Ratings: Grade 11

Portfolio	Raw Score	Panelist											Performance Level
		id 01	id 02	id 03	id 04	id 05	id 06	id 07	id 08	id 09	id 10	id 11	
1	5	1	1	1	1	1	1	1	1	1	1	1	1
2	5	1	1	1	1	1	1	1	1	1	1	1	1
3	6	1	1	1	1	1	1	1	1	1	1	1	1
4	6	1	1	1	1	1	1	1	1	1	1	1	1
5	7	1	1	1	1	1	1	1	1	1	1	1	1
6	7	1	1	1	1	2	1	1	1	1	1	1	1
7	8	1	1	1	1	1	1	1	1	1	1	1	1
8	8	1	1	1	1	1	1	1	1	2	1	2	1
9	9	1	1	1	1	1	1	1	1	2	2	1	1
10	9	1	2	1	1	1	2	2	2	2	2	1	1
11	10	2	2	2	2	2	2	2	2	2	2	2	1
12	10	1	1	1	1	1	1	1	1	1	1	2	1
13	11	2	2	2	2	2	2	2	2	2	2	2	2
14	11	2	2	2	2	2	2	2	2	2	2	2	2
15	12	1	2	1	2	1	1	2	2	2	2	2	2
16	12	2	2	2	1	1	1	1	1	1	2	2	2
17	13	2	2	2	2	2	2	2	2	2	2	2	2
18	14	1	2	2	1	1	2	1	2	2	2	2	2
19	14	2	2	2	2	1	2	1	2	2	2	2	2
20	15	2	2	2	1	1	2	2	2	2	2	2	2
21	15	2	2	3	3	2	3	2	2	2	2	2	2
22	16	2	2	2	2	1	3	2	2	2	2	2	2
23	16	1	3	2	1	1	3	1	1	2	2	2	2
24	17	2	3	2	2	2	3	3	2	3	2	3	3
25	17	3	3	3	3	2	3	3	3	3	3	3	3
26	18	3	3	3	3	3	4	3	3	3	3	3	3
27	18	3	3	3	3	3	3	3	3	3	3	3	3
28	19	3	3	3	3	3	3	3	3	3	3	3	3
29	19	3	4	3	3	3	3	3	4	3	3	4	3
30	20	4	4	4	4	4	4	3	4	4	4	4	3
31	20	3	3	3	3	3	3	3	3	3	3	3	3
32	21	4	4	4	4	4	4	4	4	4	4	3	4
33	21	4	3	3	3	3	3	4	4	3	4	3	4
34	22	4	4	4	4	4	4	4	4	4	4	4	4
35	22	4	4	4	4	4	3	4	4	4	4	4	4

## Appendix C: Forms

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This appendix describes and presents samples of the forms required in a completed MAP-A. The forms are described and outlined in Table C.1. Data collection and submission requirements are outlined in Tables C.2 – C.5.

**Table C.1: MAP-A Forms**

Content	Description
Table of Contents Checklist	Acts as a guide for organization of the completed MAP-A.
Validation Form	Provides documentation of the individuals who have reviewed and/or contributed to the MAP-A. Allows for optional brief reporting of extended absences and/or student's communication mode. The principal, assistant principal or special education director must sign this form prior to submission of the MAP-A.
Entry/Data Summary Sheets	Serves as a record of student performance on each API assessed. The student's score for Level of Accuracy and Level of Independence for each API will be determined based on the percentages recorded on the Entry/Data Summary Sheet.
API Duplication/Justification Form	Supplies specific content-based evidence to support the justification/rationale for duplicate use of the API.
Student Work Records	Provides documentation of student work for each API assessed in both collection periods. Student Work Records should demonstrate the <b>application</b> of the API in a standards-based activity. You may show evidence of student work by <ul style="list-style-type: none"><li>collecting student work samples such as worksheets, drawings, writings, journal entries, or projects; or</li><li>observing the student and recording his or her performance.</li></ul>

## Appendix C: Forms

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This appendix describes and presents samples of the forms required in a completed MAP-A. The forms are described and outlined in Table C.1. Data collection and submission requirements are outlined in Tables C.2 – C.5.

**Table C.1: MAP-A Forms**

<b>Content</b>	<b>Description</b>
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Entry/Data Summary Sheets	Serves as a record of student performance on each API assessed. The student's score for Level of Accuracy and Level of Independence for each API will be determined based on the percentages recorded on the Entry/Data Summary Sheet.
API Duplication/Justification Form	Supplies specific content-based evidence to support the justification/rationale for duplicate use of the API.
Student Work Records	Provides documentation of student work for each API assessed in both collection periods. Student Work Records should demonstrate the <b>application</b> of the API in a standards-based activity. You may show evidence of student work by <ul style="list-style-type: none"><li>• collecting student work samples such as worksheets, drawings, writings, journal entries, or projects; or</li><li>• observing the student and recording his or her performance.</li></ul>

<b>Table C.2: Minimum Page Requirements for MAP-A Submissions at Each Grade Level</b>				
	<b>Mathematics</b>	<b>Communication Arts</b>	<b>Science</b>	<b>Min. Total of Pages</b>
Elementary, Grades 3 & 4	12	12	---	26
Elementary, Grade 5	12	12	6	32
Middle School, Grades 6 & 7	12	12	---	26
Middle School, Grade 8	12	12	6	32
High School, Grade 10	12	---	---	14
High School, Grade 11	---	12	6	20

<b>Table C.3: Mathematics MAP-A Data Collection and Submission Requirements</b>						
<b>Strand</b>	<b>API</b>	<b>Collection Period</b>	<b>Data Collection Required</b>	<b>Forms Required</b>		<b>Min. Total of Pages</b>
Strand 1	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	12
		2	3 data points			
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			
Strand 2	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			

<b>Table C.4: Communication Arts MAP-A Data Collection and Submission Requirements</b>						
<b>Strand</b>	<b>API</b>	<b>Collection Period</b>	<b>Data Collection Required</b>	<b>Forms Required</b>		<b>Min. Total of Pages</b>
Strand 1	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	12
		2	3 data points			
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			
Strand 2	API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			
	API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			

<b>Table C.5: Science MAP-A Data Collection and Submission Requirements</b>						
<b>Strand</b>	<b>API</b>	<b>Collection Period</b>	<b>Data Collection Required</b>	<b>Forms Required</b>		<b>Min. Total of Pages</b>
Process Strand 7 and Content Strand	Process API 1 and Content API 1	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	6
		2	3 data points			
Process Strand 8 and Content Strand	Process API 2 and Content API 2	1	3 data points	1 Entry/Data Summary Sheet	2 Student Work Records	
		2	3 data points			

<b>Table C.5: Requirements for Proper MAP-A Documentation</b>			
	<b>Mathematics</b>	<b>Communication Arts</b>	<b>Science</b>
Grades Tested	3-8, 10	3-8, 11	5, 8, 11
# of Strands required per content area	2	2	4
# of APIs required per Strand	2	2	1
# of Entries Required	4	4	2
Minimum pages per content area	<b>12</b>	<b>12</b>	<b>6</b>

The following forms are required for the MAP-A.

1. Table of Contents Checklists
  - Grades 3, 4
  - Grade 5
  - Grades 6, 7
  - Grade 8
  - Grade 10
  - Grade 11
2. Validation Form
3. Entry/Data Summary Sheet
4. API Duplication/Justification Form
5. Student Work Record

The MAP-A requires content area strands specific to grade span. Correct strands must be recorded on the Entry/Data Summary Sheets for each student.

<b>Content Area</b>	<b>Title of Strand</b>	<b>Grades</b>
<b>Mathematics</b>	<b>Strand 1:</b> Numbers and Operations ( <b>NO</b> )	All Grades
	<b>Strand 2:</b> Algebraic Relationships and/or Geometric and Spatial Relationships ( <b>AR/GS</b> )	Grades 3–5
	<b>Strand 2:</b> Data and Probability ( <b>DP</b> )	Grades 6–8
	<b>Strand 2:</b> Measurement ( <b>ME</b> )	Grade 10
<b>Communication Arts</b>	<b>Strand 1:</b> Reading ( <b>RD</b> and/or <b>RP</b> )	All Grades
	<b>Strand 2:</b> Writing ( <b>WC</b> )	Grades 3–5
	<b>Strand 2:</b> Writing ( <b>WP</b> )	Grades 6–8, 11

<b>Science</b>	<b>CONTENT STRANDS</b>	
	<b>Strand 7:</b> Scientific Inquiry ( <b>SI</b> )	Required at all Grade Levels
	<b>Strand 8:</b> Impact of Science, Technology and Human Activity ( <b>IS</b> )	Required at all Grade Levels
	<b>PROCESS STRANDS</b>	
	<b>Strand 3:</b> Characteristics and Interactions of	Required for Elementary Grade 5
		Required for Elementary Grade 5
		Required For Middle School Grade 8
		Required for Middle School Grade 8
		Required fro High School Grade 11
<b>Strand 6:</b> Composition and Structure of the Universe and the Motion of the Objects Within It ( <b>UN</b> )	Required for High School Grade 11	

## Table of Contents Checklist

# Elementary

Student: _____	School Year: _____	Grade: 3 4
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(Organize MAP-A in the following manner)

- Table of Contents Checklist
- Validation Form

### **Communication Arts Strand 1: Reading (RD/RP)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 1: Reading (RD/RP)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WC)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WC)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Table of Contents Checklist

# Elementary

Student: _____	School Year: _____	Grade: 5
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(Organize MAP-A in the following manner)

- Table of Contents Checklist
- Validation Form

### **Communication Arts Strand 1: Reading (RD/RP)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 1: Reading (RD/RP)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WC)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WC)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)**

#### **Alternate Performance Indicator #1**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Algebraic Relationships and/or Geometric & Spatial Relationships (AR/GS)**

#### **Alternate Performance Indicator #2**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 7: Scientific Inquiry (IN) and Strand 3 (LO) or 4 (EC)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 8: Impact of Science, Technology, and Human Activity (ST) and Strand 3 (LO) or 4 (EC)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Table of Contents Checklist

## Middle School

Student: _____	School Year: _____	Grade: 6 7
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(Organize MAP-A in the following manner.)

- Table of Contents Checklist
- Validation Form

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Data & Probability (DP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Data & Probability (DP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Table of Contents Checklist

# Middle School

Student: _____	School Year: _____	Grade: 8
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(Organize MAP-A in the following manner.)

- Table of Contents Checklist
- Validation Form

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Data & Probability (DP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Data & Probability (DP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 7: Scientific Inquiry (IN) and Strand 1 (ME) or 2 (FM)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 8: Impact of Science, Technology, and Human Activity (ST) and Strand 1 (ME) or 2 (FM)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Table of Contents Checklist

# High School

Student: _____	School Year: _____	Grade: 10
----------------	--------------------	-----------

(Organize MAP-A in the following manner.)

- Table of Contents Checklist
- Validation Form

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 1: Numbers & Operations (NO)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Measurement (ME)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Mathematics Strand 2: Measurement (ME)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Table of Contents Checklist

# High School

Student: _____	School Year: _____	Grade: 11
----------------	--------------------	-----------

(Organize MAP-A in the following manner.)

- Table of Contents Checklist
- Validation Form

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 1: Reading (RD/RP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #1

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Communication Arts Strand 2: Writing (WP)**

Alternate Performance Indicator #2

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 7: Scientific Inquiry (IN) and Strand 5 (ES) or 6 (UN)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

### **Science Strand 8: Impact of Science, Technology, and Human Activity (ST) and Strand 5 (ES) or 6 (UN)**

- Entry/Data Summary Sheet
- Collection Period 1 Student Work Record
- Collection Period 2 Student Work Record

## Validation Form

**Student:** \_\_\_\_\_

**Grade:** \_\_\_\_\_

**District & School of Attendance:** \_\_\_\_\_

This form provides documentation of the individuals who have reviewed and/or contributed to this MAP-A.

---

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

Contribution to the MAP-A: Person Responsible for  
the MAP-A Administration

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

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

Contribution to the MAP-A: \_\_\_\_\_

\_\_\_\_\_

OPTIONAL- Use this space to provide information  
regarding the student's mode of communication.

Please obtain administrator's (principal, assistant  
principal, or special education director) signature  
prior to submission.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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

**Entry/Data Summary Sheet**  
**Mathematics/Communication Arts**

<b>Student Name:</b>				<b>Grade:</b>		
<b>Content Area:</b>				<b>Strand:</b>		
<b>API #:</b>	<b>API Description:</b>					
	<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>		
	Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.		
<b>Date</b>						
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>						
<b>Independence %</b>						
<b>Average % for Collection Period</b>	Accuracy:			Accuracy:		
	Independence:			Independence:		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	
<b>Level of Independence</b>	

**Entry/Data Summary Sheet**  
**Science**

<b>Student Name:</b>				<b>Grade:</b>		
<b>Content Area:</b>				<b>Process Strand:</b>		
<b>Content Strand:</b>						
<b>Process API:</b>		<b>Process API Description:</b>				
<b>Content API:</b>		<b>Content API Description:</b>				
		<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>	
		Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.	
<b>Date</b>						
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>						
<b>Independence %</b>						
<b>Average % for Collection Period</b>	Accuracy:			Accuracy:		
	Independence:			Independence:		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	
<b>Level of Independence</b>	

**Student Work Record**  
**Mathematics/Communication Arts**  
 Attach student work sample if appropriate

<b>Student Name:</b>		<b>Grade:</b>	<b>Date:</b>
<b>Content Area</b>		<b>Strand:</b>	
<b>API:</b>	<b>Description:</b>		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)			
<b>Evaluation of Student's Performance:</b>			
Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for Level of Accuracy.		Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence.	
<b>Level of Accuracy _____%</b>		<b>Level of Independence _____%</b>	

**Student Work Record**  
**Science**

Attach student work sample if appropriate

<b>Student Name:</b>		<b>Grade:</b>	<b>Date:</b>
<b>Content Area:</b>		<b>Process Strand:</b>	
		<b>Content Strand:</b>	
<b>Process API:</b>	<b>Process API Description:</b>		
<b>Content API:</b>	<b>Content API Description:</b>		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.)			
<b>Evaluation of Student's Performance:</b>			
Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b> .		Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b> .	
<b>Level of Accuracy:</b> _____%		<b>Level of Independence:</b> _____%	

**Include student work sample here, if appropriate.**

Submit student work sample on 8 ½ X 11 paper.

This page is a placeholder. **Do not** tape, staple, or otherwise attach student work to this page.

Do not submit photos.

Draft

## Appendix D: MAP-A Achievement Level Descriptors and Cut Scores

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### Achievement Level Descriptors

Grades 3-5	Mathematics
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Algebraic Relationships and/or Geometric and Spatial Relationships. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Algebraic Relationships and/or Geometric and Spatial Relationships. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Algebraic Relationships and/or Geometric and Spatial Relationships. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Algebraic Relationships and/or Geometric and Spatial Relationships. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

<b>Grades 6-8</b>	<b>Mathematics</b>
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

<b>Grade 10</b>	<b>Mathematics</b>
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Measurement. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Measurement. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Measurement. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade appropriate APIs within the strands of Numbers and Operations and Measurement. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Grades 3-5	Communication Arts
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the standards of the Reading Development and Processes and Standard English Conventions. Student work may be loosely connected to the standards. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a limited understanding of the concepts contained in the grade appropriate APIs within the standards of the Reading Development and Processes and Standard English Conventions. Student work may be somewhat connected to the standards. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has some understanding of the concepts contained in the grade appropriate APIs within the standards of the Reading Development and Processes and Standard English Conventions. Student work may be connected to the standards and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a high level of understanding of the concepts contained in the grade appropriate APIs within the standards of the Reading Development and Processes and Standard English Conventions. Student work may be closely connected to the standards and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Grades 6-8	Communication Arts
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be loosely connected to the standards. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a limited understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be somewhat connected to the standards. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has some understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be connected to the standards and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a high level of understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be closely connected to the standards and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

<b>Grades 11</b>	<b>Communication Arts</b>
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be loosely connected to the standards. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a limited understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be somewhat connected to the standards. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has some understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be connected to the standards and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a high level of understanding of the concepts contained in the grade appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be closely connected to the standards and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Grade 5	Science
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Characteristics and Interactions of Living Organisms and Changes in Ecosystems and Interactions of Organisms with Their Environment. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

<b>Grade 8</b>	<b>Science</b>
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Properties and Principles of Matter and Energy, and Properties and Principles of Force and Motion. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Grade 11	Science
<b>Level not Determined</b>	Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.
<b>Below Basic</b>	Student has a minimal understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Process and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere), and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Basic</b>	Student has a fundamental understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Process and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere), and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.
<b>Proficient</b>	Student has a sound understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Process and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere), and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.
<b>Advanced</b>	Student has a strong understanding of the concepts contained in the grade-appropriate APIs within the strands of Scientific Inquiry, Impact of Science, Technology, and Human Activity, Process and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere), and Composition and Structure of the Universe and the Motion of the Objects Within It. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

## MAP-A Cut Scores

MAP-A cut scores for Mathematics, Communication Arts, and Science are found in the following table.

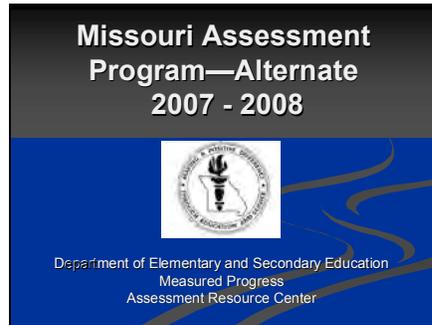
Grade Span	Content Area	Ach. Level	2007-2008 Raw Score Range
3-5	Math	BB	3-15
		B	16-26
		P	27-39
		A	40-44
3-5	CA	BB	3-18
		B	19-29
		P	30-40
		A	41-44
5	Science	BB	3-10
		B	11-16
		P	17-20
		A	21-22
6-8	Math	BB	3-20
		B	21-28
		P	29-40
		A	41-44
6-8	CA	BB	3-20
		B	21-32
		P	33-41
		A	42-44
8	Science	BB	3-10
		B	11-16
		P	17-20
		A	21-22
10	Math	BB	3-19
		B	20-30
		P	31-41
		A	42-44
11	CA	BB	3-23
		B	24-33
		P	34-40
		A	41-44
11	Science	BB	3-10
		B	11-16
		P	17-20
		A	21-22

# Appendix E: Administration Training Materials

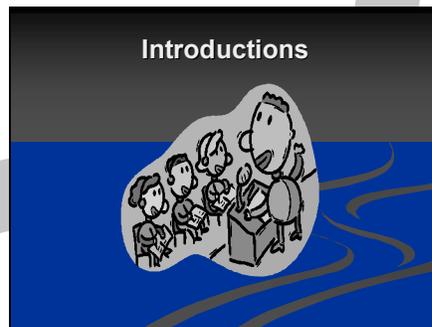
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## 2007-2008 Training Presentation

Slide 1



Slide 2



Slide 3

### Housekeeping

- Cell Phones 
- Restrooms 
- Name Tags & Badges 
- Questions 

Slide 4

### Today's Agenda.....

- Overview of the MAP A
- What's New? – Instructor's Guide & Implementation Manual
- Step by Step Process
- Science
- Sample Entries
  - (Mathematics, Communication Arts, and Science)

Slide 5

### Today's Agenda.....

- Lessons Learned
- ProFile Update
- MAP A Timeline & Enrollment
- Process Information
- Question & Answers 

Slide 6

### Overview of MAP-A Status Model

- Assessment in Mathematics, Communication Arts, and Science
- Collection of Student Work
- Performance Levels
  - Accuracy/Independence
- Connection to the Standards
  - Application of Skills
- Set Time Period
  - Ten Weeks (Jan. - Mar.)



Slide 7

### MAP-A Manual: 2007-2008

- Timeline
- Contact Information
- What's New?
- Chapter 1: Process Overview
- Chapter 2: Documentation
- Chapter 3: Scoring Criteria
- Chapter 4: Data Collection

Slide 8

### MAP-A Manual: 2007-2008

- Chapter 5: Alternate Performance Indicators
  - Addition of Science APIs for Grades 5, 8, and 11
- Appendix A: Forms
- Appendix B: Selecting a Data Collection System
- Appendix C: Sample Entries
- Appendix D: Step by Step Process
- Glossary

Slide 9

**MAP-A Manual: What's  ?**

- **Science**
  - Grades 5, 8, and 11
  - Selection of APIs is different than Communication Arts & Mathematics
  - Only requires 2 Entries



Slide 10

**MAP-A Manual: What's  ?**

- **API Selection Guidelines**
  - Peer Review Requirements
    - Peer Review Best Practice Statement
    - Choose APIs from two different "Big Ideas"
    - No duplication of APIs unless justified.



Slide 11

**MAP-A Manual: What's  ?**

- **Entry/Data Summary Sheet Changes**



Slide 12

### MAP-A Manual: What's **NEW** ?

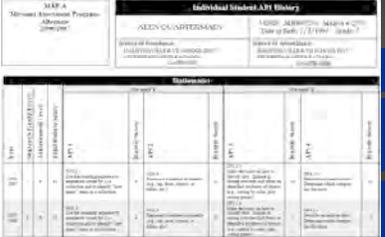
- API Duplication Justification Form



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### Beyond the MAP-A Manual: What's **NEW** ?

- Individual Student History Report



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### MAP-A Manual: What's **NEW** ?

- API Use & Activity Design
  - Interpretation of the API and its content is **CRITICAL** to successfully design a MAP-A activity.
    - "and"
    - "or"
    - "and/or"
    - "e.g." vs. "i.e."



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**MAP-A Manual: What's  ?**

- **AGLEs, APIs, IEPs, and the MAP A**
  - Districts should plan the selection and use of the AGLEs/APIs for MAP A assessment during development of yearly IEPs.
  - IEP Teams CAN use APIs as the basis for writing goals appropriate for the student
  - Decisions should include the Instructional Team, which can include non IEP Team Members (e.g., Science Teacher) 

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**MAP-A Manual: What's  ?**

- **AGLEs, APIs, IEPs and the MAP A (cont.)**
  - APIs *can be* selected and developed into measurable and observable goals if they fit the individual student's learning needs.
    - Teachers can collect data for progress toward IEP goals at the SAME time they collect data for MAP A.
  - Teachers can plan (Prior to Administration):
    - student acquisition,
    - practice, and
    - application of the skill(s). 

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**MAP-A Manual: What's  ?**

- **AGLEs, APIs, IEPs and the MAP A (cont.)**
  - Teachers may wish to plan more than 1 year out when evaluating which APIs to use, as some students need more than one year to:
    - acquire,
    - practice, and
    - apply a new skill area. 



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**MAP-A Manual: What's  ?**

- **API Glossaries**
  - Mathematics (p. 44)
  - Communication Arts (p.81)
  - Science (p.103)
- **New Samples**
  - Mathematics
  - Communication Arts
  - Science



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**Step-by-Step Process**



Slide 20

**Activities Prior to Administration Window**

- **A 12 Step Process:**
  - Step 1: Verify student eligibility
  - Step 2: Determine instructional team for MAP A
  - Step 3: Identify mandatory strands
  - Step 4: Select one API for each strand



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### Administration Window

- Step 5: Review documentation requirements:
  - Entry/Data Summary Sheet
  - If assessing APIs from a previous year, fill out the **API Duplication Justification Form**
  - Student Work Record & Sample





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### Administration Window

- Step 6: Determine data collection system

Descriptions of Data Collection Charts		
Chart Type	Possible Uses	Examples of Use
Single Step Task/Activity	Placed worksheet screen	Daily worksheet to ask 10 or more problems.
	Collect data on a skill that happens daily	Identify the next number in the calendar.
Multi-Trial/Multi-Step Task/Activity	Trial	Each time data is taken the student gets a set number of trials (e.g., five opportunities to identify coins).
	Task Analysis	Five steps for completing a shopping list from a given recipe.
Time Segments	Attending to Task	During reading, attend to the story for five minutes with data taken every minute.



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### Administration Window

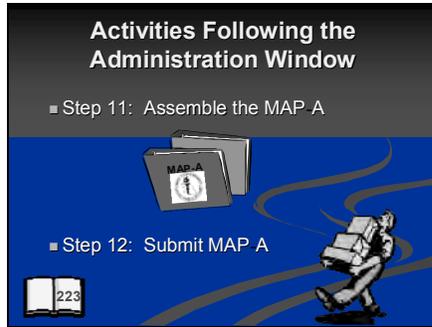
- Step 7: Collect and record data
- Step 8: Select Student Work Records and student work
- Step 9: Complete Student Work Record
- Step 10: Complete Entry/Data Summary Sheet



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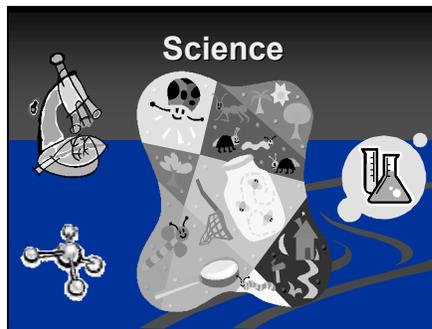
### Activities Following the Administration Window

- Step 11: Assemble the MAP A
- Step 12: Submit MAP A



Slide 25

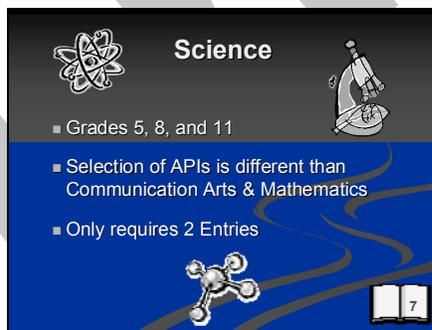
### Science



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### Science

- Grades 5, 8, and 11
- Selection of APIs is different than Communication Arts & Mathematics
- Only requires 2 Entries



Slide 27

### Science

- Each entry must assess 2 different APIs
  - ONE from each grade specific science CONTENT Strand (Strands 1-6), and
  - ONE from each grade specific Science PROCESS Strand (Strands 7 & 8)
- MAP A Science assesses 4 APIs
- APIs are paired, and a SCIENCE activity that addresses both is designed and assessed



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### Science APIs Elementary, Grade 5

Title of strand	Grade Focus
<b>PROCESS STRANDS</b>	
• Strand 7: Scientific Inquiry (IN)	Required for Grades 5, 8, & 11
• Strand 8: Impact of Science, Technology, and Human Activity (ST)	Required for Grades 5, 8, & 11
<b>CONTENT STRANDS</b>	
• Strand 3: Characteristics and Interactions of Living Organisms (LO)	Required for Elementary Grade 5
• Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)	Required for Elementary Grade 5



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### Science APIs Middle School – Grades 6, 7, & 8

Title of Strand	Grade Focus
<b>Process Strands</b>	
• Strand 7: Scientific Inquiry (IN)	Required for Grades 5, 8, & 11
• Strand 8: Impact of Science, Technology and Human Activity (ST)	Required for Grades 5, 8, & 11
<b>Content Strands</b>	
• Strand 1: Properties and Principles of Matter and Energy (ME)	Required for Middle School Grade 6
• Strand 2: Properties and Principles of Force and Motion (FM)	Required for Middle School Grade 8



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**Science APIs**  
High School – Grades 11

Title of Strand	Grade Focus
<b>Process Strands</b>	
• Strand 7: Scientific Inquiry (SI)	Required for Grades: 5, 8, 11
• Strand 8: Impact of Science, Technology and Human Activity (ST)	Required for Grades: 5, 8, 11
<b>Content Strands</b>	
• Strand 5: Process and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)	Required for High School Grade: 11
• Strand 6: Composition and Structure of the Universe and the Motion of the Objects Within It (UN)	Required for High School Grade: 11

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**Glossary and Hierarchy of Terms Developed by the Science AGLE Review Committee**

Terms	Definitions
<b>Explore</b>	Use of one or more of the five senses <sup>1</sup> to participate within a science content activity.
<b>Identify</b>	Measurable recognition of a science concept (this may be done in many modes, such as matching, labeling, naming, signing, pointing, and/or touching.)
<b>Investigate</b>	Conduct an science inquiry for purpose of gaining information.
<b>Describe</b>	Communicate/convey information about a science concept.
<b>Compare/Contrast</b>	Identify similarities and differences about a science concept.
<b>Predict</b>	Use of prior knowledge to determine what will or could happen within the context of a science activity.
<b>*Five Senses</b>	Use of smell, hearing, sight, taste and/or touch (includes sensory feeling, such as how your body feels when a car slows down).

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**API Glossaries**

- API Glossaries are located at the beginning of each Content Area (Mathematics, Communication Arts, and Science)
- No longer highlighted or underlined in Grade Span Documents
- Reference point for teachers
- Manual Glossary (p.225)



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Mathematics & Communication Arts	
Activities Demonstrating Acquisition and Application	
Acquisition	Application through Standards-based Activities
Identify words that are used with inflection	Read several paragraphs from a novel or reader and student identifying highlighted words
Copy spelling words	Correct the misspelling in words in a journal entry
Track search activities	Track search activities to use in a paper or a story book
Use word practice of math facts	Application of math facts to determine length of a word
Use word practice of equations	Identify equations to use to solve problems
Increase fluency of adding	Increase fluency of adding to identify the math facts
Use word practice of subtraction	Identify equations of a structure to identify the math facts
Use word practice of multiplication	Identify equations of what makes the math facts
Use word practice of division	Identify equations of what makes the math facts
Copy science words	Correct use of science terms in a journal entry to describe an investigation
Track search activities	Track search activities to use in a paper or a story book
Use word practice of multiplication	Identify equations of what makes the math facts
Use word practice of division	Identify equations of what makes the math facts

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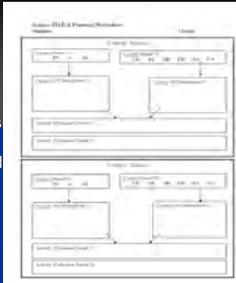
### Application in Science

- Application is shown when the activity asks the student to apply a set of skills with an objective in mind
- e.g., Student records temperature using a thermometer (Process Strand). Connecting this Strand to how weather affects humans (Content Strand) – a potential application could be shown when the student selects items of clothing appropriate for the temperature on the thermometer
- Student **MUST USE SKILL** to complete an activity for purpose other than practice.

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### Planning Worksheet

- Use as a tool to assist in linking APIs with Process and Content Strands and their activities.
- Planning Worksheet is optional. Do not include in MAP A submission.



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### API Linkage for MAP-A Science

- Tables have been designed to show possible linkages between the Process and Content Strands required for each grade span assessment.
- Science:
  - ME – Properties and Principles of Matter and Energy
  - FM – Properties and Principles of Force and Motion
  - LO – Characteristics and Interactions of Living Organisms
  - EC – Changes in Ecosystems and Interactions of Organisms with their environment
  - ES – Process and Interactions of the Earth Systems (Geosphere, Atmosphere, and Hydrosphere)
  - UN – Composition and structure of the universe and Motion of the objects within it
  - IN – Scientific Inquiry
  - ST – Impact of Science, Technology, and Human Activity

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### API Linkage Document

Each table lists items 2 defined APIs, DME from each grade-specific Science Framework (1-5), and API's from each grade-specific Science Framework (1-5).

MAP-A Science strand 2 APIs

API's are grouped into 4 STW's, activities that address both 2a-2b and 2c

Grade 5 - Content Strands 1 and 4  
Grade 6 - Content Strands 1 and 2  
Grade 7 - Content Strands 1 and 2  
Grade 8 - 2a, 2b, 2c  
Grade 9 - 2a, 2b, 2c  
Grade 10 - 2a, 2b, 2c  
Grade 11 - 2a, 2b, 2c  
Grade 12 - 2a, 2b, 2c

Grade	API	ME	FM	LO	EC	ES	UN	IN	ST
5	1								
5	2								
5	3								
5	4								
5	5								
6	1								
6	2								
6	3								
6	4								
6	5								
7	1								
7	2								
7	3								
7	4								
7	5								
8	1								
8	2								
8	3								
8	4								
8	5								
9	1								
9	2								
9	3								
9	4								
9	5								
10	1								
10	2								
10	3								
10	4								
10	5								
11	1								
11	2								
11	3								
11	4								
11	5								
12	1								
12	2								
12	3								
12	4								
12	5								

The information on this table is for informational purposes only. It is not intended to be used as a reference for the MAP-A Science strand 2 APIs. The actual MAP-A Science strand 2 APIs are located in the MAP-A Science Framework (1-5).

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**Lessons Learned**

- APIs - What s the Big Idea?
- Science Pilot
  - The science of APIs
  - Website or thermometer?
  - Explore vs. Investigate
- **Application vs. Acquisition**
  - Setting does not = application

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**Lessons Learned**

- ProFile - test it out ahead of time

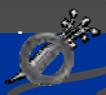


- Remember, mistakes can and do affect the MAP A score!

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**Preventing common mistakes**

- ...which may affect the MAP A score:
  - Avoid Carrots
  - No Photographs
  - Sample Student Work Properly
  - Submit Required Forms and 8 ½ X 11 Ordered Pages



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### How Many Pages in a MAP-A?

Table 6: Requirements for Proper MAP-A Data Collection

Students Assessed	Assessments		
	Mathematics	Communication Arts	Science
Grade	3, 4, 10	3, 4, 11	3, 4, 11
# of Standards Assessed	2	2	4
# of APIs required per student	2	2	1
# of Entries Reported	4	4	2
Minimum # of Pages per Entry	3	3	5
Minimum pages per student area	12	12	6



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- ### How Many Pages in a MAP-A?
- Entry/Data Summary Sheet
    - Attach API Duplication/Justification Form if appropriate
  - Student Work Record
    - Attach tangible student work if appropriate
  - Table of Contents Checklist
  - Validation Form

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- ### Preventing common mistakes
- ...which do affect the MAP-A score.
    - Select Grade Appropriate APIs
    - Connect the Activity to the API
    - Describe Level of Accuracy and Level of Independence Evaluations
    - Application, Application, Application
- 

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**Profile** 

- **Web Based Version Offered** (in addition to Downloadable Version)
  - Website -
  - **Pros** - run from any computer that has an internet connection, if a glitch/bug is discovered it can be corrected at the website level - no need for the user to apply a patch, data is pretty secure (SSL is used for encryption - same as banking industry), loss of data is unlikely.
  - **Cons** - printing cannot be formatted as precisely some variability from computer to computer, printing is page by page - not entire portfolio at once.

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**Profile** 

- **Downloadable Software** -  
<http://www.measuredprogress.org/Assessment/SpecialEducation/T/issoun.html>
- **Pros** - run it on just about any computer, does not need internet connection, printing formats easier and prettier.
- **Cons** - though possible, harder to move from machine to machine (i.e., school to home), might need to apply an update if a glitch/bug is discovered, possible corruption of data files and loss of data

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**Profile** 

- **Updated & New Forms**
  - **Entry/Data Summary Sheets** - Updated
  - **Justification Form** - will be prompted automatically by selecting 'Yes' on the Entry/Data Summary Sheet to the question regarding duplicating APIs.

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### MAP-A Timeline

- Enrollment Window October 1 – October 31
- MAP A Materials Ship December 7 – January 7
- Transfer Exempt Date January 11
- Collection Period 1 January 14 – February 8
- Collection Period 2 February 11 – March 7
- Return by Date March 18



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### MAP-A Enrollment



The screenshot shows the MAP-A Enrollment login page. At the top left is the ARC logo (Assessment Resource Center, University of Missouri-Columbia). Below the logo is a navigation menu with links for 'About ARC', 'FTE Services', 'College DAE', 'Security, Evaluation, & Accreditation Services', and 'MO Learning Resources'. The main content area is titled 'Welcome To MAP-A Login' and contains a 'User Name' field, a 'Password' field, and a 'Log In' button. At the bottom of the page is the URL [map-enrollment.arc.missouri.edu](http://map-enrollment.arc.missouri.edu).

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### Content/Process Questions

- **DESE:**
  - Phone (800) 845 3545
- **Regional Professional Development Centers (RPDC)**
  - Heart of Missouri RPDC - Columbia 800 214 2753
  - Kansas City RPDC - Kansas City 800 555 9048
  - Northeast RPDC - Kirksville 888 878 7732
  - Northwest RPDC - Maryville 800 663 3348
  - St. Louis RPDC - St. Louis 800 835 8202
  - South Central RPDC - Rolla 800 687 0665
  - Southeast RPDC - Cape Girardeau 800 401 6680
  - Southwest RPDC - Springfield 800 735 3702
  - Central RPDC - Warrensburg 800 762 4146



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### Policy Questions

Department of Elementary and Secondary Education  
(DESE)

- Lin Everett
  - [Lin.Everett@dese.mo.gov](mailto:Lin.Everett@dese.mo.gov)
  - Phone (573) 526 4295
- Andrea Wood
  - [Andrea.Wood@dese.mo.gov](mailto:Andrea.Wood@dese.mo.gov)
  - Phone (800) 845 3545
- Michael Muenks
  - [Michael.Muenks@dese.mo.gov](mailto:Michael.Muenks@dese.mo.gov)
  - Phone (800) 845 3545

■ <http://dese.mo.gov/divimprove/assess/mapa.html>



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### ProFile Questions

- Measured Progress
  - John Cunningham
    - [jcunningham@measuredprogress.org](mailto:jcunningham@measuredprogress.org)
    - Phone (866) 834 8901 (no voicemail)



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### Materials/Process Questions

- Assessment Resource Center
  - Lisa Sireno
    - [sireno@missouri.edu](mailto:sireno@missouri.edu)
    - Phone (800) 366 8232
  - Becky Hinshaw
    - [hinshawb@missouri.edu](mailto:hinshawb@missouri.edu)
    - Phone (800) 366 8232



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Draft

## Student Samples

This section contains three sample MAP-A entries for the fictional fifth grade student, Andi. Andi was assessed in Mathematics, Communication Art, and Science with three interconnected sets of activities.

Draft

**Entry/Data Summary Sheet**  
**Mathematics/Communication Arts**

<b>Student Name: Andi</b>				<b>Grade: 5</b>		
<b>Content Area: Mathematics</b>				<b>Strand: AR</b>		
<b>API: AR7.1.b Analyze change in a variety of situations. Engage in activities to keep track of change (e.g., keep track of outside temperature).</b>						
<b>Has this student been assessed on this API in previous years?    Yes <input checked="" type="checkbox"/>    No <input type="checkbox"/></b>						
	<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>		
	Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.		
<b>Date</b>	1/28/2008	1/18/2008	2/1/2008	2/15/2008	2/22/2008	2/29/2008
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>	100	67	100	100	100	100
<b>Independence %</b>	83	83	83	100	100	100
<b>Average % for Collection Period</b>	Accuracy: 89			Accuracy: 100		
	Independence: 83			Independence: 100		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	95
<b>Level of Independence</b>	92

**API Duplication Justification Form**  
**Mathematics/Communication Arts**

<b>Student Name: Andi</b>	<b>Grade: 5</b>
<b>Content Area: Mathematics</b>	<b>Strand: AR</b>
<b>API: AR7.1.b</b> Analyze Change in a variety of situations. Engage in activities to keep track of change (e.g., keep track of outside temperature).	
<b>You indicated that this student has been assessed on this API in previous years.</b>	
<b>The instructional decision to duplicate an API from a prior year's MAP-A assessment must be justified on this form. The justification must be included with the MAP-A submission.</b>	
<b>Justification/Rationale: (Supply specific justification for duplicate use of the API.)</b> Andi began working last year with this API concept. She acquired some of the foundational skills of measurement; however, Andi was unable to utilize her acquired data to analyze and make decisions about the concept of change over time.	
<b>Plan of Student Progress: (Supply specific plans in place to assure student growth across API's content.)</b> This year Andi has demonstrated she can apply the skill in the API. Next year she will move on and no plans exist to assess this API with the MAP-A next year.	

**Student Work Record**  
**Mathematics/Communication Arts**  
 Attach student work sample if appropriate.

<b>Student Name: Andi</b>	<b>Grade: 5</b>	<b>Date: 1/28/2009</b>
<b>Content Area: Mathematics</b>		<b>Strand: AR</b>
<b>API: AR7.1.b</b> Analyze change in a variety of situations. Engage in activities to keep track of change (e.g., keep track of outside temperature).		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)</p> <p>While completing a long-term science assignment, Andi recorded the length of the class' pet baby gerbils, indicating how much they had grown each week. Andi measured three baby gerbils each day. At the end of the week, she indicated what change in length occurred for each gerbil, if any, during the week. 18 points were possible, 15 for the measuring, (3 gerbils x 5 days) and 3 for analysis (change in 3 gerbils at the end of the week).</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi accurately measured the gerbils each day for a total of 15 points, and indicated that all three were "bigger" at the end of the week. She scored 18 out of 18.</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi needed assistance to accurately track the measurements of all three gerbils during the first day. Out of 18 tasks, she performed 15 independently.</p>	
<b>Level of Accuracy <u>100%</u></b>		<b>Level of Independence <u>83%</u></b>

**Student Work Record**  
**Mathematics/Communication Arts**  
 Attach student work sample if appropriate.

<b>Student Name: Andi</b>	<b>Grade: 5</b>	<b>Date: 2/15/2009</b>
<b>Content Area: Mathematics</b>		<b>Strand: AR</b>
<b>API: AR7.1.b</b> Analyze change in a variety of situations. Engage in activities to keep track of change (e.g., keep track of outside temperature).		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)</p> <p>While completing a long-term science assignment, Andi recorded the length of the class' pet baby gerbils, indicating how much they had grown each week. Andi measured three baby gerbils each day. At the end of the week, she indicated what change in length occurred for each gerbil, if any, during the week. 18 points were possible, 15 for the measuring, (3 gerbils x 5 days) and 3 for analysis (change in 3 gerbils at the end of the week).</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi accurately measured the gerbils each day for a total of 15 points, and indicated that all three were "bigger" at the end of the week. She scored 18 out of 18.</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi performed all 18 tasks independently.</p>	
<b>Level of Accuracy <u>100%</u></b>	<b>Level of Independence <u>100%</u></b>	

**Entry/Data Summary Sheet**  
**Mathematics/Communication Arts**

<b>Student Name: Andi</b>				<b>Grade: 5</b>		
<b>Content Area: Communication Arts</b>				<b>Strand: RP</b>		
<b>API: RP4.3 Identify similarities and differences between fiction and nonfiction (real vs. make- believe).</b>						
<b>Has this student been assessed on this API in previous years?    Yes X    No <input type="checkbox"/></b>						
	<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>		
	Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.		
<b>Date</b>	2/04/2008	1/16/2008	1/24/2008	3/3/2008	2/14/2008	2/19/2008
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>	75	100	75	100	75	75
<b>Independence %</b>	100	100	100	100	100	100
<b>Average % for Collection Period</b>	Accuracy: 83			Accuracy: 83		
	Independence: 100			Independence: 100		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	83
<b>Level of Independence</b>	100

**Student Work Record**  
**Mathematics/Communication Arts**  
 Attach student work sample if appropriate.

<b>Student Name: Andi</b>	<b>Grade: 5</b>	<b>Date: 2/04/2009</b>
<b>Content Area: Communication Arts</b>		<b>Strand: RP</b>
<b>API: RP4.3 Identify similarities and differences between fiction and nonfiction (real vs. make-believe).</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)</p> <p>The students read a story about a gerbil named Henry, a pet cat, and a red scooter that he rode to school. They also read a non-fiction article about the growth and maturation of gerbils. Students were asked to describe two similarities and two differences between the story and the article. Andi used picture and symbol cards to illustrate the similarities and differences on a bulletin board display.</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi accurately described two similarities and one difference. She incorrectly described one difference. 3/4</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi independently completed all four sections of her display piece.</p>	
<b>Level of Accuracy <u>75%</u></b>		<b>Level of Independence <u>100%</u></b>

**Student Work Record**  
**Mathematics/Communication Arts**  
 Attach student work sample if appropriate.

<b>Student Name: Andi</b>	<b>Grade: 5</b>	<b>Date: 3/03/2009</b>
<b>Content Area: Communication Arts</b>		<b>Strand: RP</b>
<b>API: RP4.3 Identify similarities and differences between fiction and nonfiction (real vs. make-believe).</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)</p> <p>The students read a story about hamsters and gerbils who need reading glasses for school. They also read a non-fiction article about the age at which the eyes of dogs, cats, gerbils, rabbits, and guinea pigs remain open. Students were asked to describe two similarities and two differences between the story and the article. Andi used picture and symbol cards to illustrate the similarities and differences on a bulletin board display.</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi accurately described two similarities and two differences.</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi independently completed all four sections of her display piece.</p>	
<b>Level of Accuracy <u>100%</u></b>	<b>Level of Independence <u>100%</u></b>	

## Entry/Data Summary Sheet Science

<b>Student Name: Andi</b>				<b>Grade: 5</b>		
<b>Content Area: Science</b>				<b>Process Strand: IN</b>		
				<b>Content Strand: LO</b>		
<b>Process API: IN5.1</b>		<b>Process API Description: Communicate observations and /or events</b>				
<b>Content API: LO 2.3a</b>		<b>Content API Description: Identify the life cycle that animals go through</b>				
	<b>Collection Period 1 January 14 – February 8</b>			<b>Collection Period 2 February 11 – March 7</b>		
	Dates below do not need to be in chronological order.			Dates below do not need to be in chronological order.		
<b>Date</b>	2/01/2008	1/25/2008	2/8/2008	2/22/2008	2/15/2008	2/29/2008
<b>Data Type</b>	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
<b>Accuracy %</b>	60	80	60	80	80	80
<b>Independence %</b>	100	100	100	100	100	100
<b>Average % for Collection Period</b>	Accuracy:67			Accuracy: 80		
	Independence: 100			Independence: 100		

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	74
<b>Level of Independence</b>	100

## Student Work Record Science

Attach student work sample if appropriate.

<b>Student Name:</b> Andi	<b>Grade:</b> 5	<b>Date:</b> 2/01/2009
<b>Content Area:</b> Science		<b>Process Strand:</b> IN <b>Content Strand:</b> LO
<b>Process API:</b> IN5.1 <b>Content API:</b> LO 2.3a	<b>Process API Description:</b> Communicate observations and /or events <b>Content API Description:</b> Identify the life cycle that animals go through	
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.)</p> <p>The class pet gerbils had babies. The students observed the baby gerbils shortly after birth. Each student selected one baby to observe, and using a data chart and picture or symbol cards recorded color, length, presence/absence of fur, whether the gerbils' eyes were opened or closed, and point in the life cycle (baby or adult). The class then discussed their observations and their data charts were combined and posted on the bulletin board as part of the living organisms unit.</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi observed the baby gerbil and discussed how it looked. She identified point in life cycle as baby and correctly recorded color and length. 3/5</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi independently completed each portion of the data chart.</p>	
<b>Level of Accuracy:</b> <u>60%</u>	<b>Level of Independence:</b> <u>100%</u>	

**Student Work Record**  
**Science**

Attach student work sample if appropriate.

Student Name: Andi	Grade: 5	Date: 2/22/2009
Content Area: Science		Process Strand: IN Content Strand: LO
Process API: IN5.1 Content API: LO 2.3a		Process API Description: Communicate observations and /or events Content API Description: Identify the life cycle that animals go through
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to both APIs, and how it demonstrates application.)</p> <p>The class pet gerbils had babies. The students observed the baby gerbils shortly after birth. Each student selected one baby to observe, and using a data chart and picture or symbol cards recorded color, length, presence/absence of fur, whether the gerbil's eyes were opened or closed, and point in the life cycle (baby or adult). The class then discussed their observations and their data charts were combined and posted on the bulletin board as part of the living organisms unit.</p>		
<b>Evaluation of Student's Performance:</b>		
<p>Describe and evaluate the student's actual accuracy performance. Describe how the percentages were determined for <b>Level of Accuracy</b>.</p> <p>Andi observed the baby gerbil and discussed how it looked. She was able to describe point in the life cycle and correctly recorded color, length, and whether the gerbil's eyes were opened. 4/5</p>	<p>Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for <b>Level of Independence</b>.</p> <p>Andi independently completed each portion of the data chart.</p>	
<b>Level of Accuracy: 80%</b>	<b>Level of Independence: 100%</b>	

## Appendix F: MAP-A Scoring Criteria

Mathematics and Communication Arts must address **two strands** as indicated on the Assessment Blueprint. Within each strand, **two different** Alternate Performance Indicators (APIs) are assessed, each in a single entry. Science must address **four strands** (two process and two content) as indicated on the Assessment Blueprint, assessing one API per strand. Two APIs, one content and one process are assessed in a single entry. The rubric will be applied to each **entry** addressed in the MAP-A.

### Level of Accuracy Rubric and Scoring

How accurate is the student's performance of the skills and concepts addressed in the MAP-A? See the rubric in Table E.1 below. Table E.2 describes how each level of this rubric dimension is scored.

**Table F.1: Level of Accuracy Rubric**

Level of Accuracy Rubric					
SCORE	4	3	2	1	No Score
<b>Level of Accuracy</b> (Based on Alternate Performance Indicators)	Student performance of skills demonstrates a high level of understanding of concepts. <b>76–100%</b> <b>Accuracy</b>	Student performance of skills demonstrates some understanding of concepts. <b>51–75%</b> <b>Accuracy</b>	Student performance of skills demonstrates a limited understanding of concepts. <b>26–50%</b> <b>Accuracy</b>	Student performance of skills demonstrates a minimal understanding of concepts. <b>0–25%</b> <b>Accuracy</b>	Entry contains insufficient information to determine a score.

**Table F.2: Description of Scoring Rubric Dimensions for Level of Accuracy**

Score Point	Description
4	The Entry/Data Summary Sheet indicates the student provided an accurate answer or response an average of 76–100% of the time across the two data collection periods.
3	The Entry/Data Summary Sheet indicates the student provided an accurate answer or response an average of 51–75% of the time across the two data collection periods.
2	The Entry/Data Summary Sheet indicates the student provided an accurate answer or response an average of 26–50% of the time across the two data collection periods.
1	The Entry/Data Summary Sheet indicates the student provided an accurate answer or response an average of 0–25% of the time across the two data collection periods.
NS	Insufficient information was given. The Entry/Data Summary Sheet was incomplete. Each API must have six data points (three per collection period) as indicated on the Entry/Data Summary Sheet.

All data must be reported as a percentage score on the Entry/Data Summary Sheet. More information is provided in the *Instructor’s Guide and Implementation Manual* regarding data collection strategies. The teacher averages the two data periods. The student’s level of accuracy for each entry will be determined from the average score.

## Level of Independence

How independent is the student in demonstrating knowledge and skills addressed in the MAP-A? See the rubric in Table E.3 below. Table E.4 describes how each level of this rubric dimension is scored.

**Table F.3: Level of Independence Rubric**

Level of Independence Rubric					
SCORE	4	3	2	1	No Score
<b>Level of Independence</b>	Student requires minimal verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>76–100% Independence</b>	Student requires some verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>51–75% Independence</b>	Student requires frequent verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>26–50% Independence</b>	Student requires extensive verbal, visual, and/or physical assistance to demonstrate skills and concepts. <b>0–25% Independence</b>	Entry contains insufficient information to determine a score.

**Table F.4: Description of Scoring Rubric Dimensions for Level of Independence**

Score Point	Description
4	The Entry/Data Summary Sheet indicates the student demonstrates skills and concepts independently an average of 76–100% of the time across the two data collection periods. The student required minimal (0–24% of the time) cueing, prompting, or assistance.
3	The Entry/Data Summary Sheet indicates the student demonstrates skills and concepts independently an average of 51–75% of the time across the two data collection periods. The student required some (25–49% of the time) cueing, prompting, or assistance.
2	The Entry/Data Summary Sheet indicates the student demonstrates skills and concepts independently an average of 26–50% of the time across the two data collection periods. The student required frequent (50–74% of the time) cueing, prompting, or assistance.
1	The Entry/Data Summary Sheet indicates the student demonstrates skills and concepts independently an average of 0–25% of the time across the two data collection periods. The student required extensive (75–100% of the time) cueing, prompting, or assistance.
NS	Insufficient information was given. The Entry/Data Summary Sheet was incomplete. Each API must have six data points (three per collection period) as indicated on the Entry/Data Summary Sheet.

All data must be reported as a percentage score on the Entry/Data Summary Sheet. More information is provided in the *Instructor’s Guide and Implementation Manual* regarding data collection strategies. The teacher averages the two data periods. The student’s level of independence for each API entry will be determined from the average score.

For the purpose of determining level of independence on the MAP-A, percentages are assigned to work that students perform independently. Different levels of assistance may be necessary for the student to perform a skill or complete a task and would be considered task specific assistance.

**Cues, prompts, or assistance needed to redirect attention to or focus on a task is considered non-task specific assistance and would not affect a student’s independence on the task.**

A student who participates in an activity without a task specific prompt from the teacher scores 100% level of independence. Examples of task specific assistance are outlined in Table E.5.

**Table F.5: Examples of Task Specific Assistance**

Type of Assistance	Description
<b>Gestural Prompt</b>	Natural prompts of a nonverbal nature that tell a student what to do (e.g., hand movement, pointing, facial expressions). Gestural prompts are easy to use and do not involve direct physical contact.
<b>Verbal Prompt</b>	Spoken statements that help students respond correctly. Verbal prompts guide students on <b>how</b> to respond rather than tell them that they are to respond (e.g., how to do all or part of the skill); give them a rule to use; and/or provide hints.
<b>Model</b>	Demonstrating a desired behavior in order to prompt an imitative response.
<b>Partial Physical Prompt</b>	Requires that teachers physically guide the students through the target skill/task, but at a less intrusive level (e.g., hand over wrist, elbow, shoulder).
<b>Full Physical Prompt</b>	Requires that the teacher place his/her hand on top of student's hand and physically guide the student through the target behavior/task (hand over hand). The teacher, rather than the student, exerts the effort, which minimizes errors. Full physical prompts are the most intrusive type of prompt.

The cues or prompts in Table E.6 typically refer to non-task specific assistance. The use of these types of redirection or focus on the task **should not be considered levels of assistance when determining level of independence.**

**Table F.6: Forms of Non-Task Specific Assistance**

<b>Form of Assistance</b>	<b>Description</b>
<b>Environmental Prompt</b>	Naturally occurring cue used by teachers to alert all students to an appropriate behavior (e.g., the bell ringing to signal it is time to go to lunch, flipping the light switch to get everyone’s attention).
<b>Redirection</b>	Repeating directions, rules, etc. when needed to help a student get back on task.
<b>Focus</b>	Encouraging the student to stay with the task, or to keep going.
<b>Minimum Physical Prompt</b>	Requires that teachers lightly touch the student but do not control their movements. The light touch is used to redirect or focus the student on the task.

## Connection to the Standards

Do the submitted Student Work Records provide evidence of the application of the Alternate Performance Indicator in standards-based activities? See the rubric in Table E.7. Table E.8 describes how each level of this rubric dimension is scored.

**Table F.7: Connection to the Standards Rubric**

<b>Connection to the Standards Rubric</b>				
<b>SCORE</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>No Score</b>
<b>Connection to the Standards</b>	There is evidence of applying the Alternate Performance Indicator/s in two standards-based activities, one in each of two collection periods.	There is evidence of applying the Alternate Performance Indicator/s in at least one standards-based activity, one out of two collection periods.	There is some evidence of a connection to the Alternate Performance Indicator/s.	There is insufficient evidence of a connection to the Alternate Performance Indicator/s.

**Table F.8: Description of Scoring Rubric Dimensions for Connection to the Standards**

<b>Score Point</b>	<b>Description</b>
<b>3</b>	The Student Work Records provide documentation of the application of the API in two standards-based activities, one per collection period.
<b>2</b>	The Student Work Records provide documentation of the application of the API in one standards-based activity (one out of two collection periods).
<b>1</b>	The Student Work Records provide documentation of the API but do not include application of the API in standards-based activities.
<b>NS</b>	Insufficient information was given. There were no work samples included for the API or the work samples submitted were not connected to the API.

Following are guidelines for submitting work to ensure sufficient evidence is provided for the application of the APIs:

1. A Student Work Record must be submitted for each collection period.
2. Student Work Records must be dated. Each date must match a corresponding date on the Entry/Data Summary Sheet.
3. If tangible student work is submitted without a Student Work Record attached, the work will not be scored for Connection to the Standards.
4. If the Student Work Record does not have the student interaction and/or evaluation portions completed, the work will not be scored for Connection to the Standards.

## **Application in Mathematics and Communication Arts**

Standards-based activities are more likely to show evidence of instruction toward the application of state standards. Even though entries may connect to the API, if Student Work Records do not show application of the skill, the score on the assessment will be affected.

When deciding if an activity is an example of acquisition or application, consider the answer to the question, “What is the purpose of the activity?” If the purpose of the activity is simply to practice something, it is most likely an example of acquisition. Application activities require the student to apply skills. In other words, the student must use a skill to complete an activity for a purpose other than practicing the skill. The application activity often results in some type of end product.

## **Application in Science**

As previously mentioned, standards-based activities are more likely to show evidence of instruction toward the application of state standards. In Science, because it is required to link a Process Strand with a Content Strand, application is shown by having the student to apply a set of skills with an objective in mind.

For example: a student records the temperature of a thermometer, thus using the Process Strand skill of gathering scientific information. By connecting this skill to a Content Strand—such as understanding how weather affects humans—a possible application could be shown by having the student select items of clothing that are appropriate to the temperature on the thermometer.

If the purpose of the activity is simply to practice something, and there is no objective, it is most likely an example of acquisition. The student must use a skill to complete an activity for a purpose other than practicing the skill.

Table F.9 compares acquisition activities (skill and drill) to standards-based application activities.

**Table F.9: Activities Demonstrating Acquisition versus Application**

<b>Acquisition</b>	<b>Application through Standards based Activities</b>
Key word drill and skill with flashcards	Key words highlighted in a weekly reader with student identifying highlighted words
Copy spelling words	Correct use of spelling words in a journal entry
Track switch activation	Track switch activation to turn a page in a storybook
Flashcard practice of math facts	Application of math facts to determine lunch count
Flashcard practice of organism parts	Identifying organism parts to make qualitative observations by participating in a class game of Organism Bingo
Increase duration of attending	Increase duration of attending to a story to identify the main idea
Sort ingredients by attribute	Sort ingredients of a mixture to identify/communicate their observation of what makes up the mixture
Sort coins into piles of like coins	Sort coins needed to make a purchase (e.g., quarters for a juice from the vending machine)
Copy science words	Correct use of science terms in a journal entry to describe an investigation.
Track switch activation	Track switch activation to turn a page in a science article, magazine, and/or textbook to participate in class exploration of life cycles.
Sort genetic information into piles of like genetic information	Sort genetic information of parents and off-spring to determine what information is passed along from the parents to new off-spring (e.g., humans, and/or animals) to communicate the results of their investigation.

# Appendix G: Sample Reports

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## 2008 MAP-A Paper Reporting

Report packages sent to districts included the mathematics and communication arts reports for students who reside and/or attend in the district. Each packet contained the following items:

Letter to District Testing Coordinator	
District Report	2 copies per district
(For the State Schools for Severely Handicapped, the State Schools Building Report, the State Schools Report, and the State Schools District Report were included in lieu of a District Report.)	
Mathematics Reports	
Individual Student Report-Parent	2 copies per student
Individual Student Report-Teacher	2 copies per student
Student Record Label	1 copy per student
Communication Arts Reports	
Individual Student Report-Parent	2 copies per student
Individual Student Report-Teacher	2 copies per student
Student Record Label	1 copy per student
Science Reports	
Individual Student Report-Parent	2 copies per student
Individual Student Report-Teacher	2 copies per student
Student Record Label	1 copy per student
Packing Slip	
Roster	

<b>MAP-A Communication Arts Achievement Level: Basic</b>																																							
<p><b>Advanced:</b> Student has a high level of understanding of the concepts contained in the grade-appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be closely connected to the standards and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.</p> <p><b>Proficient:</b> Student has some understanding of the concepts contained in the grade-appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be connected to the standards and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.</p> <p><b>Basic:</b> Student has a limited understanding of the concepts contained in the grade-appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be somewhat connected to the standards. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.</p> <p><b>Below Basic:</b> Student has a minimal understanding of the concepts contained in the grade-appropriate APIs within the standards of Reading and Writing Development and Processes. Student work may be loosely connected to the standards. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.</p> <p><b>Level not Determined (LND):</b> Insufficient evidence was reported to assign raw scores to this student's MAP-A, therefore, no achievement level may be assigned.</p>	<table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">API description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><b>Strand 1</b></td> <td></td> </tr> <tr> <td style="vertical-align: top;"> <b>RD1.1:</b> Attend to literacy-based materials. </td> <td> <table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>4</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> </table> </td> </tr> <tr> <td style="vertical-align: top;"> <b>RD1.6:</b> Understand punctuation as meaning. </td> <td> <table border="1"> <tr><td>Level of Accuracy</td><td>0</td></tr> <tr><td>Level of Independence</td><td>0</td></tr> <tr><td>Connection to Standards</td><td>0</td></tr> </table> </td> </tr> <tr> <td style="vertical-align: top;"> <b>WP2.3:</b> Relate a series of events in chronological order, including beginning and end. </td> <td> <table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>3</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> </table> </td> </tr> <tr> <td style="vertical-align: top;"> <b>Strand 2</b></td> <td></td> </tr> <tr> <td style="vertical-align: top;"> <b>WP5.5:</b> Identify appropriate format (e.g., friendly letters, thank-you notes, lists, messages, journals, etc.). </td> <td> <table border="1"> <tr><td>Level of Accuracy</td><td>0</td></tr> <tr><td>Level of Independence</td><td>0</td></tr> <tr><td>Connection to Standards</td><td>0</td></tr> </table> </td> </tr> </tbody> </table>	API description		<b>Strand 1</b>		<b>RD1.1:</b> Attend to literacy-based materials.	<table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>4</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> </table>	Level of Accuracy	4	Level of Independence	4	Connection to Standards	3	<b>RD1.6:</b> Understand punctuation as meaning.	<table border="1"> <tr><td>Level of Accuracy</td><td>0</td></tr> <tr><td>Level of Independence</td><td>0</td></tr> <tr><td>Connection to Standards</td><td>0</td></tr> </table>	Level of Accuracy	0	Level of Independence	0	Connection to Standards	0	<b>WP2.3:</b> Relate a series of events in chronological order, including beginning and end.	<table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>3</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> </table>	Level of Accuracy	4	Level of Independence	3	Connection to Standards	3	<b>Strand 2</b>		<b>WP5.5:</b> Identify appropriate format (e.g., friendly letters, thank-you notes, lists, messages, journals, etc.).	<table border="1"> <tr><td>Level of Accuracy</td><td>0</td></tr> <tr><td>Level of Independence</td><td>0</td></tr> <tr><td>Connection to Standards</td><td>0</td></tr> </table>	Level of Accuracy	0	Level of Independence	0	Connection to Standards	0
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<p><b>Student Report</b> <b>Communication Arts</b> <b>(Parent Copy)</b></p>																																							
<p>Name: STUDENT MCSIS: 0000000000 Grade: 7 Birthdate: 6/17/1994</p>																																							
<p>School of Residence: School District County District Code</p>																																							
<p>School of Attendance: School District County District Code</p>																																							

This is a parent's copy of a MAP-A Individual Student Report of achievement in a single content area or subject. The following information may be found on this report.

- Content area assessed (Mathematics, Communication Arts, or Science)
- Student's MAP-A achievement level
- Achievement level descriptors (Advanced, Proficient, Basic, Below Basic, and Level Not Determined)
- Descriptions of the APIs (Alternate Performance Indicators) or API pairs assessed
- Level of Accuracy, Level of Independence, and Connection to Standards scores for each entry

#### MAP-A Background

The Individuals with Disabilities Education Improvement Act (IDEA) of 2004 requires that students with disabilities participate in the general education curriculum with supplementary aides and supports when necessary. IDEA 2004 further requires that students with disabilities be included in all state- and district-wide assessment programs with appropriate accommodations or alternate assessments when necessary, as determined by their Individualized Education Program (IEP) team. In addition, the No Child Left Behind Act (NCLB) of 2001 requires that all students participate in state assessments in English language arts, mathematics, and science and that DESE report student performance to the public.

In Missouri, students with significant cognitive disabilities participate in the MAP-Alternate (MAP-A), ensuring that each student has the opportunity to acquire the knowledge and skills in the Missouri Show-Me Standards.

The MAP-A is a performance-based assessment in which teachers collect data and student work. The collected evidence provides documentation of the student's accuracy and independence and ensures that there is a connection between the Show-Me Standards and instruction.

The MAP-A is

- required by federal law;
- designed only for students with significant cognitive disabilities who meet grade-level and participation criteria;
- reflective of input from an IEP team, which may include teachers, physical therapists, speech therapists, occupational therapists, paraprofessionals, job coaches, parents or guardians, and the student, if appropriate;
- administered at the same grade levels as students participating in Missouri's general assessment; and
- scored using the MAP-A Scoring Rubric; raw scores are then converted to reported achievement levels.

#### Assessment Blueprint

The MAP-A assesses student learning directly connected to the Show-Me Standards through the Alternate Grade-Level Expectations (AGLEs) for students who are MAP-A eligible. The MAP-A assesses student work in each of two strands in Communication Arts and Mathematics and four strands in Science, as shown in the table below.

Content Area	Required Grades	Strand
Mathematics	3-8, & 10	Numbers and Operations
	3-5	Algebraic Relationships and/or Geometric and Spatial Relationships
Communication Arts	6-8	Data and Probability
	10	Measurement
	3-8, & 11	Reading
	3-5	Writing Composition
Science	6-8, & 11	Writing Process
	5, 8, & 11	Scientific Inquiry
	5, 8, & 11	Impact of Science, Technology, and Human Activity
	5	Characteristics and Interactions of Living Organisms
	5	Changes in Ecosystems and Interactions of Organisms with Their Environments
	8	Properties and Principles of Matter and Energy
	8	Properties and Principles of Force and Motion
	11	Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)
	11	Composition and Structure of the Universe and the Motion of the Objects Within It

Alternate Performance Indicators (APIs), component concepts of the strands outlined in the table above, are assessed for each strand. The four specific APIs assessed in this student's MAP-A are listed on the reverse side of this report.

#### Scoring

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy – 4 points possible per entry
- Level of Independence – 4 points possible per entry
- Connection to the Standards – 3 points possible per entry

The entries that make up the MAP-A are assigned a raw score for each of the scoring dimensions. Eleven points are possible for each entry. The raw scores for each API or API pair assessed are reported on the reverse side of this report. Raw scores are totaled and then converted to the overall achievement level reported for the subject area. For more information, see the *Guide to Interpreting MAP-A Results*.

		<p><b>MAP-A 2008</b> Missouri Assessment Program - Alternate</p>									
<p><b>Student Report</b> <b>Mathematics</b> <b>(Teacher Copy)</b></p>		<p>Name: STUDENT MCISIS: 0000000000 Grade: 7 Birthdate: 6/17/1994</p>									
<p>School of Residence: School District County District Code</p>		<p>School of Attendance: School District County District Code</p>									
<p><b>MAP-A Mathematics Achievement Level: Proficient</b></p>											
<p><b>Advanced:</b> Student has a strong understanding of the concepts contained in the grade-appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.</p>											
<p><b>Proficient:</b> Student has a sound understanding of the concepts contained in the grade-appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.</p>											
<p><b>Basic:</b> Student has a fundamental understanding of the concepts contained in the grade-appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.</p>											
<p><b>Below Basic:</b> Student has a minimal understanding of the concepts contained in the grade-appropriate APIs within the strands of Numbers and Operations and Data and Probability. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.</p>											
<p><b>Level not Determined (LND):</b> Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, no achievement level may be assigned.</p>											
		<p>API Description</p>									
<p>Stand 1</p>		<p><b>NO1.5.B:</b> Use the counting sequence to enumerate (count 1 by 1) a collection and to identify "how many" items in a collection. Keep track of counted and uncounted objects so that each object is tagged only once.</p>	<table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>4</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> <tr><td>Comments</td><td></td></tr> </table>	Level of Accuracy	4	Level of Independence	4	Connection to Standards	3	Comments	
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<p>Stand 2</p>		<p><b>NO1.4.B:</b> Represent and number collections of items. Demonstrate that the final number said when counting objects is the quantity of the set (cardinality).</p>	<table border="1"> <tr><td>Level of Accuracy</td><td>0</td></tr> <tr><td>Level of Independence</td><td>0</td></tr> <tr><td>Connection to Standards</td><td>0</td></tr> <tr><td>Comments</td><td>05</td></tr> </table>	Level of Accuracy	0	Level of Independence	0	Connection to Standards	0	Comments	05
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Connection to Standards	0										
Comments	05										
		<p><b>DP7.1.A:</b> Apply basic concepts of probability. Attend to either person using a chance device (e.g., spinner, dice) and to a person recording outcomes of a chance device.</p>	<table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>4</td></tr> <tr><td>Connection to Standards</td><td>3</td></tr> <tr><td>Comments</td><td></td></tr> </table>	Level of Accuracy	4	Level of Independence	4	Connection to Standards	3	Comments	
Level of Accuracy	4										
Level of Independence	4										
Connection to Standards	3										
Comments											
		<p><b>DP3.2.B:</b> Interpret data. Make observational statements about the data (identifying which category in the data set has the most).</p>	<table border="1"> <tr><td>Level of Accuracy</td><td>4</td></tr> <tr><td>Level of Independence</td><td>4</td></tr> <tr><td>Connection to Standards</td><td>1</td></tr> <tr><td>Comments</td><td>14</td></tr> </table>	Level of Accuracy	4	Level of Independence	4	Connection to Standards	1	Comments	14
Level of Accuracy	4										
Level of Independence	4										
Connection to Standards	1										
Comments	14										
		<p>See comment definitions on reverse side.</p>									

This is a teacher's copy of a MAP-A Individual Student Report of achievement in a single content area or subject. The following information may be found on this report:

- Content area assessed (Mathematics, Communication Arts, or Science)
- Student's MAP-A achievement level
- Achievement level descriptors (Advanced, Proficient, Basic, Below Basic, and Level/Not Determined)
- Descriptions of the Alternate Performance Indicators (APIs) or API pairs assessed
- Level of Accuracy, Level of Independence, and Connection to Standards scores for each entry
- Scoring comment codes, if reported, for each entry

**Background**

The Individuals with Disabilities Education Improvement Act (IDEA) of 2004 requires that students with disabilities participate in the general education curriculum with supplementary aides and supports when necessary. IDEA 2004 further requires that students with disabilities be included in all state- and district-wide assessment programs with appropriate accommodations or alternate assessments when necessary, as determined by their Individualized Education Program (IEP) team. In addition, the No Child Left Behind Act (NCLB) of 2001 requires that all students participate in state assessments in English language arts, mathematics, and science and that DESE report student performance to the public. In Missouri, students with significant cognitive disabilities participate in the MAP-Alternate (MAP-A), ensuring that each student has the opportunity to acquire the knowledge and skills in the Missouri Show-Me Standards.

The MAP-A is a performance-based assessment in which teachers collect data and student work. The collected evidence provides documentation of the student's accuracy and independence and ensures that there is a connection between the Show-Me Standards and instruction.

The MAP-A is

- required by federal law;
- designed only for students with significant cognitive disabilities who meet grade-level and participation criteria;
- reflective of input from an IEP team, which may include teachers, physical therapists, speech therapists, occupational therapists, paraprofessionals, job coaches, parents or guardians, and the student, if appropriate;
- administered at the same grade levels as students participating in Missouri's general assessment; and
- scored using the MAP-A Scoring Rotor; raw scores are then converted to reported achievement levels.

Content Area	Required Grades	Strand
Mathematics	3-8, & 10	Numbers and Operations
	3-5	Algebraic Relationships and/or Geometric and Spatial Relationships
	6-8	Data and Probability
	10	Measurement
Communication Arts	3-8, & 11	Reading
	3-5	Writing Composition
	6-8, & 11	Writing Process
Science	5, 8, & 11	Scientific Inquiry
	5, 8, & 11	Impact of Science, Technology, and Human Activity
	5	Characteristics and Interactions of Living Organisms
	5	Changes in Ecosystems and Interactions of Organisms with Their Environments
	8	Properties and Principles of Matter and Energy
Science	8	Properties and Principles of Force and Motion
	11	Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)
	11	Composition and Structure of the Universe and the Motion of the Objects Within It

**Assessment Blueprint**

The MAP-A assesses student learning directly connected to the Show-Me Standards, through the Alternate Grade-Level Expectations (AGLEs) for students who are MAP-A eligible. The MAP-A assesses student work in each of two strands in Communication Arts and Mathematics and four strands in Science, as shown in the table above.

Alternate Performance Indicators (APIs), component concepts of the strands outlined in the table above, are assessed for each strand. The four specific APIs assessed in this student's MAP-A are listed on the reverse side of this report.

**Scoring**

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy – 4 points possible per entry
- Level of Independence – 4 points possible per entry
- Connection to the Standards – 3 points possible per entry

The four entries that make up the MAP-A are assigned a score for each of the scoring dimensions. Eleven points are possible for each entry. The raw scores for each API or API pair assessed are reported on the reverse side of this report. Raw scores are totaled and then converted to the overall achievement level reported for the subject area.

**Scoring Comment Codes**

Irregularities encountered in MAP-A entries during scoring are noted with the codes in the table below. Up to three codes per entry may be reported.

Comment Code	Scoring Irregularity
01	No dates given on Entry/Data Summary Sheet and on Student Work Records.
02	Missing Entry/Data Summary Sheet.
03	A collection period does not have a minimum of three data points.
04	An entry does not include at least one Student Work Record per collection period.
05	A submitted Student Work Record for an entry does not connect to the API(s).
06	One out of two collection periods is incomplete.
07	No API(s) identified.
08	API(s) is/are not grade span appropriate.
09	A single API is used in more than one entry.
10	A single science content strand is used in more than one entry.
11	Missing entry.
12	API(s) is/are not consistent across file two collection periods.
13	Dates on the Entry/Data Summary Sheet and Student Work Records are not within the timeframes of the collection periods.
14	One or more Student Work Records shows acquisition rather than application of the API(s).
15	Tangible student work submitted without a Student Work Record.
16	Submitted percentages are miscalculated.
17	Submitted percentages are miscalculated.
18	Calculations for Accuracy or Independence cannot be verified for a Student Work Record.

Draft

This is a parent's copy of a MAP-A Individual Student Report of achievement in a single content area or subject. The following information may be found on this report.

- Content area assessed (Mathematics, Communication Arts, or Science)
- Student's MAP-A achievement level
- Achievement level descriptors (Advanced, Proficient, Basic, Below Basic, and Level Not Determined)
- Descriptions of the APIs (Alternate Performance Indicators) or API pairs assessed
- Level of Accuracy, Level of Independence, and Connection to Standards scores for each entry

#### MAP-A Background

The Individuals with Disabilities Education Improvement Act (IDEA) of 2004 requires that students with disabilities participate in the general education curriculum with supplementary aides and supports when necessary. IDEA 2004 further requires that students with disabilities be included in all state- and district-wide assessment programs with appropriate accommodations or alternate assessments when necessary, as determined by their Individualized Education Program (IEP) team. In addition, the No Child Left Behind Act (NCLB) of 2001 requires that all students participate in state assessments in English language arts, mathematics, and science and that DESE report student performance to the public.

In Missouri, students with significant cognitive disabilities participate in the MAP-Alternate (MAP-A), ensuring that each student has the opportunity to acquire the knowledge and skills in the Missouri Show-Me Standards.

The MAP-A is a performance-based assessment in which teachers collect data and student work. The collected evidence provides documentation of the student's accuracy and independence and ensures that there is a connection between the Show-Me Standards and instruction.

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- required by federal law;
- designed only for students with significant cognitive disabilities who meet grade-level and participation criteria;
- reflective of input from an IEP team, which may include teachers, physical therapists, speech therapists, occupational therapists, paraprofessionals, job coaches, parents or guardians, and the student, if appropriate;
- administered at the same grade levels as students participating in Missouri's general assessment; and
- scored using the MAP-A Scoring Rubric; raw scores are then converted to reported achievement levels.

#### Assessment Blueprint

The MAP-A assesses student learning directly connected to the Show-Me Standards, through the Alternate Grade-Level Expectations (AGLEs) for students who are MAP-A eligible. The MAP-A assesses student work in each of two strands in Communication Arts and Mathematics and four strands in Science, as shown in the table below:

Content Area	Required Grades	Strand
Mathematics	3-8, & 10	Numbers and Operations
	3-5	Algebraic Relationships and/or Geometric and Spatial Relationships
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Communication Arts	10	Measurement
	3-8, & 11	Reading
	3-5	Writing Composition
Science	6-8, & 11	Writing Process
	5, 8, & 11	Scientific Inquiry
	5, 8, & 11	Impact of Science, Technology, and Human Activity
	5	Characteristics and Interactions of Living Organisms
	5	Changes in Ecosystems and Interactions of Organisms with Their Environments
Science	8	Properties and Principles of Matter and Energy
	8	Properties and Principles of Force and Motion
	11	Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)
11	Composition and Structure of the Universe and the Motion of the Objects Within It	

Alternate Performance Indicators (APIs), component concepts of the strands outlined in the table above, are assessed for each strand. The four specific APIs assessed in this student's MAP-A are listed on the reverse side of this report.

#### Scoring

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy – 4 points possible per entry
- Level of Independence – 4 points possible per entry
- Connection to the Standards – 3 points possible per entry

The entries that make up the MAP-A are assigned a raw score for each of the scoring dimensions. Eleven points are possible for each entry. The raw scores for each API or API pair assessed are reported on the reverse side of this report. Raw scores are totaled and then converted to the overall achievement level reported for the subject area. For more information, see the *Guide to Interpreting MAP-A Results*.

Individual Student Mathematics API History	
STUDENT: SAMPLE	MCSIS: 0000000000 MAP-A #: 0000 Date of Birth: 6/17/1994 Grade: 7
School of Residence: School District County District Code	School of Attendance: School District County District Code
Missouri Assessment Program - Alternate	
Math	
Strand 1	
Entry 1	Entry 2
Year: 2007-2008 Grade: 7	Year: 2007-2008 Grade: 7
Year: 2006-2007 Grade: 6	Year: 2006-2007 Grade: 6
Year: 2005-2006 Grade:	Year: 2005-2006 Grade:
Strand 2	
Entry 1	Entry 2
Year: 2007-2008 Grade: 7	Year: 2007-2008 Grade: 7
Year: 2006-2007 Grade: 6	Year: 2006-2007 Grade: 6
Year: 2005-2006 Grade:	Year: 2005-2006 Grade:

This is a MAP-A Individual Student API History Report for a single content area or subject. The following information may be found on this report.

- Content area (Mathematics, Communication Arts, or Science)
- Student's grade level each year reported
- Descriptions of the Alternate Performance Indicators (APIs) assessed each year

If an API has been assessed in multiple years, an asterisk appears with the API description in the years in which it recurs. The information provided by this report is for informational purposes only. It is not used in MAP-A scoring and has no impact on the student's achievement level.

#### Background

To meet the requirements of NCLB, the Missouri Assessment Program, including the MAP-A, is evaluated through a Peer Review process. In order to demonstrate that students are progressing through the curriculum, coverage of the depth and breadth of the APIs should be documented over a student's educational span. Best practice encourages assessment of APIs from two different Big Ideas, pre-defined subsets of the content in each strand, each assessment year to represent breadth.

To cover the depth of APIs, teachers are encouraged to choose APIs that align to a student's highest academic functioning level. When an API has been assessed with the MAP-A in a prior year, documentation is provided to justify the current API selection. This documentation is included with the MAP-A submission.

These practices provide for depth and breadth of content coverage in the MAP-A, offer teachers maximum flexibility for assessment, and effectively address opportunities for learning across a student's educational career.

#### Assessment Blueprint

The MAP-A assesses student learning directly connected to the Show-Me Standards, through the Alternate Grade-Level Expectations (AGLEs) for students who are MAP-A eligible. The MAP-A assesses student work in each of two strands in Communication Arts and Mathematics and four strands in Science, as shown in the following table.

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	5	Characteristics and Interactions of Living Organisms
	5	Changes in Ecosystems and Interactions of Organisms with Their Environments
	8	Properties and Principles of Matter and Energy
	8	Properties and Principles of Force and Motion
	11	Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)
	11	Composition and Structure of the Universe and the Motion of the Objects Within It

Alternate Performance Indicators (APIs), component concepts of the strands outlined in the table above, are assessed in MAP-A activities designed by the student's instructional team. The four specific APIs assessed in this student's MAP-A each year are listed on the reverse side of this report.

#### Scoring

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy – 4 points possible per entry
- Level of Independence – 4 points possible per entry
- Connection to the Standards – 3 points possible per entry

The four APIs that make up the MAP-A are assigned a raw score for each of the scoring dimensions. Eleven points are possible for each API. Raw scores are totaled and then converted to the overall achievement level reported for the subject area. The achievement level for the content area assessed is reported on the Student's Individual Report the year the API or API pair was assessed. For more information, see the *Guide to Interpreting MAP-A Results*.

	Mathematics															
	Elementary School Grade 3, 4, 5						Middle School Grade 6, 7, 8						High School Grade 10			
	District		State		District		State		District		State		District		State	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	0	%	928	42.34%	0	%	599	29.8%	0	%	239	33.61%				
Proficient	0	%	817	37.27%	1	100%	848	42.19%	0	%	274	38.54%				
Basic	0	%	291	13.28%	0	%	252	12.54%	0	%	117	16.46%				
Below Basic	0	%	135	6.16%	0	%	276	13.73%	0	%	64	9%				
LND	0	%	21	0.96%	0	%	35	1.74%	0	%	17	2.39%				
Total Count	0		2192		1		2010		0		711					
	Communication Arts															
	Elementary School Grade 3, 4, 5						Middle School Grade 6, 7, 8						High School Grade 11			
	District		State		District		State		District		State		District		State	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	0	%	950	43.34%	0	%	565	28.11%	0	%	178	30.02%				
Proficient	0	%	837	38.18%	0	%	666	33.13%	0	%	115	19.39%				
Basic	0	%	271	12.36%	1	100%	496	24.68%	0	%	199	33.56%				
Below Basic	0	%	115	5.25%	0	%	247	12.29%	0	%	92	15.51%				
LND	0	%	19	0.87%	0	%	36	1.79%	0	%	9	1.52%				
Total Count	0		2192		1		2010		0		593					
	Science															
	Elementary School Grade 5						Middle School Grade 8						High School Grade 11			
	District		State		District		State		District		State		District		State	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	0	%	224	32.05%	0	%	162	24.73%	0	%	117	19.73%				
Proficient	0	%	127	18.17%	0	%	142	21.68%	0	%	147	24.79%				
Basic	0	%	126	18.03%	0	%	101	15.42%	0	%	118	19.9%				
Below Basic	0	%	204	29.18%	0	%	230	35.11%	0	%	196	33.05%				
LND	0	%	18	2.58%	0	%	20	3.05%	0	%	15	2.53%				
Total Count	0		699		0		655		0		593					


  
 MAP-A 2008  
 Missouri Assessment  
 Program - Alternate  
  
 District Report  
  
 Big District  
 Big City  
 Big County  
 123456

# Appendix H: Linking Report

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## Results of Linking the 2006-2007 and 2005-2006 Missouri Assessment Program-Alternate Cut Points

### 1. Purpose

The purpose of this document is to recommend raw score cut points for the 2006-2007 MAP-A. The recommendation is based on results of an equipercentile linking that was conducted using rescore data. The same linking procedure was used for both content areas (Communication Arts and Mathematics) and all grade spans (3-5, 6-8, and 11 for Communication Arts; 3-5, 6-8, and 10 for Mathematics) of the Missouri Assessment Program-Alternate (MAP-A). For each grade span/content area combination, three proposed cut points were calculated to separate the four achievement levels: *Below Basic*, *Basic*, *Proficient*, and *Advanced*.

### 2. Background

Cut points along the raw score metric were defined for the 2005-2006 MAP-A at standard setting meetings held June 5-7, 2006. The cut points resulting from those meetings were based on the 2005-2006 assessment design, which specified three collection periods for each student. A change in design was implemented beginning with the 2006-2007 MAP-A assessments; the modified design called for two collection periods per student, rather than three. This modification, which was largely based on feedback from the field, was accompanied by a change in the scoring rubric. Under the old three-collection period design, all three scoring dimensions (*Level of Accuracy*, *Level of Independence*, and *Connection to the Standards*) were scored out of a possible four points within each Alternate Performance Indicator (API) Entry. Thus, each API Entry was scored out of 12 points; there were four API Entries per content area, for a total of 48

possible points. Under the new two-collection period design, the *Level of Accuracy* and *Level of Independence* dimensions maintain a maximum score of four points, while the maximum score for the *Connection to the Standards* dimension is now three points.

Hence, beginning with the 2006-2007 MAP-A, the maximum score on each API Entry is 11 points; with four API Entries per content area, there is a total of 44 possible points.

Due to the fundamental changes between the 2005-2006 and 2006-2007 MAP-A designs outlined above, it would be inappropriate to apply the 2005-2006 cut points to 2006-2007 raw scores. The next three sections of this document describe the equipercentile linking procedure that was implemented to compute proposed 2006-2007 cut points. The sample used in this linking consisted of 2005-2006 students whose work was scored under the three-collection period design, then rescored under the new two-collection period design. Proposed cut points were determined so that the rescore students' impact data under the new design most closely matched the impact data of the same students under the three-collection period design. Those cut points are being recommended to become operational for the 2006-2007 MAP-A. Section 3 below describes the sampling method used to determine which students were part of the rescore group, provides information about how the selected students were rescored, and gives descriptive statistics regarding the representativeness of the sample. Section 4 introduces equipercentile linking in more detail and explains how it was applied to derive the proposed 2006-2007 MAP-A cut points. Section 5 presents the results.

### **3. Sampling Methodology, Rescoring of Students, and Sample Representativeness**

#### *3.1 Sampling*

The sampling design called for 250 students to be rescored in each of the six grade span/content area combinations. In selecting students for rescoring, it was desired that the performance of the rescore sample match the performance of the overall MAP-A student population as closely as possible. To accomplish this goal, a stratified sampling method with proportionate allocation was implemented, using student scores on the 2005-2006 MAP-A as the stratifying variable. Specifically, the 48 score points on the 2005-2006 MAP-A were divided into 12 categories, with scores of 1-4 comprising Category 1, scores of 5-8 comprising Category 2, and so forth. For a given grade span/content area combination, the population proportion of students falling into each category was calculated. Letting  $p_i$  denote the population proportion of Category  $i$ , the target number of students in Category  $i$  was defined as  $n_i = 250 * p_i$ . Targets were rounded to appropriate integers so that they summed to 250. Once the appropriate number of students in each category was computed, random number generation was used to determine which specific students in that category would be selected.

All targets were computed based on “pre-appeal data”, i.e., student scores prior to the resolution of score appeals. However, if a score appeal was submitted for a student, that student’s “post-appeal” score was considered his/her final score in the linking analysis. Table 1 below displays the number and percentage of students who appealed, whose score changed based on the appeals process, and whose achievement level changed based on the appeals process. All such percentages were below 1% for every grade span/content area combination.

**Table 1: Descriptive Statistics about Student Appeals**

Grade Span	Content Area	N Appealed	% Appealed	N Score Changed	% Score Changed	N Achievement Level Changed	% Achievement Level Changed
3-5	Math	1	0.07	1	0.07	1	0.07
3-5	CA	0	0.00	0	0.00	0	0.00
6-8	Math	9	0.59	8	0.52	7	0.46
6-8	CA	9	0.58	7	0.45	3	0.19
10	Math	4	0.87	4	0.87	3	0.65
11	CA	3	0.65	3	0.65	3	0.65

Another sampling detail of note involved decision rules for students who achieved a raw score of zero on the MAP-A. Students with an operational 2005-2006 raw score of zero did not receive a reported achievement level for the 2005-2006 school year, instead being classified into the *Level Not Determined* category. These students had no bearing on the 2005-2006 achievement level distribution; therefore, they were irrelevant to the linking and were excluded from the sampling pool. Additionally, because rescore rubrics were different from those of the original 2005-2006 assessment, it was possible for rescored students to have a positive score on the original 2005-2006 test and a point total of zero on the rescore. Such students were removed from the dataset and not included in any analyses; in each of the six grade span/content area combinations, they comprised less than 3% of the rescore population.

### 3.2 Rescoring

A critical step in the process was to assign scores, using the new two-collection period design, to all students sampled for the rescore. Data points and work samples from collection periods 1 and 2 were counted toward these scores, whereas data points and work samples from collection period 3 were not. 2005-2006 scores from collection periods 1 and 2 were used because the test windows for these periods align temporally

with the 2006-2007 test windows. Specifically, the 2005-2006 test windows for collection periods 1, 2, and 3 were during the months of January, February, and March, respectively; the 2006-2007 test windows for collection periods 1 and 2 were in January and February, respectively.

All *Level of Accuracy* and *Level of Independence* scores were determined through an averaging process analogous to the original 2005-2006 scoring; the only difference was that in the rescore, collection period 3 data points were not included in the averaging. All *Connection to the Standards* scores were attained through reader rescoring of the work samples from collection periods 1 and 2 based on the new rubric. Every team leader and scorer who participated in the rescore had also participated in the original 2005-2006 scoring of MAP-A's. The entire group was retrained under the new rubric prior to the rescore, which took place from May 2 to May 12, 2006. The read behind rate for the rescore was the same as that of the original 2005-2006 scoring.

### *3.3 Representativeness*

This subsection provides information about the representativeness of the rescore sample with respect to the overall population of MAP-A students. Table 2 displays the number and percentage of students in the rescore group, as well as in the group of students *not* selected for the rescore sample (hereafter the “non-rescore group”). The total number of students in the overall population (including both rescore and non-rescore groups) is also provided. The table indicates that for all grade span/content area combinations, the size of the rescore sample was close to the target of 250.

**Table 2: Rescore Sample Sizes**

Grade Span	Content Area	Total N	Rescore N	Rescore %	Non-rescore N	Non-rescore %
3-5	Math	1466	244	17	1222	83
3-5	CA	1474	246	17	1228	83
6-8	Math	1529	239	16	1290	84
6-8	CA	1540	250	16	1290	84
10	Math	459	243	53	216	47
11	CA	463	247	53	216	47

Tables 3-8 give information about the representativeness of the rescore sample in terms of its demographic breakdown; there is one table for each grade span/content area combination. The number and percentage of students falling into each demographic group was computed for a) rescore students; b) non-rescore students; and c) the population of students as a whole. Variables considered were primary disability status (mental retardation, autism, multiple disabilities, or other), ethnicity (Native American, Asian/Pacific Islander, Black, White, or unknown), and gender (female, male, or unknown).

**Table 3: Representativeness of Rescore Sample—Demographics (Mathematics 3-5)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	825	141	684	56	58	56
	Autism	256	40	216	17	16	18
	Multiple	159	28	131	11	11	11
	Other	226	35	191	15	14	16
<b>ETHNIC</b>	Native American	5	1	4	0	0	0
	Asian/Pacific Islander	19	3	16	1	1	1
	Black	259	44	215	18	18	18
	Hispanic	47	11	36	3	5	3
	White	1135	185	950	77	76	78
	Unknown	1	0	1	0	0	0
<b>GENDER</b>	Female	519	93	426	35	38	35
	Male	946	151	795	65	62	65
	Unknown	1	0	1	0	0	0

**Table 4: Representativeness of Rescore Sample—Demographics (CA 3-5)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	830	140	690	56	57	56
	Autism	257	47	210	17	19	17
	Multiple	163	23	140	11	9	11
	Other	224	36	188	15	15	15
<b>ETHNIC</b>	Native American	5	2	3	0	1	0
	Asian/Pacific Islander	19	5	14	1	2	1
	Black	264	44	220	18	18	18
	Hispanic	47	8	39	3	3	3
	White	1138	187	951	77	76	77
	Unknown	1	0	1	0	0	0
<b>GENDER</b>	Female	523	89	434	35	36	35
	Male	950	157	793	64	64	65
	Unknown	1	0	1	0	0	0

**Table 5: Representativeness of Rescore Sample—Demographics (Mathematics 6-8)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	929	145	784	61	61	61
	Autism	208	37	171	14	15	13
	Multiple	160	26	134	10	11	10
	Other	232	31	201	15	13	16
<b>ETHNIC</b>	Native American	6	2	4	0	1	0
	Asian/Pacific Islander	24	6	18	2	3	1
	Black	282	42	240	18	18	19
	Hispanic	33	6	27	2	3	2
	White	1182	183	999	77	77	77
	Unknown	2	0	2	0	0	0
<b>GENDER</b>	Female	552	82	470	36	34	36
	Male	975	157	818	64	66	63
	Unknown	2	0	2	0	0	0

**Table 6: Representativeness of Rescore Sample—Demographics (CA 6-8)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	938	151	787	61	60	61
	Autism	207	31	176	13	12	14
	Multiple	164	25	139	11	10	11
	Other	231	43	188	15	17	15
<b>ETHNIC</b>	Native American	6	1	5	0	0	0
	Asian/Pacific Islander	24	4	20	2	2	2
	Black	288	49	239	19	20	19
	Hispanic	33	9	24	2	4	2
	White	1188	187	1001	77	75	78
	Unknown	1	0	1	0	0	0
<b>GENDER</b>	Female	559	98	461	36	39	36
	Male	980	152	828	64	61	64
	Unknown	1	0	1	0	0	0

**Table 7: Representativeness of Rescore Sample—Demographics (Mathematics 10)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	285	142	143	62	58	66
	Autism	47	32	15	10	13	7
	Multiple	64	34	30	14	14	14
	Other	63	35	28	14	14	13
<b>ETHNIC</b>	Native American	1	0	1	0	0	0
	Asian/Pacific Islander	9	5	4	2	2	2
	Black	98	40	58	21	16	27
	Hispanic	11	6	5	2	2	2
	White	339	192	147	74	79	68
	Unknown	1	0	1	0	0	0
<b>GENDER</b>	Female	187	95	92	41	39	43
	Male	272	148	124	59	61	57
	Unknown	0	0	0	0	0	0

**Table 8: Representativeness of Rescore Sample—Demographics (CA 11)**

Category	Subcategory	Pop N	Rescore N	Non-rescore N	Pop %	Rescore %	Non-rescore %
<b>DISAB.</b>	Mental Ret.	314	165	149	68	67	69
	Autism	53	30	23	11	12	11
	Multiple	51	29	22	11	12	10
	Other	45	23	22	10	9	10
<b>ETHNIC</b>	Native American	2	1	1	0	0	0
	Asian/Pacific Islander	4	2	2	1	1	1
	Black	90	44	46	19	18	21
	Hispanic	6	4	2	1	2	1
	White	361	196	165	78	79	76
	Unknown	0	0	0	0	0	0
<b>GENDER</b>	Female	180	90	90	39	36	42
	Male	283	157	126	61	64	58
	Unknown	0	0	0	0	0	0

Tables 9-14 relate to the representativeness of the rescore sample in terms of performance on the 2005-2006 operational MAP-A. There is again one table for each grade span/content area combination. The operational 2005-2006 mean score, standard deviation of scores, minimum score, maximum score, and impact data were computed for the rescore sample, as well as for the non-rescore group and the population as a whole. The appendix to this document contains results disaggregated by demographic group, i.e., analogous calculations for each gender, ethnicity, and primary disability status. Results in the appendix should be viewed with caution due to the small sample sizes associated with many of the demographic groups.

**Table 9: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (Mathematics 3-5)**

	Pop	Rescore	Non-rescore
Mean Score	39	40	39
SD of Scores	8	7	9
Min Score	3	16	3
Max Score	48	48	48
% BB	4	1	4
% B	13	13	13
% P	50	52	50
% A	33	34	33

**Table 10: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (CA 3-5)**

	Pop	Rescore	Non-rescore
Mean Score	40	40	39
SD of Scores	8	7	8
Min Score	3	15	3
Max Score	48	48	48
% BB	2	1	2
% B	16	14	16
% P	49	51	49
% A	33	34	33

**Table 11: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (Mathematics 6-8)**

	Pop	Rescore	Non-rescore
Mean Score	38	39	38
SD of Scores	8	7	9
Min Score	6	9	6
Max Score	48	48	48
% BB	6	3	6
% B	15	12	16
% P	52	55	52
% A	27	29	27

**Table 12: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (CA 6-8)**

	Pop	Rescore	Non-rescore
Mean Score	39	40	39
SD of Scores	8	7	8
Min Score	5	12	5
Max Score	48	48	48
% BB	5	3	5
% B	21	20	21
% P	51	52	51
% A	23	25	23

**Table 13: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (Mathematics 10)**

	Pop	Rescore	Non-rescore
Mean Score	38	39	37
SD of Scores	8	8	9
Min Score	8	14	8
Max Score	48	48	48
% BB	8	6	11
% B	19	19	19
% P	52	52	51
% A	21	23	19

**Table 14: Representativeness of Rescore Sample—  
Performance on Operational 2005-2006 MAP-A (CA 11)**

	Pop	Rescore	Non-rescore
Mean Score	38	39	37
SD of Scores	9	8	9
Min Score	6	7	6
Max Score	48	48	48
% BB	11	9	13
% B	23	21	26
% P	38	41	35
% A	27	28	25

#### 4. Equipercentile Linking

When two assessments are designed to measure the same underlying trait or ability, it is often necessary to determine which score  $x$  on Test B corresponds to a score of  $y$  on Test A. This task can be accomplished through the psychometric process of linking. This section describes how one particular linking procedure, called equipercentile linking, was utilized to achieve the goal outlined in the “Purpose” section of this document.

In applying equipercentile linking to the 2006-2007 and 2005-2006 MAP-A assessments, the objective was to link the achievement levels rather than the individual score points. That is, the psychometric goal was to determine a set of raw score cut points on the 2006-2007 MAP-A that corresponded to the respective raw score cut points on the 2005-2006 MAP-A. In an equipercentile linking of achievement levels for two hypothetical assessments, Test A and Test B, cut points are selected so that the impact data of the two assessments mirror one another as closely as possible. For example, consider the impact data given in Table 15 representing the hypothetical percentage of students in each achievement level for Test A:

**Table 15: Hypothetical Impact Data for Test A**

<b>Achievement Level</b>	<b>Percentage in Level</b>
<i>Below Basic</i>	10
<i>Basic</i>	35
<i>Proficient</i>	40
<i>Advanced</i>	15

An equipercentile linking would ideally define cut points for Test B so that the Test B impact data would match the percentages displayed in Table 15: 10% of students would fall into *Below Basic*, 35% of students would fall into *Basic*, and so on.

By matching the impact data of Test A and Test B, equipercentile linking makes a fundamental assumption that the student populations of the two tests are comparable in ability. Therefore, to link the 2006-2007 and 2005-2006 MAP-A cut points, it was desired that students in the two linking groups be as similar in ability as possible. Performing the linking based on the rescore sample was proposed because these students were scored under both the operational 2005-2006 and 2006-2007 rubrics. Hence, the two resulting sets of scores were in fact attained from identical groups of students, and even the same student work. The difference is that the original 2005-2006 MAP-A scores considered all three collection periods, while the rescore considered only the first two and utilized the new rubric.

The equipercentile linking procedure that was implemented for the MAP-A can be summarized by the following steps:

1. For the students who were part of the rescore sample, impact data under the original 2005-2006 scoring rules were calculated.
2. For each student who was part of the rescore sample, the new rubric (the 2006-2007 operational rubric) was used to assign a new student raw score.
3. The frequency distribution of scores in Step 2 was computed.
4. Using the frequency distribution in Step 3, raw score cut points were selected so that the resulting impact data most closely matched the impact data of Step 1. In particular, cuts were selected such that for  $j = 1, 2, 3$ , the

rescore proportion of students below cut  $j$  under the new design was closest to the rescore proportion of students below cut  $j$  under the operational 2005-2006 design.

5. Steps 1-4 were repeated for each of the six MAP-A grade span/content area combinations.

An exact matching of impact data was impossible due to the fact that raw score distributions are discrete rather than continuous. Specific proposed raw score cut points were thus defined through linear interpolation. The resulting values are recommended to be taken as the exact raw score cut points as the MAP-A proceeds in future years, beginning with 2006-2007.

## 5. Results

The first step in producing results was to calculate descriptive statistics about student performance on the rescore itself. Table 16 displays the following statistics for the rescore data: mean score, standard deviation of scores, minimum score, and maximum score.

**Table 16: Descriptive Statistics about the Rescore**

Grade Span	Content Area	N	Rescore Mean	Rescore SD	Rescore Min	Rescore Max
3-5	Math	244	35.3	7.1	8	44
3-5	CA	246	36.6	6.2	15	44
6-8	Math	239	35.6	6.8	11	44
6-8	CA	250	36.5	6.3	11	44
10	Math	243	34.6	7.6	9	44
11	CA	247	35.6	6.9	4	44

Next, the recommended 2006-2007 MAP-A raw score cut points were calculated via the equipercentile linking procedure described in Section 4. Table 17 displays the

resulting values, rounded to two decimal places. Table 18 gives the raw score ranges that correspond to these cut points; these are presented with actual 2005-2006 ranges in order to facilitate side-by-side comparisons. The change in scoring rubric resulted in recommended 2006-2007 raw score cut points that are lower than the corresponding 2005-2006 cuts; such a pattern is consistent with expectations, considering that the 2006-2007 scale is compressed compared to that of 2005-2006 (the maximum possible score is 44, rather than 48). Note that for Mathematics 6-8, the recommended 2006-2007 cut point between *Below Basic* and *Basic* is exactly 21.00. Because students need to *meet or exceed* the cut point in order to be classified into the higher achievement level, students with a score of 21 are recommended to be classified as *Basic* for this grade span/content area combination.

**Table 17: Recommended 2006-2007 MAP-A Raw Score Cut Points Resulting from Equipercentile Linking—Rounded to Two Decimal Places**

Grade Span	Content Area	BB:B	B:P	P:A
3-5	Math	15.50	26.50	39.82
3-5	CA	18.50	29.88	40.42
6-8	Math	21.00	28.30	40.06
6-8	CA	20.17	32.50	41.34
10	Math	19.50	30.75	41.38
11	CA	23.83	33.50	40.10

**Table 18: Recommended 2006-2007 MAP-A Raw Score Ranges and Actual 2005-2006 Raw Score Ranges**

Grade Span	Content Area	Ach. Level	2006-2007 RS Range (Recommended)	2005-2006 RS Range
3-5	Math	BB	3-15	3-20
		B	16-26	21-31
		P	27-39	32-44
		A	40-44	45-48
3-5	CA	BB	3-18	3-19
		B	19-29	20-33
		P	30-40	34-44
		A	41-44	45-48
6-8	Math	BB	3-20	3-22
		B	21-28	23-32
		P	29-40	33-44
		A	41-44	45-48
6-8	CA	BB	3-20	3-23
		B	21-32	24-35
		P	33-41	36-45
		A	42-44	46-48
10	Math	BB	3-19	3-25
		B	20-30	26-33
		P	31-41	34-45
		A	42-44	46-48
11	CA	BB	3-23	3-26
		B	24-33	27-37
		P	34-40	38-44
		A	41-44	45-48

Cross-tabulations of 2005-2006 student achievement levels under the old and new designs were also computed for the rescore group. That is, the joint distributions of 2005-2006 operational achievement levels and rescore achievement levels were calculated.

Here, the term “rescore achievement levels” refers to the achievement levels that would have been attained by students based on their operational 2005-2006 work, the new 2006-2007 scoring design, and the recommended 2006-2007 cut points. Tables 19 to 24 give the results; there is one table for each grade span/content area combination, and both the number and percentage of students in each cell are presented. Note that the column totals (marginal values of the columns) represent the impact data of the rescore achievement

levels based on the recommended 2006-2007 cut points. For instance, 32 rescore students (13.11% of the rescore sample) in Mathematics 3-5 would fall into the *Basic* achievement level according to the new design, new rubric, and recommended cuts.

**Table 19: Joint Distribution of 2005-2006 Operational and Rescore Achievement Levels (Mathematics 3-5)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
2005-2006 Operational Ach. Level	BB	N	0	2	0	0	2
		%	0	0.82	0	0	0.82
	B	N	0	16	14	2	32
		%	0	6.56	5.74	0.82	13.11
	P	N	2	14	81	29	126
		%	0.82	5.74	33.2	11.89	51.64
	A	N	0	0	24	60	84
		%	0	0	9.84	24.59	34.43
	Marg.	N	2	32	119	91	244
		%	0.82	13.11	48.77	37.30	100

**Table 20: Joint Distribution of 2005-2006 Operational and Rescore Achievement Levels (CA 3-5)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
2005-2006 Operational Ach. Level	BB	N	2	1	0	0	3
		%	0.81	0.41	0	0	1.22
	B	N	1	19	11	4	35
		%	0.41	7.72	4.47	1.63	14.23
	P	N	0	12	99	14	125
		%	0	4.88	40.24	5.69	50.81
	A	N	0	0	20	63	83
		%	0	0	8.13	25.61	33.74
	Marg.	N	3	32	130	81	246
		%	1.22	13.01	52.85	32.93	100

**Table 21: Joint Distribution of 2005-2006  
Operational and Rescore Achievement Levels (Mathematics 6-8)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
2005-2006 Operational Ach. Level	BB	N	2	1	5	0	8
		%	0.84	0.42	2.09	0	3.35
	B	N	4	15	10	0	29
		%	1.67	6.28	4.18	0	12.13
	P	N	1	14	99	18	132
		%	0.42	5.86	41.42	7.53	55.23
	A	N	0	2	24	44	70
		%	0	0.84	10.04	18.41	29.29
	Marg.	N	7	32	138	62	239
		%	2.93	13.39	57.74	25.94	100

**Table 22: Joint Distribution of 2005-2006  
Operational and Rescore Achievement Levels (CA 6-8)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
2005-2006 Operational Ach. Level	BB	N	4	2	1	0	7
		%	1.6	0.8	0.4	0	2.80
	B	N	3	21	23	2	49
		%	1.2	8.4	9.2	0.8	19.60
	P	N	1	21	86	23	131
		%	0.4	8.4	34.4	9.2	52.40
	A	N	0	4	24	35	63
		%	0	1.6	9.6	14	25.20
	Marg.	N	8	48	134	60	250
		%	3.20	19.20	53.60	24.00	100

**Table 23: Joint Distribution of 2005-2006  
Operational and Rescore Achievement Levels (Mathematics 10)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
2005-2006 Operational Ach. Level	BB	N	7	4	4	0	15
		%	2.88	1.65	1.65	0	6.17
	B	N	5	21	19	0	45
		%	2.06	8.64	7.82	0	18.52
	P	N	3	17	93	14	127
		%	1.23	7	38.27	5.76	52.26
	A	N	0	1	14	41	56
		%	0	0.41	5.76	16.87	23.05
	Marg.	N	15	43	130	55	243
		%	6.17	17.70	53.50	22.63	100

**Table 24: Joint Distribution of 2005-2006  
Operational and Rescore Achievement Levels (CA 11)**

			Rescore Ach. Level				
			BB	B	P	A	Marg.
<b>2005-2006 Operational Ach. Level</b>	<b>BB</b>	N	7	11	5	0	23
		%	2.83	4.45	2.02	0	9.31
	<b>B</b>	N	10	16	21	5	52
		%	4.05	6.48	8.5	2.02	21.05
	<b>P</b>	N	5	22	59	16	102
		%	2.02	8.91	23.89	6.48	41.30
	<b>A</b>	N	0	4	25	41	70
		%	0	1.62	10.12	16.6	28.34
	<b>Marg.</b>	N	22	53	110	62	247
		%	8.91	21.46	44.53	25.10	100

## 6. Summary

This document describes the method that was used to determine recommended raw score cut points for the 2006-2007 MAP-A. The method involved performing equipercentile linking based on the frequency distributions of the following two groups: 1) a sample of 2005-2006 MAP-A students scored under the operational 2005-2006 scoring rubric; and 2) the same set of students rescored under the 2006-2007 operational rubric. The recommended cuts were presented along with information about the representativeness of the rescore sample.

**Appendix: Performance on Operational 2005-2006 MAP-A—  
Disaggregated by Demographic Group<sup>1</sup>**

**Table A.1: Results for Mathematics 3-5**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	7	19	7	48	48	48
	Autism	12	23	12	48	48	48
	Multiple	8	21	8	48	48	48
	Other	3	16	3	48	48	48
ETHNIC	Native American	18	45	18	48	45	48
	Asian/Pacific Islander	24	27	24	48	48	48
	Black	8	19	8	48	48	48
	Hispanic	8	32	8	48	47	48
	White	3	16	3	48	48	48
	Unknown	48	N/A	48	48	N/A	48
GENDER	Female	3	21	3	48	48	48
	Male	6	16	6	48	48	48
	Unknown	48	N/A	48	48	N/A	48
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	39	40	39	8	7	8
	Autism	39	41	39	8	7	9
	Multiple	37	37	37	9	8	9
	Other	39	38	40	9	7	9
ETHNIC	Native American	35	45	33	13	N/A	13
	Asian/Pacific Islander	39	39	39	7	11	7
	Black	38	40	38	9	7	9
	Hispanic	39	40	39	9	6	9
	White	39	40	39	8	7	8
	Unknown	48	N/A	48	N/A	N/A	N/A
GENDER	Female	39	40	39	8	7	8
	Male	39	40	39	9	7	9
	Unknown	48	N/A	48	N/A	N/A	N/A

<sup>1</sup> Due to small sample sizes for some demographic groups, the results of these tables should be viewed with caution. Note that a value of “N/A” was inputted for all fields if the demographic group in question had a sample size of 0. Additionally, “N/A” was inputted for the standard deviation field if the demographic group in question had a sample size of 1. Sample sizes of the different demographic groups are provided in Tables 3-8 of the main text.

**Table A.1: Results for Mathematics 3-5, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	4	1	4	12	11	12
	Autism	4	0	5	13	13	13
	Multiple	4	0	5	21	25	20
	Other	4	3	5	12	14	11
ETHNIC	Native American	20	0	25	20	0	25
	Asian/Pacific Islander	0	0	0	21	33	19
	Black	6	2	7	12	11	12
	Hispanic	4	0	6	9	0	11
	White	3	1	4	13	14	13
	Unknown	0	N/A	0	0	N/A	0
GENDER	Female	2	0	3	13	17	13
	Male	5	1	5	13	11	13
	Unknown	0	N/A	0	0	N/A	0
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	52	51	53	32	38	31
	Autism	47	45	47	36	43	35
	Multiple	54	54	54	21	21	21
	Other	45	60	42	39	23	42
ETHNIC	Native American	20	0	25	40	100	25
	Asian/Pacific Islander	53	33	56	26	33	25
	Black	49	50	49	32	36	32
	Hispanic	51	73	44	36	27	39
	White	51	51	51	33	34	33
	Unknown	0	N/A	0	100	N/A	100
GENDER	Female	52	51	53	32	32	32
	Male	49	52	49	33	36	33
	Unknown	0	N/A	0	100	N/A	100

**Table A.2: Results for CA 3-5**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	3	15	3	48	48	48
	Autism	10	17	10	48	48	48
	Multiple	8	18	8	48	48	48
	Other	3	26	3	48	48	48
ETHNIC	Native American	25	25	25	44	41	44
	Asian/Pacific Islander	24	39	24	48	46	48
	Black	8	22	8	48	48	48
	Hispanic	21	32	21	48	48	48
	White	3	15	3	48	48	48
	Unknown	45	N/A	45	45	N/A	45
GENDER	Female	9	17	9	48	48	48
	Male	3	15	3	48	48	48
	Unknown	45	N/A	45	45	N/A	45
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	40	40	40	7	7	8
	Autism	40	41	39	8	6	8
	Multiple	39	38	39	7	7	7
	Other	40	42	39	8	5	9
ETHNIC	Native American	34	33	35	9	11	10
	Asian/Pacific Islander	39	42	38	8	3	8
	Black	39	40	39	8	6	9
	Hispanic	42	43	41	6	5	6
	White	40	40	40	7	7	8
	Unknown	45	N/A	45	N/A	N/A	N/A
GENDER	Female	40	40	40	7	7	7
	Male	39	40	39	8	6	8
	Unknown	45	N/A	45	N/A	N/A	N/A

**Table A.2: Results for CA 3-5, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	2	1	2	16	17	16
	Autism	3	2	3	16	11	17
	Multiple	2	4	1	20	17	20
	Other	3	0	4	13	6	14
ETHNIC	Native American	0	0	0	40	50	33
	Asian/Pacific Islander	0	0	0	21	0	29
	Black	3	0	3	18	16	18
	Hispanic	0	0	0	11	13	10
	White	2	2	2	15	14	16
	Unknown	0	N/A	0	0	N/A	0
GENDER	Female	1	2	1	15	13	15
	Male	3	1	3	16	15	17
	Unknown	0	N/A	0	0	N/A	0
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	50	50	50	32	32	32
	Autism	48	49	48	33	38	32
	Multiple	56	65	54	23	13	24
	Other	42	47	41	42	47	40
ETHNIC	Native American	60	50	67	0	0	0
	Asian/Pacific Islander	53	80	43	26	20	29
	Black	48	55	46	32	30	32
	Hispanic	49	50	49	40	38	41
	White	50	49	50	33	35	32
	Unknown	0	N/A	0	100	N/A	100
GENDER	Female	50	51	50	34	34	34
	Male	49	51	49	32	34	32
	Unknown	0	N/A	0	100	N/A	100

**Table A.3: Results for Mathematics 6-8**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	6	12	6	48	48	48
	Autism	11	25	11	48	48	48
	Multiple	9	24	9	48	48	48
	Other	6	9	6	48	48	48
ETHNIC	Native American	21	28	21	47	47	41
	Asian/Pacific Islander	26	35	26	48	48	48
	Black	6	25	6	48	48	48
	Hispanic	11	12	11	48	48	48
	White	6	9	6	48	48	48
	Unknown	10	N/A	10	40	N/A	40
GENDER	Female	6	9	6	48	48	48
	Male	6	12	6	48	48	48
	Unknown	10	N/A	10	40	N/A	40
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	38	39	38	8	7	8
	Autism	39	40	39	8	6	8
	Multiple	37	39	36	8	7	9
	Other	38	39	38	9	10	9
ETHNIC	Native American	33	38	31	9	13	8
	Asian/Pacific Islander	41	43	40	7	5	7
	Black	36	39	36	9	7	10
	Hispanic	39	37	39	10	14	10
	White	39	39	39	8	7	8
	Unknown	25	N/A	25	21	N/A	21
GENDER	Female	38	39	38	8	7	8
	Male	38	39	38	8	8	9
	Unknown	25	N/A	25	21	N/A	21

**Table A.3: Results for Mathematics 6-8, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	5	4	6	15	12	16
	Autism	4	0	5	13	11	14
	Multiple	7	0	8	18	19	18
	Other	7	6	7	15	10	15
ETHNIC	Native American	17	0	25	33	50	25
	Asian/Pacific Islander	0	0	0	13	0	17
	Black	10	0	11	20	19	20
	Hispanic	9	17	7	12	17	11
	White	5	4	5	14	10	15
	Unknown	50	N/A	50	0	N/A	0
GENDER	Female	5	2	5	18	13	19
	Male	6	4	7	14	11	14
	Unknown	50	N/A	50	0	N/A	0
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	52	57	51	27	27	27
	Autism	52	51	52	30	38	29
	Multiple	57	62	56	18	19	18
	Other	49	45	49	30	39	28
ETHNIC	Native American	33	0	50	17	50	0
	Asian/Pacific Islander	50	50	50	38	50	33
	Black	50	57	49	21	24	20
	Hispanic	39	33	41	39	33	41
	White	53	56	53	28	30	28
	Unknown	50	N/A	50	0	N/A	0
GENDER	Female	51	56	50	27	28	26
	Male	53	55	52	27	30	27
	Unknown	50	N/A	50	0	N/A	0

**Table A.4: Results for CA 6-8**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	5	12	5	48	48	48
	Autism	13	19	13	48	48	48
	Multiple	8	15	8	48	48	48
	Other	7	27	7	48	48	48
ETHNIC	Native American	27	27	35	44	27	44
	Asian/Pacific Islander	25	28	25	48	47	48
	Black	8	12	8	48	48	48
	Hispanic	16	36	16	48	48	48
	White	5	15	5	48	48	48
	Unknown	28	N/A	28	28	N/A	28
GENDER	Female	5	12	5	48	48	48
	Male	7	15	7	48	48	48
	Unknown	28	N/A	28	28	N/A	28
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	39	40	39	8	7	8
	Autism	40	42	40	7	6	7
	Multiple	39	38	39	8	7	8
	Other	40	41	39	8	6	8
ETHNIC	Native American	38	27	40	6	N/A	3
	Asian/Pacific Islander	40	41	40	8	9	8
	Black	37	37	37	10	9	10
	Hispanic	40	41	40	8	3	9
	White	40	41	40	7	6	8
	Unknown	28	N/A	28	N/A	N/A	N/A
GENDER	Female	39	40	39	8	7	8
	Male	39	40	39	8	7	8
	Unknown	28	N/A	28	N/A	N/A	N/A

**Table A.4: Results for CA 6-8, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	6	3	6	20	22	20
	Autism	2	3	2	21	10	23
	Multiple	6	4	6	22	20	22
	Other	4	0	5	22	19	22
ETHNIC	Native American	0	0	0	33	100	20
	Asian/Pacific Islander	0	0	0	25	25	25
	Black	10	10	10	27	33	26
	Hispanic	6	0	8	12	0	17
	White	4	1	4	19	17	20
	Unknown	0	N/A	0	100	N/A	100
GENDER	Female	5	3	5	21	18	22
	Male	5	3	6	21	20	21
	Unknown	0	N/A	0	100	N/A	100
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	51	52	50	23	23	23
	Autism	55	55	55	22	32	20
	Multiple	54	64	52	18	12	19
	Other	48	44	49	26	37	24
ETHNIC	Native American	67	0	80	0	0	0
	Asian/Pacific Islander	42	50	40	33	25	35
	Black	45	37	47	17	20	16
	Hispanic	58	89	46	24	11	29
	White	53	55	52	24	27	24
	Unknown	0	N/A	0	0	N/A	0
GENDER	Female	53	58	51	21	20	22
	Male	51	49	51	24	28	23
	Unknown	0	N/A	0	0	N/A	0

**Table A.5: Results for Mathematics 10**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	9	14	9	48	48	48
	Autism	17	30	17	48	48	48
	Multiple	8	19	8	48	48	48
	Other	17	17	18	48	48	48
ETHNIC	Native American	47	N/A	47	47	N/A	47
	Asian/Pacific Islander	24	41	24	48	48	47
	Black	14	20	14	48	48	48
	Hispanic	31	31	36	48	48	45
	White	8	14	8	48	48	48
	Unknown	39	N/A	39	39	N/A	39
GENDER	Female	8	14	8	48	48	48
	Male	9	19	9	48	48	48
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	38	39	37	8	7	8
	Autism	41	41	41	7	6	9
	Multiple	36	37	35	10	9	11
	Other	37	37	37	9	9	9
ETHNIC	Native American	47	N/A	47	N/A	N/A	N/A
	Asian/Pacific Islander	40	44	36	8	3	10
	Black	36	39	34	9	9	9
	Hispanic	40	39	41	6	8	4
	White	39	39	38	8	7	9
	Unknown	39	N/A	39	N/A	N/A	N/A
GENDER	Female	38	38	37	8	8	9
	Male	38	39	37	8	8	9
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A

**Table A.5: Results for Mathematics 10, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	7	4	10	18	18	17
	Autism	2	0	7	9	9	7
	Multiple	16	12	20	20	24	17
	Other	11	14	7	27	23	32
ETHNIC	Native American	0	N/A	0	0	N/A	0
	Asian/Pacific Islander	11	0	25	11	0	25
	Black	15	10	19	26	23	28
	Hispanic	0	0	0	18	33	0
	White	7	6	8	17	18	16
	Unknown	0	N/A	0	0	N/A	0
GENDER	Female	9	6	12	17	18	15
	Male	8	6	10	20	19	21
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	56	56	55	19	21	17
	Autism	55	56	53	34	34	33
	Multiple	47	47	47	17	18	17
	Other	35	37	32	27	26	29
ETHNIC	Native American	0	N/A	0	100	N/A	100
	Asian/Pacific Islander	44	60	25	33	40	25
	Black	38	35	40	21	33	14
	Hispanic	64	33	100	18	33	0
	White	55	56	54	21	20	22
	Unknown	100	N/A	100	0	N/A	0
GENDER	Female	59	61	58	15	15	15
	Male	46	47	46	26	28	23
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A

**Table A.6: Results for CA 11**

		<b>Pop Min</b>	<b>Rescore Min</b>	<b>Non-rescore Min</b>	<b>Pop Max</b>	<b>Rescore Max</b>	<b>Non-rescore Max</b>
DISAB.	Mental Ret.	6	14	6	48	48	48
	Autism	15	23	15	48	48	48
	Multiple	17	18	17	48	48	47
	Other	7	7	15	48	48	48
ETHNIC	Native American	39	43	39	43	43	39
	Asian/Pacific Islander	29	32	29	48	48	43
	Black	6	14	6	48	48	48
	Hispanic	38	38	38	48	48	47
	White	7	7	9	48	48	48
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
GENDER	Female	6	14	6	48	48	48
	Male	7	7	10	48	48	48
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
		<b>Pop Mean</b>	<b>Rescore Mean</b>	<b>Non-rescore Mean</b>	<b>Pop SD</b>	<b>Rescore SD</b>	<b>Non-rescore SD</b>
DISAB.	Mental Ret.	38	39	37	9	8	9
	Autism	39	38	39	8	7	8
	Multiple	37	38	36	8	7	9
	Other	39	39	39	10	9	10
ETHNIC	Native American	41	43	39	3	N/A	N/A
	Asian/Pacific Islander	38	40	36	9	11	10
	Black	36	37	35	10	9	10
	Hispanic	44	44	43	5	5	6
	White	39	39	38	8	8	9
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
GENDER	Female	38	40	37	9	8	10
	Male	38	39	38	8	8	9
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A

**Table A.6: Results for CA 11, Continued**

		<b>Pop % BB</b>	<b>Rescore % BB</b>	<b>Non-rescore % BB</b>	<b>Pop % B</b>	<b>Rescore % B</b>	<b>Non-rescore % B</b>
DISAB.	Mental Ret.	12	10	13	23	20	26
	Autism	8	7	9	30	30	30
	Multiple	10	7	14	27	21	36
	Other	13	9	18	13	17	9
ETHNIC	Native American	0	0	0	0	0	0
	Asian/Pacific Islander	0	0	0	50	50	50
	Black	19	18	20	23	18	28
	Hispanic	0	0	0	0	0	0
	White	10	8	12	24	22	25
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
GENDER	Female	11	8	13	21	19	23
	Male	12	10	13	25	22	28
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
		<b>Pop % P</b>	<b>Rescore % P</b>	<b>Non-rescore % P</b>	<b>Pop % A</b>	<b>Rescore % A</b>	<b>Non-rescore % A</b>
DISAB.	Mental Ret.	37	37	36	29	33	24
	Autism	34	40	26	28	23	35
	Multiple	51	66	32	12	7	18
	Other	42	43	41	31	30	32
ETHNIC	Native American	100	100	100	0	0	0
	Asian/Pacific Islander	25	0	50	25	50	0
	Black	31	32	30	27	32	22
	Hispanic	50	50	50	50	50	50
	White	40	43	36	27	27	27
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
GENDER	Female	43	48	39	25	26	24
	Male	35	38	33	28	30	26
	Unknown	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix I: MAP-A Advisory Committee

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### MAP- Advisory Committee 2007-2008

Name	Organization
Susan Hekmat	Southwest RPDC
Diana Humphreys	Heart of Missouri RPDC
Karen Allen	Mexico School District
Meg Sneed	Kansas City RPDC
Deb Drury	Northeast RPDC
Julia Schmitz	Northwest RPDC
Winona Anderson	South Central RPDC
Stephanie Arroyo	Measured Progress
Lin Everett	DESE, Assessment
Lynn Fain	Columbia Public School District
Melissa Frazier	Parent
Carol Martin	Green Valley State School
Nina Murphy	Eureka School District
Tim Parshall	Assessment Resource Center
Maureen Rauscher	St. Louis RPDC
Susie Register	Jefferson City Public School District
Lisa Sireno	Assessment Resource Center
Tana Stewart	Pemiscot County Special School District
Mary Coker	Central RPDC
Kathie Wolf	St. Louis Special School District
Robin Martin	DESE Special Education,
Karen Wells	DESE, Special Education
Pam Williams	DESE, Special Education
Michael Muenks	DESE, Assessment