

# Missouri Assessment Program- Alternate (MAP-A)

## 2007 Technical Report



Prepared by the  
Assessment Resource Center



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

# Table of Contents

---

<b>Overview</b> .....	1
Organization of the Report .....	1
Purpose of the MAP-A .....	2
History .....	3
Timeline .....	4
<b>Operational Assessment Administration</b> .....	5
Eligible Students .....	5
MAP-A Participation Eligibility Criteria .....	5
Assessment Blueprint/Design .....	6
Assessment Blueprint for Mathematics .....	6
Assessment Blueprint for Communication Arts .....	7
Steps for Administration .....	10
A Twelve-Step Procedure for Completing the MAP-A .....	10
Administrator Training .....	12
Implementation Schedule .....	14
Participation .....	14
Historical Changes in Assessment Design and Administration .....	14
Shift from Three Collection Periods to Two Collection Periods .....	14
Changes to MAP-A Forms .....	15
<b>Scoring and Reporting</b> .....	16
Scoring Rubric .....	16
MAP-A Rubric .....	17
Scoring Rules .....	18
Scorers .....	19
Scoring Procedure .....	20
Reporting .....	20
Reports .....	21
Reporting Decision Rules .....	22
Student Performance .....	23
Historical Changes in Assessment Design and Administration .....	29
<b>Reliability and Validity</b> .....	31
Reliability .....	31
Inter-rater Agreement Among Scorers .....	34
Validity .....	35
Test Content .....	36
Consequences of MAP-A Testing .....	37
Teachers' Role .....	38
<b>MAP-A Information Security</b> .....	39
Enrollment .....	39
Scoring .....	39
Data Storage .....	39
<b>Future Plans</b> .....	40
<b>References</b> .....	41

## Table of Contents (contd.)

---

### APPENDICES

A. Science Pilot Assessment Development Process.....	42
B. Forms .....	93
C. Achievement Level Descriptors and Cut Scores.....	105
D. Administration Training Materials.....	112
E. Additional Scoring Information .....	161
F. Sample Reports .....	167
G. Surveys .....	173
H. Stakeholder Lists.....	176
I. Linking Report.....	178

# Overview

---

The purpose of this report is to document the technical aspects of the 2006-2007 Missouri Assessment Program-Alternate (MAP-A) assessment. This was the second year of the revised MAP-A program. In the spring of 2007, students in grades 3 through 8, 10, and 11 participated in the MAP-A as follows:

- Grades 3-8: Mathematics and communication arts;
- Grade 10: Mathematics only;
- Grade 11: Communication arts only.

Science assessment for MAP-A was developed and piloted in 2007 at grades 5, 8, and 11.<sup>1</sup> This report provides information about the technical quality of the mathematics and communication arts 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 that describes the initial test specifications and addresses all the intermediate steps that lead to final score reporting. Following this overview, Section 2 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. Section 4 addresses validity. 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 2007 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

---

<sup>1</sup> In spring 2008 the program will expand to include an operational administration of science at grades 5, 8, and 11. See Appendix A for information regarding the science pilot.

## Purpose of the MAP-A

The MAP-A is a performance-based assessment that provides assessment opportunities for students with severe disabilities. 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, Missouri 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 and mathematics. Missouri educators worked with the Missouri Department of Elementary and Secondary Education (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.

MAP-A results are intended to inform stakeholders about student achievement on Missouri's communication arts and mathematics content 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. Teachers observe and assess a student's performance and collect evidence in each strand during two distinct collection periods. The assessment 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 to ensure that there is a connection between the Show-Me Standards and instruction.

The MAP-A assessment relies on the involvement of teachers to customize the assessment for each student. Using the MAP-A blueprint and the student's Individual Educational Plan (IEP), teachers select APIs appropriate for assessment for each student. Once these are selected, teachers design individual activities to assess performance on the skill in the API. They then record student performance and submit the required evidence for scoring. The scoring process considers the student's level of accuracy and independence when engaged in the assessment activity, as reported by the teacher administering the assessment. The scoring process also considers whether the assessment activity designed for each student connects to the API as required, and thus connects to the standards required for assessment. The level of teacher involvement required by the MAP-A encourages instruction aligned with the AGLEs.

## History

In September 2004, the Missouri Department of Elementary and Secondary Education (DESE) issued an RFP for the redesign of the MAP-A. Following evaluation of responses to its RFP, DESE entered into a contract with Measured Progress and the Assessment Resource Center (ARC) for the development of a new alternate assessment.

The resulting redesigned MAP-A, a collaborative project between Measured Progress, ARC, and the DESE Curriculum and Assessment and Special Education divisions, is based on and aligned to Missouri's Show-Me Standards, GLEs, and AGLEs in communication arts and mathematics. Missouri educators (including teachers and administrators) and parents worked with DESE and Measured Progress in the development and review of AGLEs and the development of the assessment design and blueprint. An advisory committee of parents, teachers, and administrators and work groups of communication arts, mathematics, and special education teachers provided input at several points in the development and revision process. Special education teachers participated in the pilot testing and scoring of the initial assessment, providing valuable feedback about the test design.

The AGLEs were developed for students with significant disabilities that keep them from working at the same cognitive level as their age-level cohorts. Measured Progress curriculum and special education specialists used the Show-Me Standards and GLEs for communication arts and mathematics to develop draft AGLEs. Based on recommendations from review committees and DESE staff, Measured Progress revised the AGLEs, and this revised document was used to develop the APIs. Following a pilot administration during the 2004-2005 school year, additional revisions were made based on teacher feedback. MAP-A was first fully implemented during the 2005-2006 school year. More information regarding the development of the MAP-A may be found in the *MAP-A 2006 Technical Manual*.

In June 2006, following the first operational administration of the MAP-A, Measured Progress conducted a standard-setting meeting, using the Body of Work method, to set cut scores and establish achievement levels for MAP-A Mathematics and Communication Arts assessments.

Panelists were selected prior to the standard setting meeting. Panels were composed of special education and content teachers, school administrators, higher education personnel and/or stakeholders from interest groups related to significant disabilities, and parents of students with significant cognitive disabilities. Following the meeting, the panelists' feedback was analyzed and reviewed. Final round cut scores were prepared, smoothed cut scores were prepared, statistical results summarized, and the standard setting report prepared.

The report was presented to Missouri's Technical Advisory Committee (TAC) in August 2006. The cut scores were then presented to and approved by the Missouri State Board of Education. See the *Missouri Assessment Program-Alternate (MAP-A) Standard Setting Report* for more information regarding the standard setting process. The timeline below outlines the chronology of major MAP-A activities.

## Timeline

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.
- 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.

# Operational Assessment Administration

---

The MAP-A was administered in the spring of 2007 to students meeting the state'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. Students from 391 districts participated in the MAP-A; 4,125 students participated in mathematics and 4,113 students participated in communication arts assessments.

In addition to operational assessments for mathematics and communication arts, pilot assessments for science were administered to 92 students.

## Eligible Students

All students are required to participate in the Missouri Assessment Program in one of three ways: (1) the general MAP, (2) the general MAP with accommodations, or (3) 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

- |   |   |   |
|---|---|---|
| — | — | 1. The student has a demonstrated significant <u>cognitive</u> disability and <u>adaptive</u> behavioral skills. Therefore, the student has difficulty acquiring new skills, and skills must be taught in very small steps. |
| — | — | 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.   |
| — | — | 3. The student's educational program centers on the <u>application of essential skills</u> to the Missouri Show-Me Standards.   |
| — | — | 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.  |
| — | — | 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.

Approximately 1% of Missouri students assessed are expected to participate in the MAP-A because the general MAP provides full access to the vast majority of students. In accordance with NCLB under 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 2006. 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 2007.

## 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 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 Mathematics and Communication Arts, as shown in Tables 1 and 2.

**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 10	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 11	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> )

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). Following is a sample of nine Measurement APIs.

## Alternate Performance Indicators (APIs)

---

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

- ME1.1.** Recognize, compare, and order attributes such as length and weight.
- Compare and communicate the length of 2 objects directly, using words such as “bigger,” “smaller,” “longer,” “shorter,” and “taller.”
  - Compare and communicate the weight of 2 objects directly, using words such as “heavier,” and “lighter.”
  - Engage in experiences to connect number with length, using both conventional rulers and manipulative units that are standard units, such as centimeter cubes.
  - Engage in experiences to connect number with weight, using balance and spring scales.
  - Select and identify the appropriate tool for the attribute being measured.
  - Show understanding of unit iteration for length measurement (e.g., placing units end to end in some manner, with no gaps).**
  - 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).**
  - 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. For each API, 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 that is appropriate for inclusion in the portfolio is submitted.

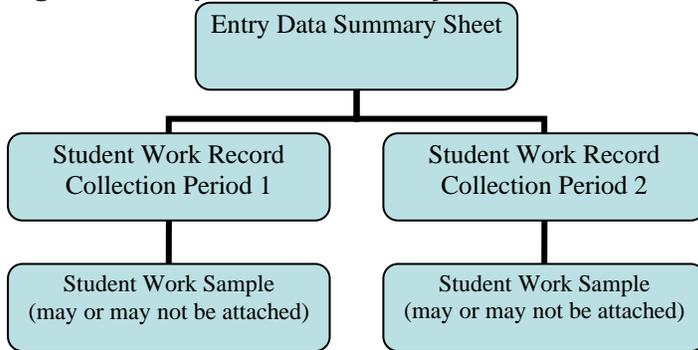
A **complete MAP-A entry** is defined, at a minimum, as one Entry/Data Summary Sheet and two Student Work records documenting six data points for each API. Because there are four APIs, and four entries required, a student’s mathematics submission will contain documentation for 24 data points, at a minimum.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

---

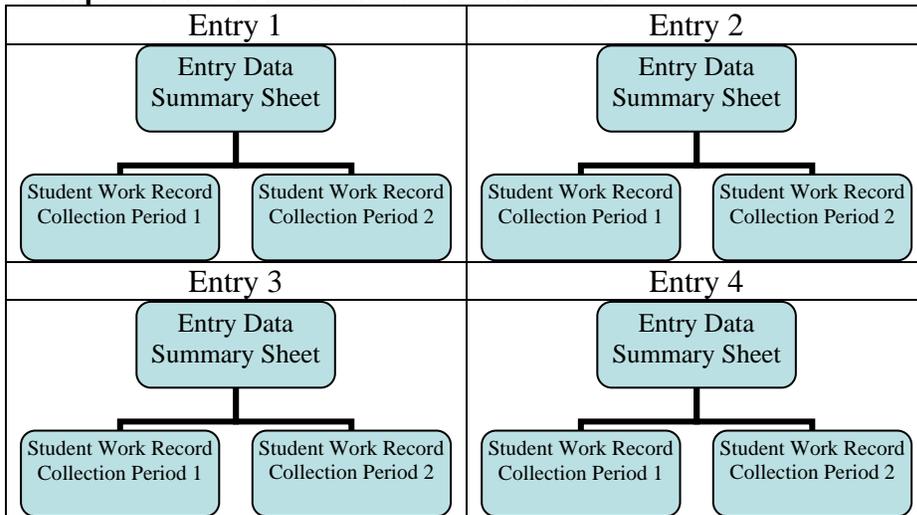
<sup>1</sup><http://www.dese.mo.gov/divimprove/assess/mapa.html>

MAP-A data points per student participating in both mathematics and communication arts assessments. Figure 1 illustrates a complete MAP-A entry and complete Mathematics and Communication Arts submissions of four entries each. Table 3 further outlines the requirements.

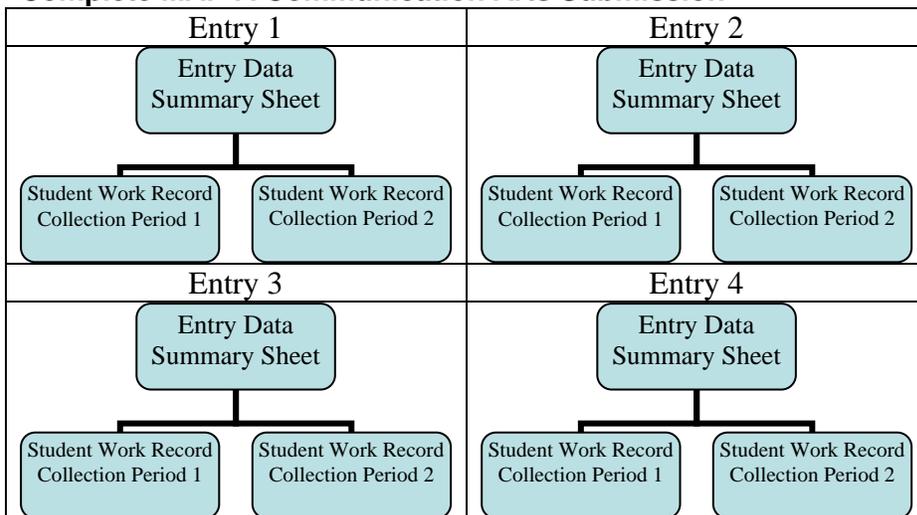
**Figure 1 Complete MAP-A Entry**



**Complete MAP-A Mathematics Submission**



**Complete MAP-A Communication Arts Submission**



**Table 3**

<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		

## **Steps for Administration**

The administration process can be broken into 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. The 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 Entry/Data Summary Sheet:

- 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?
  - a. Discrete trials
  - b. Task analyses
  - c. Time intervals
  - d. 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, Regional Technical Assistance Consultants (RTACs) hold primary responsibility for training Missouri teachers about MAP-A. On August 10, 2006, an administration training was delivered to RTACs and Improvement Consultants employed by the state's RPDCs, staff from the State Schools for Severely Handicapped, and staff from the Department of Elementary and Secondary Education Assessment Section and Division of Special Education. The intent of the training was to provide RTACs and others with the information necessary to train teachers in the MAP-A administration process. The 28 participants represented all nine regions of the state. Participants were provided with a copy of the *2006-2007 MAP-A Instructor's Guide and Implementation Manual* and supporting materials that included sample agendas, blank activity sheets with attached step-by-step instructions and 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 2007, 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 AGLs 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 2006 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 RTACs 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 2007 *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.

Based on feedback from teachers across the state, most RPDCs offered a training for those new to MAP-A and a training session specifically designed for returning MAP-A teachers. In addition, many regions offered drop-in days, during which teachers could drop by a meeting room with MAP-A assessments-in-development and ask for assistance not only from the RTACs and RPDC staff, but also from their peers in attendance. Table 4 indicates the number of workshops offered by each region and the number of participants at those trainings.

**Table 4**

<b>2007 MAP-A Administration Training by Region</b>		
<b>Region</b>	<b>Number of Workshops Offered</b>	<b>Number of Participants Attending</b>
Southeast	6	218
Heart of Missouri	4	155
Kansas City	3	*
Northeast	7	105
Northwest	6	63
South Central	2	99
Southwest	7	165
St. Louis	14	513
Central	2	54
Totals	51	1,372

\*Data unavailable

## Implementation Schedule

The schedule for the MAP-A began with the August 10, 2006, administration training and continued with trainings conducted by RPDC staff beginning in September 2006. Materials were shipped to districts November 2006 through early January 2007, and two distinct data collection periods spanned January through mid-March 2007. MAP-A submissions were returned to ARC in March 2007 for scoring. Table 5 outlines this timeline.

**Table 5**

<b>2007 MAP-A Timeline</b>	
Enrollment Window	October 9–October 27, 2006
Transfer Administration Date	January 16, 2007
Collection Period 1	January 8–February 2, 2007
Collection Period 2	February 5–March 2, 2007
Submit Completed MAP-A within District	March 5–March 11, 2007
Return Deadline	March 12, 2007

## Participation

MAP-A binders for 4,660 students were submitted for scoring of operational mathematics and communication arts assessments. Ninety-three students participated in the science pilot. Details regarding Missouri student participation in the 2007 MAP-A operational and pilot assessments are provided in Table 6.

**Table 6**

<b>Content Area</b>	<b>2007 MAP-A Participation</b>						<b>Pilot</b>		
	<b>Operational Assessment</b>						<b>Science</b>		
	<b>Mathematics</b>			<b>Communication Arts</b>					
Grade Span/ Level	3–5	6–8	10	3–5	6–8	11	5	8	11
Districts with Students Participating	329	330	175	329	330	78	23	36	12
Students Participating	1758	1820	535	1758	1820	547	28	50	15

## Historical Changes in Assessment Design and Administration

### Shift from Three Collection Periods to Two Collection Periods

Initially the MAP-A required three collection periods. During and following the 2005-2006 administration period, the state heard serious concerns about perceived detrimental effects on students and teachers and concerns about MAP-A data-collection requirements from teachers, special education administrators, and other stakeholders. After careful consideration of these concerns, DESE modified the MAP-A design, reducing the number of required data points by eliminating one of three collection periods. The impact of this decision on scoring will be discussed in the Scoring and Reporting chapter.

## Changes to MAP-A Forms

The forms used in documenting MAP-A data for submission were modified in response to two factors: 1) the shift from three collection periods to two and 2) concerns from teachers and other stakeholders who found some features confusing and made suggestions for clarification or enhancement. The following changes were made to the 2006 – 2007 MAP-A forms.

### Table of Contents Checklist

- Elements from the 3<sup>rd</sup> collection period eliminated from the checklist  
Validation Form
- Section added for optional (no impact on scoring) description of student’s mode of communication
- Additional district-identifying information required  
Entry/Data Summary Sheet
- Elements from the 3<sup>rd</sup> collection period eliminated from the form
- Space provided for documenting only the three data points required per collection period—earlier forms had allowed space for more data than required
- Graphic indication of data point for which Student Work Record is provided
- Removal of task/activity description  
Student Work Record
- New form combining the Tangible Work Product Label and the Teacher Observation & Anecdotal Record Form
- Elements from the 3<sup>rd</sup> collection period eliminated from the form
- Evaluation of level of independence and level of accuracy descriptions separated into two sections

MAP-A forms for 2006–2007 may be found in Appendix B.

# Scoring and Reporting

---

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 April 2007.

## 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 make up the total mathematics or communication arts raw score. The total raw score ranges from 0 to 44 points.

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.
An API Entry is missing.	Entry is assigned “0 Data Points” in both collection periods and “No Score” for each dimension on 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.
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 (team leaders) about how to score 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-four scorers and five scoring facilitators scored the 2006-2007 MAP-A submissions from March through April 2007. 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. Following qualification they were given hands-on training. Scorer training focuses 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. Together, they focused on calibration among facilitators and between facilitators and scorers. Facilitators conducted a blind second score, or validation score, of the first, third, fifth, and every subsequent fifth portfolio 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 from the “In Box.”
2. Apply numbered sticker to MAP-A binder spine. The first, third, and every fifth sticker is blue.
3. Verify that 2 scannable score sheets 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. Binders with blue stickers: Return completed scannable score sheet to MAP-A binder and place the binder in “Team Leader Read Box.”
7. All other binders: Place completed scannable score sheet in “Completed Score Sheet Tray” and the MAP-A binder in the “Completed Box.”
8. 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 with blue stickers from the “Team Leader Read Box.”
4. Complete Discrepancy Worksheet.
5. Place scannable score sheets in “Completed Score Sheet Tray.”
6. Remove scored MAP-A binders from the “Completed Box” and sort into boxes on the tables at the east partition wall.
7. 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 and one for teachers. Paper reports were printed at ARC or at the University of Missouri Printing Services located in the same building. 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 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 four 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.

### 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 contained a summary of data of students who attend the State Schools for Severely Handicapped (SSSH) and compared building performance by content area, grade span, and achievement level to overall SSSH performance.

### State Schools Report

This report was similar to the District Report but contained a summary of data of students who attend SSSH and compared building performance 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 and communication arts reports for students who reside and/or attend in the district.

## Reporting Decision Rules

Reports include 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>2007 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 have moved in or out of the district after January 16, 2007.

## Student Performance

The following tables present information regarding 2007 MAP-A Student Performance.

**Table 10: 2007 MAP-A Achievement Level Distribution**

Grade Span	Achievement Level	Mathematics		Communication Arts	
		Count	Percentage	Count	Percentage
All Grades	Level Not Determined	190	4.6	199	4.8
	Below Basic	155	3.8	175	4.3
	Basic	367	8.9	705	17.1
	Proficient	1,643	39.8	1,597	38.8
	Advanced	1,770	42.9	1,437	34.9
	<b>Total</b>	<b>4,125</b>	<b>100.0</b>	<b>4,113</b>	<b>100.0</b>
Elementary	Level Not Determined	83	4.7	95	5.4
	Below Basic	41	2.3	43	2.5
	Basic	128	7.3	192	10.9
	Proficient	631	35.9	716	40.7
	Advanced	875	49.8	712	40.5
	<b>Total</b>	<b>1,758</b>	<b>100.0</b>	<b>1,758</b>	<b>100.0</b>
Middle School	Level Not Determined	81	4.5	76	4.2
	Below Basic	92	5.1	76	4.2
	Basic	161	8.9	392	21.5
	Proficient	790	43.4	739	40.6
	Advanced	696	38.2	537	29.5
	<b>Total</b>	<b>1,820</b>	<b>100.0</b>	<b>1,820</b>	<b>100.0</b>
High School	Level Not Determined	26	4.8	28	5.2
	Below Basic	22	4.0	56	10.5
	Basic	78	14.3	121	22.6
	Proficient	222	40.6	142	26.5
	Advanced	199	36.4	188	35.1
	<b>Total</b>	<b>547</b>	<b>100.0</b>	<b>535</b>	<b>100.0</b>

**Table 11: 2007 MAP-A Mathematics Achievement Level Distribution by Grade Level**

<b>Mathematics</b>											
<b>Grade Level</b>	<b>Total Students</b>	<b>Level Not Determined</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
3	604	33	5.5	15	2.5	41	6.8	206	34.1	309	51.2
4	590	31	5.3	11	1.9	39	6.6	207	35.1	302	51.2
5	564	19	3.4	15	2.7	48	8.5	218	38.7	264	46.8
6	610	18	3.0	37	6.1	56	9.2	270	44.3	229	37.5
7	608	27	4.4	30	4.9	59	9.7	253	41.6	239	39.3
8	602	36	6.0	25	4.2	46	7.6	267	44.4	228	37.9
10	547	26	4.8	22	4.0	78	14.3	222	40.6	199	36.4
<b>Totals</b>	<b>4,125</b>	<b>190</b>		<b>155</b>		<b>367</b>		<b>1,643</b>		<b>1,770</b>	

**Table 12: 2007 MAP-A Communication Arts Achievement Level Distribution by Grade Level**

<b>Communication Arts</b>											
<b>Grade Level</b>	<b>Total Students</b>	<b>Level Not Determined</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
3	604	40	6.6	12	2.0	63	10.4	243	40.2	246	40.7
4	590	36	6.1	14	2.4	50	8.5	240	40.7	250	42.4
5	564	19	3.4	17	3.0	79	14.0	233	41.3	216	38.3
6	610	22	3.6	33	5.4	130	21.3	235	38.5	190	31.2
7	608	28	4.6	24	4.0	123	20.2	258	42.4	175	28.8
8	602	26	4.3	19	3.2	139	23.1	246	40.9	172	28.6
11	535	28	5.2	56	10.5	121	22.6	142	26.5	188	35.1
<b>Totals</b>	<b>4,113</b>	<b>199</b>		<b>175</b>		<b>705</b>		<b>1,597</b>		<b>1,437</b>	

**Table 13: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by Gender**

<b>By Gender</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	Male	95	3.6	235	8.9	1,034	39.2	1,154	43.7	121	4.6
	Female	60	4.0	132	8.9	609	41.0	616	41.5	69	4.6
<b>Communication Arts</b>	Male	122	4.7	461	17.6	1004	38.3	911	34.7	125	4.8
	Female	53	3.6	244	16.4	593	39.8	526	35.3	74	5.0

**Table 14: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by Ethnicity**

<b>By Ethnicity</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	Native American	0	0.0	2	25.0	3	37.5	3	37.5	0	0.0
	Asian/Pacific Islander	1	4.5	9	1.5	33	13.4	21	49.3	3	31.3
	Black, not Hispanic	40	6.8	65	4.7	321	7.7	362	38.0	57	42.8
	Hispanic	5	3.4	12	4.3	40	10.3	56	34.2	4	47.9
	White, not Hispanic	109	4.1	279	3.5	1246	9.0	1328	40.4	126	43.0
<b>Communication Arts</b>	Native American	0	0.0	0	0.0	5	55.6	4	44.4	0	0.0
	Asian/Pacific Islander	5	3.2	12	8.1	23	19.4	20	37.1	2	32.3
	Black, not Hispanic	41	7.2	134	4.9	324	15.9	282	38.5	61	33.5
	Hispanic	6	4.2	19	5.1	45	16.1	43	38.1	5	36.4
	White, not Hispanic	123	4.3	540	4.0	1200	17.5	1088	38.9	131	35.3

**Table 15: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by Primary Disability**

<b>By Primary Disability</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	MR	94	4.1	213	9.2	924	40.0	985	42.6	94	4.1
	ED	0	0.0	2	4.3	17	36.2	26	55.3	2	4.3
	Orthopedic	1	2.3	3	6.8	14	31.8	23	52.3	3	6.8
	Visual	2	5.9	1	2.9	21	61.8	8	23.5	2	5.9
	Hearing	0	0.0	0	0.0	1	14.3	5	71.4	1	14.3
	LD	2	2.2	5	5.6	31	34.4	50	55.6	2	2.2
	Other Health	11	3.2	29	8.5	135	39.4	152	44.3	16	4.7
	Deaf/Blindness	0	0.0	1	16.7	2	33.3	3	50.0	0	0.0
	Multiple Disabilities	28	6.0	60	12.8	197	42.1	147	31.4	36	7.7
	Autism	12	1.7	47	6.8	267	38.8	338	49.1	24	3.5
	Traum. Brain Injury	4	10.5	3	7.9	13	34.2	13	34.2	5	13.2
	Language	1	2.7	2	5.4	17	46.0	13	35.1	4	10.8
	Speech	0	0.0	1	7.7	4	30.8	7	53.9	1	7.7
<b>Communication Arts</b>	MR	100	4.3	413	17.9	895	38.8	779	33.8	118	5.1
	ED	2	4.6	5	11.4	15	34.1	21	47.7	1	2.3
	Orthopedic	1	2.3	8	18.6	18	41.9	13	30.2	3	7.0
	Visual	1	2.7	8	21.6	21	56.8	6	16.2	1	2.7
	Hearing	1	12.5	2	25.0	2	25.0	2	25.0	1	12.5
	LD	2	2.0	10	9.9	32	31.7	55	54.5	2	2.0
	Other Health	10	3.0	53	15.7	126	37.3	132	39.1	17	5.0
	Deaf/Blindness	0	0.0	1	25.0	2	50.0	1	25.0	0	0.0
	Multiple Disabilities	26	5.6	89	19.1	187	40.0	138	29.6	27	5.8
	Autism	32	4.7	106	15.6	265	39.1	253	37.3	22	3.2
	Traum. Brain Injury	0	0.0	5	13.5	15	40.5	14	37.8	3	8.1
	Language	0	0.0	4	10.3	14	35.9	18	46.2	3	7.7
	Speech	0	0.0	1	8.3	5	0.0	0	1.0	7.69	4.0

**Table 16: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by Student Status**

<b>By Student Status</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	Gifted	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
	H.S. Career Education	0	0.0	0	0.0	2	40.0	2	40.0	1	20.0
	IAP	0	0.0	1	50.0	0	0.0	1	50.0	0	0.0
	IEP	155	3.8	366	8.9	1642	39.9	1762	42.8	190	4.6
	In Building Less Than a Year	13	3.8	20	5.8	150	43.2	151	43.5	13	3.8
	In District Less Than a Year	8	4.3	14	7.5	76	40.9	79	42.5	9	4.8
	Migrant	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0
	SES	11	1.9	42	7.3	248	43.1	264	45.8	11	1.9
	Title I	7	4.0	9	5.1	61	34.9	91	52.0	7	4.0
	Voluntary Transfer Student	1	4.2	1	4.2	8	33.3	14	58.3	0	0.0
<b>Communication Arts</b>	Gifted	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	H.S. Career Education	1	7.1	3	21.4	5	35.7	5	35.7	0	0.0
	IAP	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0
	IEP	174	4.2	703	17.1	1594	38.9	1432	34.9	199	4.9
	In Building Less Than a Year	15	4.4	61	18.0	135	39.8	114	33.6	14	4.1
	In District Less Than a Year	4	2.2	27	14.8	79	43.2	64	35.0	9	4.9
	Migrant	0	0.0	0	0.0	1	50.0	0	0.0	1	50.0
	SES	20	3.4	94	15.9	254	42.8	212	35.8	13	2.2
	Title I	4	2.3	17	9.8	76	43.7	70	40.2	7	4.0
	Voluntary Transfer Student	0	0.0	4	16.7	10	41.7	10	41.7	0	0.0

**Table 17: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by ELL Status**

<b>By ELL Status</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	Rev. Services	0	0.0	1	11.1	6	66.7	2	22.2	0	0.0
	Monitoring	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0
	Title III	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
<b>Communication Arts</b>	Rev. Services	0	0.0	0	0.0	5	62.5	2	25.0	1	12.5
	Monitoring	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0
	Title III	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0

**Table 18: 2007 MAP-A Mathematics and Communication Arts Achievement Level Distribution by Classroom Instruction**

<b>By Classroom Instruction</b>											
<b>Achievement Level</b>		<b>Below Basic</b>		<b>Basic</b>		<b>Proficient</b>		<b>Advanced</b>		<b>Level Not Determined</b>	
		<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
<b>Mathematics</b>	Less Than 21% of Day	0	0.0	3	9.7	14	45.2	13	41.9	1	3.2
	21% to 60% of School Day	18	2.3	55	6.9	319	40.0	377	47.2	29	3.6
	More Than 60% of Day	79	3.4	178	7.6	907	38.7	1066	45.4	117	5.0
	Separate Building	58	6.1	131	13.8	403	42.5	314	33.1	43	4.5
<b>Communication Arts</b>	Less Than 21% of Day	0	0.0	8	25.0	15	46.9	8	25.0	1	3.1
	21% to 60% of School Day	25	3.1	97	11.9	338	41.5	318	39.0	37	4.5
	More Than 60% of Day	98	4.2	379	16.3	886	38.0	844	36.2	122	5.2
	Separate Building	52	5.6	221	23.6	358	38.2	267	28.5	39	4.2

## Historical Changes in Assessment Design and Administration

The MAP-A changed from three collection periods to two collection periods in 2007. To evaluate the impact of this change, the state consulted with Measured Progress, which in turn proposed changes to the scoring rubric. The maximum possible raw score was changed from 12 points per entry to 11 points per entry. Since cut scores had been set using raw scores from the three-collection-period design at standard setting meetings held in June 2006, Measured Progress recommended new raw score cut points for the 2006-2007 MAP-A. The recommendations were based on results of an equipercentile linking of data collected after rescoring a subset of the 2006 submissions using the revised scoring rubric.

The plan called for approximately 750 mathematics and 750 communication arts submissions from the 2005-2006 administration to be rescored. The sample selected for rescoring reflected the score distribution from the initial scoring as closely as possible. For more information regarding representativeness, see Appendix I. Prior to selecting the sample, binders with zero scores were excluded from the pool. The rescoring considered only information from collection periods one and two because the proposed shift to two collection periods would coincide with the timing of the first two collection periods in the three-collection-period design. The rescoring also employed the same read-behind rate as the initial scoring and used the scoring rules revised and approved for the shift to two collection periods.

After training in the new scoring rules, ARC assigned sixteen scorers and the five team leaders from the 2005-2006 scoring season to rescore the selected cases. This took place May 2 through May 12, 2006, immediately upon completion of the original scoring. As part of the rescoring process:

- Every submission rescored required recalculations to average entry percentages for *Level of Accuracy* and *Level of Independence*.
- Three scoring rules were changed to reflect the shift from three collection periods to two.
- The rubric for *Connection to Standards* was originally a four-point scale, but was changed to a three-point scale.

Table 19 illustrates the changes in scoring rules.

**Table 19**

<b>Scoring Rule Changes</b>		
<b>Data Irregularity</b>	<b>3 Collection Period Scoring Rule</b>	<b>2 Collection Period Scoring Rule</b>
One out of three collection periods is incomplete.	Collection period will average a zero for Level of Independence and a zero for Level of Accuracy.	Rule omitted.
Two out of three collection periods are incomplete. <b>One out of two collection periods is incomplete.*</b>	Entry will be assigned a “No Score” for each dimension on the rubric.	Entry will be assigned a “No Score” for each dimension on the rubric.
API is not consistent across the collection periods.	If two out of three of the collection periods have the same API, score the two collection periods that use the same API and the other collection period will be considered missing. If the API is different in all 3 collection periods the API Entry will be unscorable.	If the API is different in both collection periods the API Entry will be unscorable.

\*Reflects a change in the data irregularity in two-collection-period design.

ARC pulled the binders necessary for the rescoring and completed the project using the new rubric. Data from the rescoring was electronically transmitted to Measured Progress. After conducting the linking, three proposed cut points were calculated to separate the four achievement levels (*Below Basic, Basic, Proficient, and Advanced*) for each grade span/content area combination. The resulting cut scores may be found in Appendix C. Refer to Appendix I, Results of Linking the 2006-2007 and 2005-2006 Missouri Assessment Program-Alternate Cut Points, for a detailed description of the process.

# Reliability and Validity

---

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 for each Alternate Performance Indicator (API): three data points collected during two collection periods. These are averaged for a single API score.

Internal consistency or homogeneity of the MAP-A can be computed as an estimate of reliability, with caution. Recall that two APIs are completed for each of two strands within each domain (mathematics or communication arts). Thus, each student has four API scores recorded for each domain. 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:

Treating the two APIs as two halves of a test within the same strand and correlating the two scores;

Treating all four APIs as items of a test of the same domain (i.e., mathematics or communication arts) and computing 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 API 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. On the MAP-A there is restricted variation. Teachers can select APIs that they are fairly certain each student can pass. Thus, there is a negative skew on API scores, with roughly 1/3 of the students scoring at ceiling.
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 – 16 report reliability estimates. Split-half reliabilities for Strands 1 and 2 can be thought of as replications of each other, within each domain. 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	.71	.83	.72	.70	.81
Independence	.79	.78	.85	.76	.79	.84
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.58	.54	.70	.56	.61	.72
Level of Independence (0 – 4)	.62	.59	.74	.58	.65	.75
Connections to Standards (0 – 3)	.59	.56	.71	.57	.61	.71

*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 4,660, due to missing data, entry average reliabilities are based on 2,896 – 3,662 cases. Rubric score reliabilities are based on 3,998 – 4,040 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	.76	.73	.83	.76	.69	.81
Independence	.81	.80	.86	.75	.82	.85
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.64	.60	.76	.61	.71	.76
Level of Independence (0 – 4)	.69	.65	.79	.62	.77	.79
Connections to Standards (0 – 3)	.65	.61	.75	.60	.71	.75

*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 1,759, due to missing cases, entry average reliabilities are based on 1,296 – 1,512 cases. Rubric score reliabilities are based on 1,713 – 1,726 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	.71	.69	.81	.66	.72	.80
Independence	.77	.75	.85	.76	.73	.82
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.49	.51	.65	.53	.55	.70
Level of Independence (0 – 4)	.55	.55	.69	.56	.57	.72
Connections to Standards (0 – 3)	.53	.56	.68	.56	.53	.68

*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 1,813, due to missing data entry average reliabilities are based on 1,223 – 1,491 cases. Rubric score reliabilities are based on 1,776 – 1,786 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	.82	.69	.85	.71	.71	.81
Independence	.79	.77	.84	.81	.79	.87
<b>Rubric Score</b>						
Level of Accuracy (0 – 4)	.57	.44	.66	.50	.54	.65
Level of Independence (0 – 4)	.60	.53	.69	.56	.55	.69
Connections to Standards (0 – 3)	.61	.50	.69	.54	.53	.68

*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 546 (10<sup>th</sup> grade) and 532 (11<sup>th</sup> grade), due to missing data entry average reliabilities are based on 356 – 442 cases. Rubric score reliabilities are based on 506 – 534 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 API. The average for these six data points is taken as the student’s score for that API. 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 blind second scores, or read-behinds, of the first, third, fifth, and every subsequent fifth portfolio scored by scorers. Thus, approximately 20% of the MAP-As are checked for inter-rater agreement.

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 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 17 – 19 summarize agreement reports for the 3,655 MAP-A entries that received a second score during the 2007 scoring season. Of these entries, 1,735 were mathematics entries and 1,920 were communication arts entries. 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 maximum possible score per entry is 11 points.

**Table 17**

Level of Accuracy		
Content Area	Agreement	Agreement Rate
Mathematics	Perfect	94.46%
	Adjacent	1.33%
	Non-Adjacent	4.20%
Communication Arts	Perfect	93.25%
	Adjacent	2.35%
	Non-Adjacent	4.40%

**Table 18**

Level of Independence		
Content Area	Agreement	Agreement Rate
Mathematics	Perfect	93.52%
	Adjacent	2.57%
	Non-Adjacent	3.91%
Communication Arts	Perfect	92.00%
	Adjacent	3.60%
	Non-Adjacent	4.40%

**Table 19**

<b>Connection to the Standards</b>		
<b>Content Area</b>	<b>Agreement</b>	<b>Agreement Rate</b>
<b>Mathematics</b>	Perfect	91.10%
	Adjacent	2.82%
	Non-Adjacent	6.08%
<b>Communication Arts</b>	Perfect	88.41%
	Adjacent	3.55%
	Non-Adjacent	8.04%

Inter-rater agreement among scoring facilitators was also assessed in order to curb drift in scoring and to ensure the consistent application of scoring rules and rubric scores to each submission. Twenty MAP-A submissions were selected at random and scored in advance by MAP-A program staff to serve as check sets. Scoring facilitators randomly circulated and scored these unmarked binders during the scoring window, and their agreement was evaluated. Table 20 below contains the check set agreement rates for the five facilitators. Facilitators also participated in group norming sessions, led by MAP-A program staff, to discuss and resolve scoring issues and review specific samples from MAP-A submissions.

**Table 20**

<b>2007 MAP-A Facilitator Check Set Score Agreement Rates</b>						
<b>Rubric Dimension</b>	<b>Agreement</b>	<b>Agreement Rate Facilitator 1</b>	<b>Agreement Rate Facilitator 2</b>	<b>Agreement Rate Facilitator 3</b>	<b>Agreement Rate Facilitator 4</b>	<b>Agreement Rate Facilitator 5</b>
<b>Level of Accuracy</b>	Perfect	60%	100%	75%	100%	75%
	Adjacent	40%	0%	25%	0%	25%
	Non-Adjacent	0%	0%	0%	0%	0%
<b>Level of Independence</b>	Perfect	75%	100%	75%	100%	75%
	Adjacent	25%	0%	25%	0%	25%
	Non-Adjacent	0%	0%	0%	0%	0%
<b>Connection to the Standards</b>	Perfect	100%	100%	75%	100%	60%
	Adjacent	0%	0%	25%	0%	30%
	Non-Adjacent	0%	0%	0%	0%	10%

## **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 sampling, 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 conducted by Dr. Norman Webb, University of Wisconsin, commissioned by DESE, addressed 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.

Following the study, the state determined that the Webb model did not lend itself well to determining the alignment of an alternate assessment of MAP-A's nature. Nevertheless, some feedback from the study proved to be relevant. DESE implemented the following suggestions:

- Beyond requiring teachers to select activities from two strands, teachers were also required to select activities from different goals within the strands.
- DESE provided additional training for teachers in selecting activities at an appropriate depth-of-knowledge level for communication arts and for matching the given APIs for both content areas.

Further, DESE is aware that other states have used a variety of approaches to evaluating the alignment of alternate assessments, many based on modifications of the Webb model. DESE is seeking a more appropriate model for studying alignment in alternate assessment. 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.

### **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 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 and from 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.

## 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 child 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 child 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 child an *acquisition* rather than *application* task, the child would get a lower "Connections to Standards" score, which would reduce the rubric score to 8-10 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 child outside the specified time period, the child 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.

Clearly, 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, we 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 child 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 and mathematics and to improve instructional programs.

# MAP-A Information Security

---

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

---

In considering the next assessment year, it is clear that several changes will occur in the MAP-A. First, science becomes a required subject for operational MAP-A assessment in grades 5, 8, and 11. In preparation, the administration training for teachers will be expanded, using the science pilot administration training and pilot teacher feedback as resources, to include a discussion of science assessment requirements. A set of sample science entries will be developed as a training resource for teachers.

Scorer training materials will be revised to include the specific scoring procedures required for science entries. The revisions to scorer training will be based upon the materials developed for scoring the science pilot and the feedback from the pilot scoring workshop. In an effort to increase reliability, each MAP-A science submission will be read by two independent scorers. In the event of disagreement between the first two reads, a third read will be conducted by a scoring facilitator (team leader) to resolve the disagreement in score.

The MAP-A *Instructor's Guide and Implementation Manual*, which is an important resource for teachers who administer the MAP-A, will be revised in response to teacher and RPDC improvement consultant feedback. Along with sample science entries, additional mathematics and communication arts sample entries will be developed from actual student responses to provide a wider variety of resources for teachers.

DESE plans to provide additional guidance to teachers for selecting APIs. 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 better understand the impact the MAP-A may be having on the quality of instruction delivered to students with severe cognitive disabilities, DESE's investigation of the intended and unintended consequences of its assessment system will include stakeholders involved with instruction and assessment of MAP-A students.

## References

---

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for Educational and Psychological Testing*. Washington DC: American Educational Research Association.

Embretson, S. E. (2007). Construct validity: A universal validity system or just another test evaluation procedure? *Educational Researcher* 36(8), 449–455.

Linn, R. L. (1997). Evaluating the validity of assessments: The consequences of use. *Educational Measurement: Issues and Practice* 16(2), 14–16.

Lissitz, R. W., & Samuelsen, K. (2007). A suggested change in terminology and emphasis regarding validity and education. *Educational Researcher* 36(8), 437–448.

Popham, W. J. (1997). Consequential validity: Right concern - wrong concept. *Educational Measurement: Issues and Practice* 16(2), 9–13.

Shepard, L. A. (1997). The centrality of test use and consequences for test validity. *Educational Measurement: Issues and Practice* 16(2), 5–24.

# Appendix A: Science Pilot Assessment Development Process

---

## 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, p.42, 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**

<b>Terminology</b>	
<b>Term/Description</b>	<b>Examples</b>
<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 style="padding-left: 20px;"><b>a.</b> Recognize that objects have specific properties (i.e., size, shape, color, mass, smell, texture, and/or temperature).</p> <p style="padding-left: 20px;"><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, p. 46, 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 review 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**

Science			
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 WS	CP 2 WS	CP 1 WS	CP 2 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 and locations were as follows.

Tuesday, December 11	Kansas City
Wednesday, December 12	Springfield

Thursday, December 13  
Friday, December 14

Columbia  
St. Louis

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

Location	Total Number of Participants
St. Louis	26
Columbia	32
Springfield	39
Kansas City	38
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, p. 46).

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 below 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**

Grade Level	Number of Students
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**

Student Name:				Grade:		
Content Area:				Process Strand:		
				Content Strand:		
Process API:	Process API Description:					
Content API:	Content API Description:					
	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						
Data Type	Student Work Record	Data Point	Data Point	Student Work Record	Data Point	Data Point
Accuracy %						
Independence %						
Average % for Collection Period	Accuracy:			Accuracy:		
	Independence:			Independence:		

	API Entry Average
Level of Accuracy	
Level of Independence	

**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>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> _____%	

**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.)

## Attachment 1

### **Stakeholder Lists**

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

## 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

**MO Alternate Assessment  
Science AGLE Review Committee Evaluation  
July 11 and 12, 2006  
17 Respondents**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
Overall the AGLE review worked well.	1	2	3	4 6	5 11	4.65
The overview on the first day with the whole group was helpful.	1	2	3 2	4 6	5 9	4.41
Once in the small groups the task at hand was clearly defined.	1	2	3	4 4	5 13	4.76
The facilitation of my small group went well.	1	2	3 1	4 3	5 13	4.71
The materials provided were helpful in the process.	1	2 1	3	4 4	5 12	4.59
The facility worked well for this meeting.	1	2	3	4 4	5 13	4.76
The food was great.	1	2 2	3 1	4 7	5 7	4.12
Three things I liked best about this experience...	<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>	

**MO Alternate Assessment  
Science AGLE Review Committee Evaluation  
August 8 and 9, 2006**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Average
Overall the AGLE review worked well. <b>Comment:</b>	1	2	3	4	5	4.7
The overview on the first day with the whole group was helpful. <b>Comment:</b>	1	2	3	4	5	4.8
Once in small groups the task at hand was clearly defined. <b>Comment:</b>	1	2	3	4	5	4.8
The facilitation of my small group went well. <b>Comment:</b>	1	2	3	4	5	4.8
The materials provided were helpful in this process. <b>Comment:</b>	1	2	3	4	5	4.8
The facility worked well for this meeting. <b>Comment:</b>	1	2	3	4	5	4.5
The food was great. <b>Comment:</b>	1	2	3	4	5	3.8
Three things I liked best about this experience...	<ul style="list-style-type: none"> <li>• Using lunch dessert as out afternoon break/snack was a good idea.</li> <li>• Stakeholders well represented; hotel accommodations EXCELLENT! PREP WORK FOR PACKETS/HANDOUTS – GREAT!</li> <li>• Working, collaborating w/other professionals and consistency of participation present.</li> <li>• Alex is great! Wonderful to work with!</li> <li>• Collaboration w/ colleagues &amp; Measured Progress.</li> </ul>					

	<ul style="list-style-type: none"> <li>• Extremely well organized.</li> <li>• We got started on time and stuck with the schedule.</li> <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>

**MO Alternate Assessment  
Science Pilot Training Kansas City  
December 11–14, 2006**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Average</b>
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	2	10	9	5	4.00
The Planning Worksheet Activity was helpful.	0	2	3	13	8	4.04
The questions I had about the pilot were answered.	0	0	1	12	13	4.46
The materials provided were helpful.	0	0	2	11	13	4.42
The facility worked well for this meeting.	3	1	3	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...	

**MO Alternate Assessment  
Science Pilot Training Springfield  
December 11–14,2006**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Average</b>
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

<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>

**MO Alternate Assessment  
Science Pilot Training Columbia  
December 11–14, 2006**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	
<b>Average</b>						
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	1	2	11	15	4.38
The Planning Worksheet Activity was helpful.	0	1	0	14	13	4.39
The questions I had about the pilot were answered.	0	0	3	12	14	4.2
The materials provided were helpful.	0	0	0	9	20	4.70
The facility worked well for this meeting.	0	1	1	5	22	4.70

<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>

**MO Alternate Assessment  
Science Pilot Training St. Louis  
December 11 -14, 2006**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	
<b>Average</b>						
Overall the training worked well.	0	0	0	15	15	4.48
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	4.45
The Planning Worksheet Activity was helpful.	0	0	1	10	20	4.6
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	4.70
The facility worked well for this meeting.	0	0	1	8	22	4.70

<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> |
|--|--|

**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).

---

**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
	<b>0</b>	<b>0</b>	<b>12</b>	<b>8</b>
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
	<b>0</b>	<b>1</b>	<b>11</b>	<b>7</b>
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? <ul style="list-style-type: none"> <li>I had no problems.</li> <li>Drop down boxes.</li> <li>Loved ProFile.</li> <li>The fact that it does not let you make a mistake on the strands.</li> <li>ProFile makes this process so much easier.</li> </ul>				
What did not work? <ul style="list-style-type: none"> <li>Not always user friendly at times.</li> <li>I had problems when I had entered dates and score but the content sheet did not mark.</li> <li>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.</li> </ul>				
What would you change? <ul style="list-style-type: none"> <li>Have it print page numbers.</li> </ul>				

7. ProFile made printing the required forms simple.	Strongly Disagree	Disagree	Agree	Strongly Agree
		0	0	2
What worked? <ul style="list-style-type: none"> <li>I had no problems.</li> <li>The “print all” button was a big help keeping papers organized this year.</li> <li>No problems with printer reading program.</li> <li>It showed you exactly what you needed. Print all button was good.</li> <li>Everything in one place.</li> </ul>				
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>
	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>2</b>	<b>7</b>
	Strongly Disagree	Disagree	Agree	Strongly Agree
<b>MEASURED PROGRESS</b>	<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...</b>	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>
	Strongly Disagree	Disagree	Agree	Strongly Agree
	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>
	Strongly Disagree	Disagree	Agree	Strongly Agree
<b>MEASURED PROGRESS</b>	<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>
What worked? <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>				
What did not work? <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>				
What would you change? <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>
What worked? <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>
What did not work? <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>
What would you change? <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>
Other: <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	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. Overall the training worked well. <b>Comment:</b>	1	2	3	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="width: 20%; text-align: center;">1</td> <td style="width: 20%; text-align: center;">2</td> <td style="width: 20%; text-align: center;">3 1/20 = <b>5%</b></td> <td style="width: 20%; text-align: center;">4 8/20 = <b>40%</b></td> <td style="width: 20%; text-align: center;">5 11/20 = <b>55%</b></td> </tr> </table>	1	2	3 1/20 = <b>5%</b>	4 8/20 = <b>40%</b>	5 11/20 = <b>55%</b>
1	2	3 1/20 = <b>5%</b>	4 8/20 = <b>40%</b>	5 11/20 = <b>55%</b>		
9. The questions I had about the MAP-A were answered. <b>Comment:</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">1</td> <td style="width: 20%; text-align: center;">2</td> <td style="width: 20%; text-align: center;">3 2/20 = <b>10%</b></td> <td style="width: 20%; text-align: center;">4 8/20 = <b>40%</b></td> <td style="width: 20%; text-align: center;">5 10/20 = <b>50%</b></td> </tr> </table>	1	2	3 2/20 = <b>10%</b>	4 8/20 = <b>40%</b>	5 10/20 = <b>50%</b>
1	2	3 2/20 = <b>10%</b>	4 8/20 = <b>40%</b>	5 10/20 = <b>50%</b>		
10. The materials provided were helpful. <b>Comment:</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">1</td> <td style="width: 20%; text-align: center;">2</td> <td style="width: 20%; text-align: center;">3</td> <td style="width: 20%; text-align: center;">4 3/20 = <b>15%</b></td> <td style="width: 20%; text-align: center;">5 17/20 = <b>85%</b></td> </tr> </table>	1	2	3	4 3/20 = <b>15%</b>	5 17/20 = <b>85%</b>
1	2	3	4 3/20 = <b>15%</b>	5 17/20 = <b>85%</b>		
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>
--	--

# Appendix B: Forms

---

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

**Table B.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.
Student Work Records	<p>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</p> <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 B.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 B.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 B.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	<b>12</b>
		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 B.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. Entry/Data Summary Sheet
2. Student Work Record
3. Table of Contents Checklists
  - Grades 3–5
  - Grades 6–8
  - Grade 10
  - Grade 11
4. Validation Form

The MAP-A requires content area strands specific to grade span. Be sure to record the correct strands on the Entry/Data Summary Sheets for each student.

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

## Entry/Data Summary Sheet

<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 8 – February 2</b>			<b>Collection Period 2 February 5 – March 2</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>	Submitted Student Work Record	Data Point	Data Point	Submitted Student Work Record	Data Point	Data Point
<b>Submit One Student Work Record per Collection Period</b>	Y    N	Do not submit Student Work Record for these Data Points.		Y    N	Do not submit Student Work Record for these Data Points.	
<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

Actual student product is attached.

<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> _____%	

**Include Tangible Student Work Product here, if appropriate.**

Submit Tangible Student Work Product 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.

## Table of Contents Checklist

# Elementary

Student: _____	School Year: _____	Grade: 3 4 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

## Table of Contents Checklist

# Middle School

Student: _____	School Year: _____	Grade: 6 7 8
----------------	--------------------	--------------

(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

# 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

## 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

## Appendix C: MAP-A Achievement Level Descriptors and Cut Scores

---

### 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.		

<b>Grades 3-5</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 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.	

<b>Grades 6-8</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.		

<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.		

## MAP-A Cut Scores

Table 18 is excerpted from the report titled “Results of Linking the 2006-2007 and 2005-2006 Missouri Assessment Program-Alternate Cut Points” submitted to DESE May 29, 2007, as a result of the linking study conducted by Measured Progress. The 2005-2006 data included three collection points with a maximum score of 12 per entry, whereas the 2006-2007 included only two collection points with a maximum score of 11 per entry. (Note: CA is Communication Arts.)

**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

BB = Below Basic, B = Basic, P = Proficient, A = Advanced

# Appendix D: Administration Training Materials

---

## 2006-2007 Training Presentation

Slide 1

**Missouri Assessment  
Program—Alternate  
2006 - 2007**



Department of Elementary and Secondary Education  
Measured Progress  
Assessment Resource Center

Slide 2

**Today's Agenda.....**

- Overview of the MAP-A
- 2005-2006 Score Reports
- Training Manual – Changes Highlighted
- Sample Entry Walk Through and Step-by-Step Process
- Lessons Learned
- ProFile Update
- Timeline
- Enrollment
- Question and Answers

## Overview of the MAP-A

### Status Model

- Assessment in Mathematics and Communication Arts
- Collection of Student Work
- Performance Levels
  - Accuracy/Independence
- Connection to the Standards
  - Application of Skills
- Set Time Period
  - Two to three months (Jan.-Mar.)

## 2005-2006 Score Reports



**MAP-A 2006  
Missouri Assessment  
Program - Alternate**

**Student Report  
Mathematics  
(Parent Copy)**

Name: Sample Student  
MOSES: 1234567890 MAP-A #: 1234  
Date of Birth: 01/01/91 Grade: 7

School of Residence:  
School District:  
0123456789

School of Attendance:  
School District:  
0123456789

MAP-A Mathematics Achievement Level: <b>Basic</b>			
<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 novel application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.			
<b>Pficient:</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>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 loosely 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>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>Level Not Determined (LND):</b> Insufficient evidence was reported to assign raw scores to this student's MAP-A; therefore, an achievement level may be assigned.			
API Description			
Strand	API	API Description	Score
Strand 1	NO1.2.a	Use number words together to create the counting sequence by 1s. Start counting sequence with 1 (e.g., 1, 2, ...)	Level of Accuracy: 4 Level of Independence: 4 Connection to Standards: 3
	NO1.4.a	Represent and number collections of items. Show 1 to 100 items.	Level of Accuracy: 0 Level of Independence: 0 Connection to Standards: 0
	DP1.1	Formulate questions that can be addressed with data collection.	Level of Accuracy: 3 Level of Independence: 4 Connection to Standards: 3
Strand 2	PF1.2	Collect data.	Level of Accuracy: 4 Level of Independence: 4 Connection to Standards: 4

## 2005-2006 Score Reports

Dear Parent or Guardian,

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 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 addressed 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.

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 MAP-A assesses student performance in each of two strands in Communication Arts and Mathematics, as shown in the table below. Two Alternate Performance Indicators (APIs), component concepts of the strands, are assessed for each strand. The specific APIs assessed in this student's MAP-A are listed on the reverse side of this report.

Content Area	Strand	Required at:
Mathematics	Numbers and Operations	All Grade Levels
	Algebraic Relationships and/or Geometric and Spatial Relationships	Elementary
	Data and Probability	Middle School
Communication Arts	Measurement	High School
	Reading	All Grade Levels
Writing	Writing Composition	Elementary
	Writing Process	Middle & High School

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy
- Level of Independence
- Connection to the Standards

Each dimension is assigned a score from 0 to 4. The raw scores for each API assessed are reported on the reverse side of this report. Raw scores are totaled; then converted to the overall achievement level reported for the subject area.

## 2005-2006 Score Reports



**MAP-A 2006**  
Missouri Assessment  
Program - Alternate

**Student Report**  
Mathematics  
(Teacher Copy)

Name: Sample Student  
MOSES: 1234567890 MAPA# 1234  
Date of Birth: 01/01/91 Grade: 7

School of Residence:  
School District:  
School Building:  
000-000-0000

School of Attendance:  
School District:  
School Building:  
000-000-0000

MAP-A Mathematics Achievement Level: **Basic**

**Advanced:** 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.

**Precificient:** 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 somewhat 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.

**Basic:** 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.

**Below Basic:** 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 barely 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.

**Level Not Determined (LND):** Insufficient evidence was reported to assign raw scores to this student's MAP-A. [api@doe.missouri.gov](mailto:api@doe.missouri.gov) for assistance.

API Description		Level of Accuracy	Level of Independence	Connection to Standards	Comments
Strand 1	NO1.2 Use number words together to create the counting sequence by 7. Start counting sequence (e.g., 1, 2, ...)	4	4	3	17
	NO1.4 Represent and number collections of items. Show 1 to 100 items.	0	0	0	04, 08
	DF1.1 Formulate questions that can be addressed with data collection.	3	4	3	17
Strand 2	FP1.2 Collect data.	4	4	4	17
		4	4	4	
		4	4	4	

See comment definitions on reverse side.

## 2005-2006 Score Reports

The individuals with Disabilities Education Improvement Act (IDEA) of 2004 requires that students with disabilities participate in the general education curriculum with supplementary aids and supports when necessary. IDEA 2004 further requires 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 IDEA 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 addressed 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, neuropsychologists, job coaches, parents or guardians, and the student, if appropriate;
- administered at the same grade-level 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.

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 MAP-A assesses student performance in each of four strands in Communication Arts and Mathematics, as defined in the state tests. All alternate Performance Indicators (PIs) and component raw data of the strands, are assessed for each strand. The specific APAs assessed in the student's MAP-A are listed on the reverse side of the report.

Content Area	Strand	Assessed as:
Mathematics	Number and Operations	All Grade Levels
	Algebra, Geometry and/or Geometry and Spatial Reasoning	Elementary
Communication Arts	Reading and Fluency	Single Subject
	Writing, Speaking and Listening	Work Sample

The MAP-A is assessed over three criteria, or scoring dimensions:

- Level of Accuracy;
- Level of Independence;
- Connection to the Standards.

Each dimension is assigned a score from 0 to 4. The raw scores for each APA assessment are reported on the reverse side of this report. Raw scores are tabulated, then converted to the overall achievement level reported for the subject area.

**Comments and Comment Codes**

The notes reported on the reverse side of this report correspond to the following table of comment codes. They identify irregularities that may have been encountered in the APA entry. Up to three codes per APA may be reported. Codes 01-18 may have an impact on the entry's rubric score. Codes 03-05 may have an impact on the entry system. This information is provided as feedback to your user.

Comment Code	Implication
01	No data given on Entry Data Summary Sheet and no Student Work Samples.
02	Teacher Work Product Label not submitted with a piece of work.
03	Teacher Observation and Anecdotal Record Form missing other evidence information or rubric ratings.
04	A collection period does not have a minimum of three data points.
05	A collection period does not include at least one Student Work Sample.
06	A collection period does not include a collection period due not connected to the APA.
07	One set of three collection periods is incomplete.
08	Two sets of three collection periods are incomplete.
09	No APAs identified.
10	APAs identified from an incorrect grade span.
11	The same APA is used twice for a strand.
12	Missing APAs listed.
13	APAs are not assessed across the 3 collection periods.
14	Data on the Entry Data Summary Sheet and Student Work Samples are not rubric reflections of the collection periods.
15	Submitted percentages were miscalculated; percentages were converted by score.
16	Percentage calculations for Accuracy and/or Independence cannot be verified for a Student Work Sample.
17	One or more Student Work Samples shows a question rather than application of the APA.
18	A Validated Entry Data Summary Sheet is missing.
99	MAP-A contains a letter abbreviation to IDEB.
81	Student Work Samples appear to be at a higher skill level than MAP-A eligibility criteria.
82	The MAP-A evidence is questionable/ suspect.
83	The MAP-A evidence is duplicated.

## 2005-2006 Score Reports

**MAP-A 2006  
Missouri Assessment  
Program - Alternate**

**District Report**

Your District School District

Your City, Missouri

Your County

001-125

Grade 3, 4, 5	Mathematics				Communication Arts			
	District results		State results		District results		State results	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	4	43.80%	483	31.40%	2	20.00%	481	31.40%
Proficient	4	57.10%	742	48.50%	5	71.40%	722	47.70%
Basic			189	12.50%			234	15.20%
Below Basic			57	3.7%			32	2.08%
Level Not Determined			66	4.30%			60	3.91%
<b>Total Count</b>	<b>7</b>		<b>1536</b>		<b>7</b>		<b>1536</b>	

Grade 6, 7, 8	Mathematics				Communication Arts			
	District results		State results		District results		State results	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced			415	25.70%	2	100%	384	23.10%
Proficient	2	100%	792	49.10%			785	48.80%
Basic			237	14.70%			321	20.10%
Below Basic			52	3.2%			77	4.78%
Level Not Determined			53	3.3%			71	4.43%
<b>Total Count</b>	<b>2</b>		<b>1612</b>		<b>2</b>		<b>1612</b>	

Grade 10	Mathematics				Communication Arts			
	District results		State results		District results		State results	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced			99	19.40%				
Proficient			298	59.50%				
Basic			84	16.90%				
Below Basic			43	8.45%				
Level Not Determined	1	100%	67	13.4%				
<b>Total Count</b>	<b>1</b>		<b>509</b>					

Grade 11	Mathematics				Communication Arts			
	District results		State results		District results		State results	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced							124	25.50%
Proficient							178	36.50%
Basic							107	21.80%
Below Basic							57	11.60%
Level Not Determined							21	4.30%
<b>Total Count</b>					<b>0</b>		<b>491</b>	

Slide 9

## MAP-A Manual: Changes

- Chapter 1: Process Overview
  - Change in collection periods
- Chapter 2: Step-by-Step Process
- Chapter 3: MAP-A Components
  - Revised Forms
- Chapter 4: Scoring Criteria
  - Updated Scoring Irregularities and Rules
- Chapter 5: Documentation for the MAP-A

Slide 10

## MAP-A Manual: Changes

- Chapter 6: Alternate Performance Indicators
  - Grade Span Specific
    - 3-5
    - 6-8
    - 9-12
  - Mathematics Strands
  - Communication Arts Strands

Slide 11

## MAP-A Manual: Changes

- New Samples

Slide 12

## Student Sample Step-by-Step Process

An illustration of a young girl with blonde hair in a braid, wearing a purple shirt, sitting in a wheelchair. She is looking at a computer monitor which displays a person standing. The background of the illustration is a light grey rectangle.

Slide 13

## Activities Prior to Administration Window

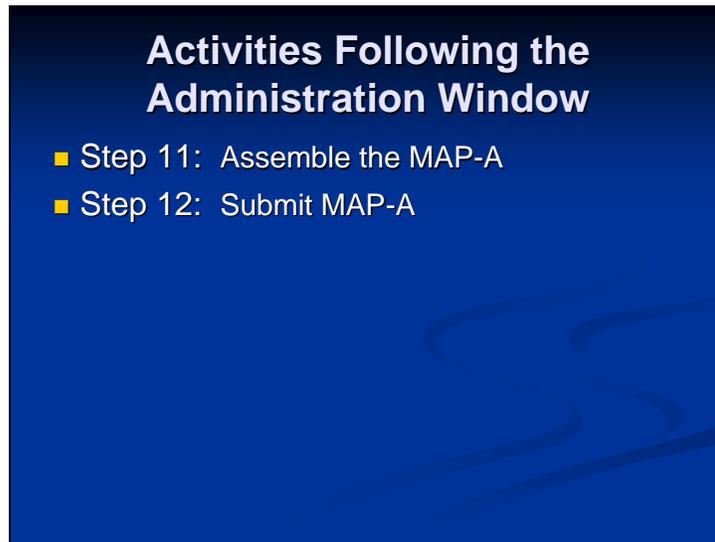
- Step 1: Determine student eligibility
- Step 2: Determine instructional team for MAP-A
- Step 3: Identify mandatory strands
- Step 4: Select one API for each strand

Slide 14

## Administration Window

- Step 5: Review documentation requirements
  - Entry/Data Summary Sheet
  - Student Work Sample
- Step 6: Determine data collection system
- 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

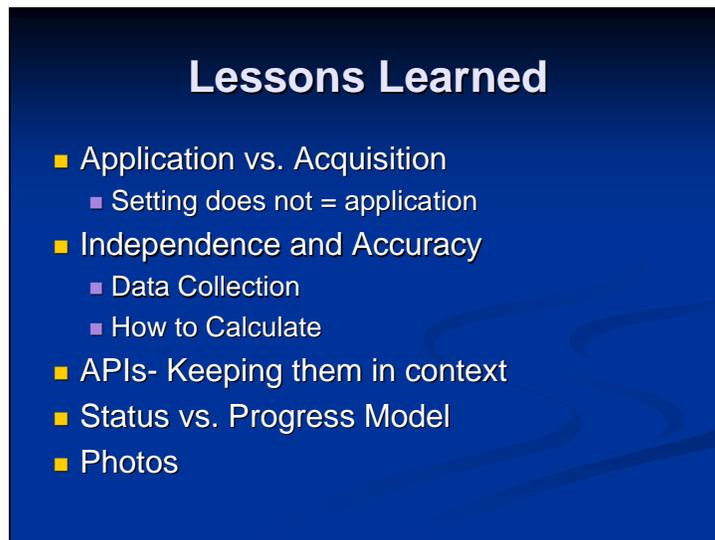
Slide 15



**Activities Following the Administration Window**

- Step 11: Assemble the MAP-A
- Step 12: Submit MAP-A

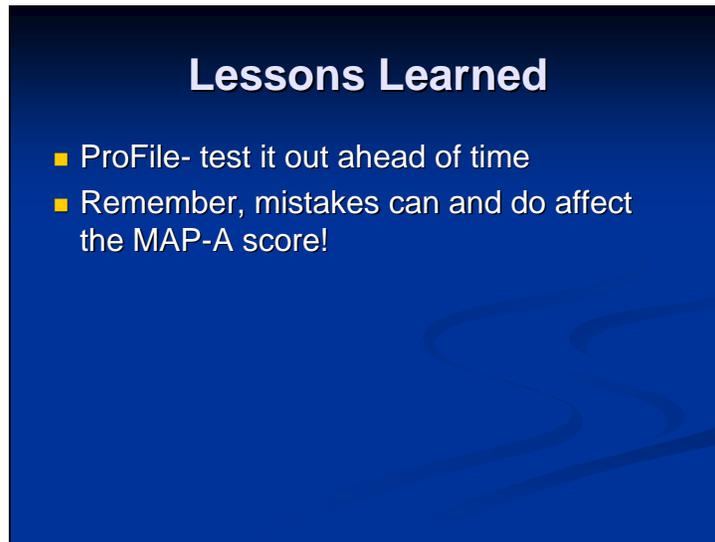
Slide 16



**Lessons Learned**

- Application vs. Acquisition
  - Setting does not = application
- Independence and Accuracy
  - Data Collection
  - How to Calculate
- APIs- Keeping them in context
- Status vs. Progress Model
- Photos

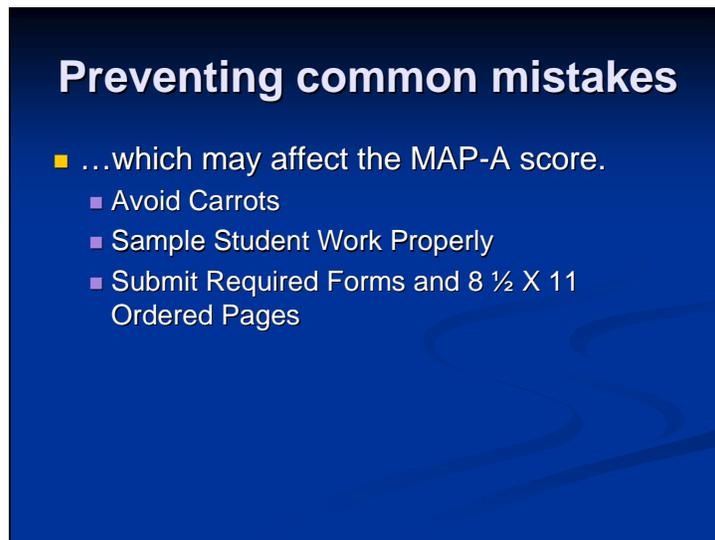
Slide 17



**Lessons Learned**

- ProFile- test it out ahead of time
- Remember, mistakes can and do affect the MAP-A score!

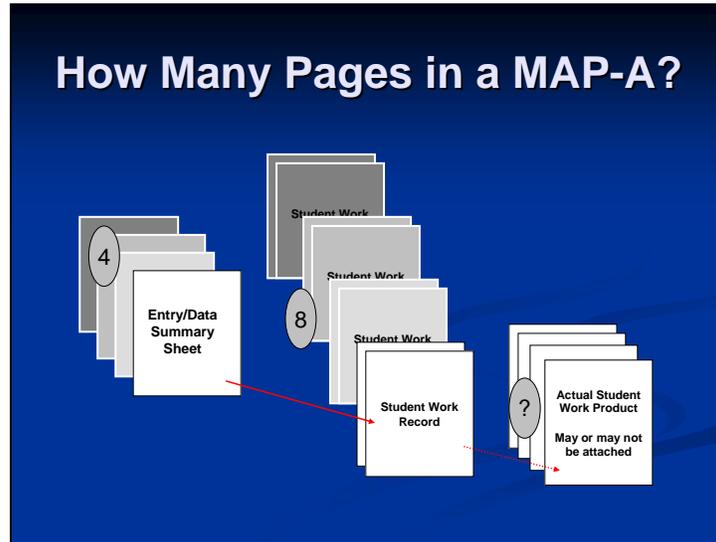
Slide 18



**Preventing common mistakes**

- ...which may affect the MAP-A score.
  - Avoid Carrots
  - Sample Student Work Properly
  - Submit Required Forms and 8 ½ X 11 Ordered Pages

Slide 19



Slide 20

## How Many Pages in a MAP-A?

- Entry/Data Summary Sheet
- Student Work Record
  - Attach tangible student work if appropriate
- Table of Contents Checklist
- Validation Form

14-42 pages in a MAP-A

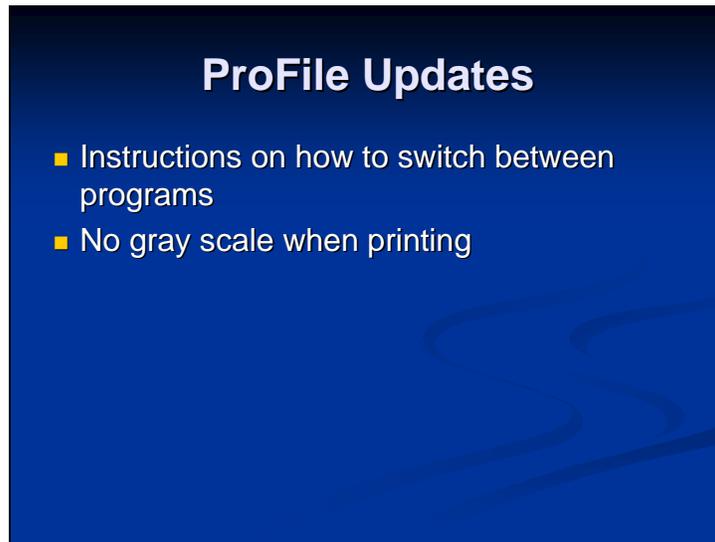
## Preventing common mistakes

- ...which do affect the MAP-A score.
  - Select Grade-Appropriate APIs
  - Describe Level of Accuracy and Level of Independence Evaluations
  - Application, Application, Application

## ProFile Updates

- New forms
- Student name and grade level on every sheet
- New ProFile Footer, 2006-2007
- Stems added to APIs
- Margin at the top of page when printing out
- Page number lower right corner

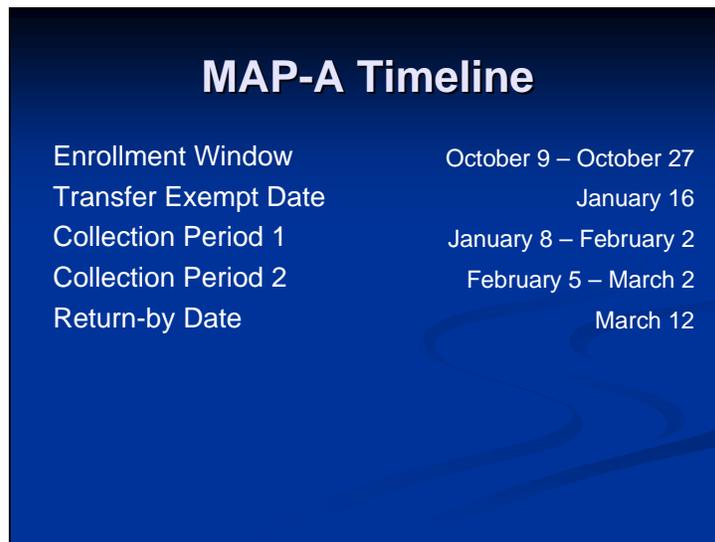
Slide 23



**ProFile Updates**

- Instructions on how to switch between programs
- No gray scale when printing

Slide 24



**MAP-A Timeline**

Enrollment Window	October 9 – October 27
Transfer Exempt Date	January 16
Collection Period 1	January 8 – February 2
Collection Period 2	February 5 – March 2
Return-by Date	March 12

Slide 25

**MAP-A Enrollment**

**ARC** Assessment Resource Center  
University of Missouri-Columbia

Home  
About ARC  
K-12 Services  
College BASE  
Survey, Evaluation, & Research Services  
MU Faculty Services

Welcome To MAP-A Login

User Name

Password

Login

[Forgot Password](#)

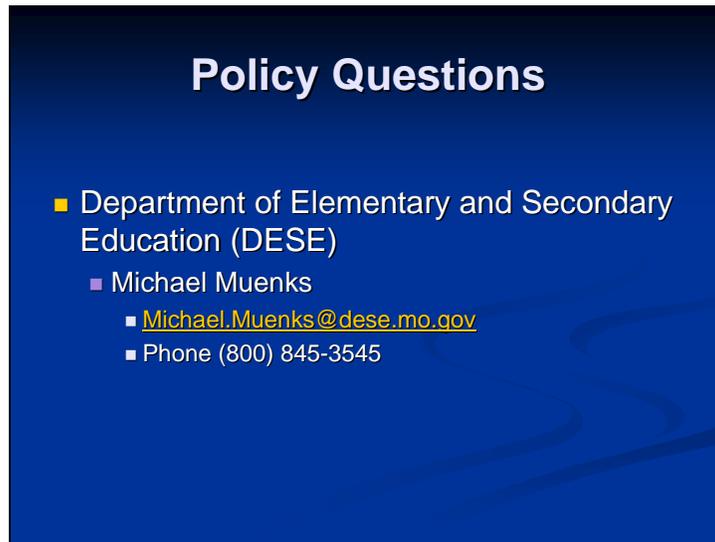
[map-enrollment.arc.missouri.edu](http://map-enrollment.arc.missouri.edu)

Slide 26

**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 800-835-8282
  - South Central RPDC -- Rolla 800-667-0665
  - Southeast RPDC -- Cape Girardeau 800-401-6680
  - Southwest RPDC -- Springfield 800-735-3702
  - Central RPDC -- Warrensburg 800-762-4146

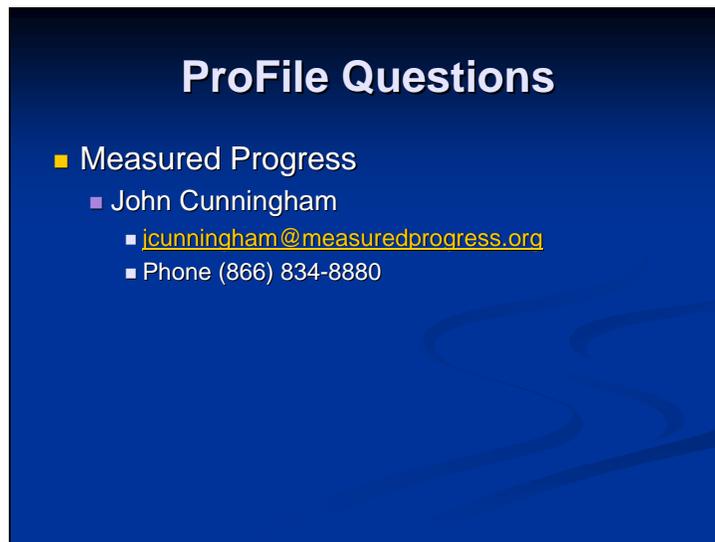
Slide 27



**Policy Questions**

- Department of Elementary and Secondary Education (DESE)
  - Michael Muenks
    - [Michael.Muenks@dese.mo.gov](mailto:Michael.Muenks@dese.mo.gov)
    - Phone (800) 845-3545

Slide 28



**ProFile Questions**

- Measured Progress
  - John Cunningham
    - [jcunningham@measuredprogress.org](mailto:jcunningham@measuredprogress.org)
    - Phone (866) 834-8880

Slide 29

## Materials/Process Questions

- Assessment Resource Center
  - Lisa Sireno
    - [sirenol@missouri.edu](mailto:sirenol@missouri.edu)
    - Phone (800) 366-8232
  - Becky Hinshaw
    - Phone (800) 366-8232

Slide 30

## Questions?



## **Student Sample Excerpts from Instructor's Guide and Implementation Manual**



## Student Samples

The following samples of student work are intended to give further clarification of the information required for the MAP-A. The first sample set of four entries is an example of a complete Mathematics MAP-A submission. John, the student in sample set one, is a 10th grader. Mathematics is the only content area required for MAP-A at grade 10.

The second student sample, for Connor, is a set of four Communication Arts entries. Since he is a 5th grader, Connor's completed MAP-A would also contain four Mathematics entries.



# John



**Entry/Data Summary Sheet**

Student Name: John		Grade: 10	
Mathematics			
Strand 1: Numbers and Operations (NO)			
API #: NO8.5	API Description: Identify a 2-digit number.		
Collection Period 1 January 8 – February 2		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/25	1/20	1/24
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	Y (N)	Do not submit Student Work Record for these Data Points.	Do not submit Student Work Record for these Data Points.
Accuracy %	100	75	80
Independence %	70	100	100
Average % for Collection Period	Accuracy: 85		Accuracy: 89
	Independence: 90		Independence: 93
	2/11	2/06	2/09
	Submitted Student Work Record	Data Point	Data Point

	<b>API Entry Average</b>
Level of Accuracy	87
Level of Independence	92



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> John	<b>Grade:</b> 10	<b>Date:</b> 1/25
<b>Content Area:</b> Mathematics	<b>Strand:</b> 1	
<b>API:</b> NO8.5	<b>Description:</b> Identify a 2-digit number.	
<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 working at the community center, John had a customer ask if he could tell the customer the carbohydrates of some of the products the customer wanted to buy. The customer had ten different items that he asked John to read the carbohydrates for. The carbohydrates are generally listed as 2-digit numbers on the item's box that John will have to identify.</p>		
<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. John had ten opportunities to read 2-digit numbers. John was able to read all of the 2-digit numbers accurately.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. John had ten opportunities to read 2-digit numbers. John read 7 of the 2-digit numbers independently and 3 of the numbers required content assistance from the paraprofessional. For the 3 with assistance, each number was read to John separately. Once this was done he could get the 2-digit number himself.	
<b>Level of Accuracy</b> ___100___%	<b>Level of Independence</b> _70___%	

Chapter 3



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> John	<b>Grade:</b> 10	<b>Date:</b> 2/11
<b>Content Area:</b> Mathematics	<b>Strand:</b> 1	
<b>API:</b> NO8.5	<b>Description:</b> Identify a 2-digit number.	
<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 working at the Community Center, students were working on identifying the fats in products. John got up and helped another student read the label on their box. He identified how many fats, carbohydrates, proteins, saturated fats and unsaturated fats were on the label of the box. This helped the student answer whether or not the product was healthy or unhealthy. John had not been asked to help the other student, but chose to help on his own. Identifying the nutrients on the label requires identifying 2-digit numbers.</p>		
<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. John had five opportunities to read 2-digit numbers. John was able to read all of the 2-digit numbers accurately.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. John had five opportunities to read 2-digit numbers. John was given content assistance one time by the teacher, who read the numbers in the 2-digit number separately.	
<b>Level of Accuracy</b> ___ 100 ___ %	<b>Level of Independence</b> _ 80 ___ %	



**Entry/Data Summary Sheet**

Student Name: John		Grade: 10	
Mathematics			
API #:		Strand 1: Numbers and Operations (NO)	
NO9.8		API Description: Use representation such as concrete materials or pictures to represent a multiplication or division situation.	
		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/18	1/05	1/12
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	(Y) N	Do not submit Student Work Record for these Data Points.	Do not submit Student Work Record for these Data Points.
Accuracy %	80	80	90
Independence %	80	100	100
Average % for Collection Period	Accuracy: 83	Accuracy: 70	Accuracy: 70
	Independence: 93	Independence: 100	Independence: 100

	API Entry Average
Level of Accuracy	77
Independence	97

Chapter 3



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> John	<b>Grade:</b> 10	<b>Date:</b> 1/18
<b>Content Area:</b> Mathematics	<b>Strand:</b> 1	
<b>API: NO9.8</b>	<b>Description:</b> Use representation such as concrete materials or pictures to represent a multiplication or division situation.	
<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>Each of the students in class was given 5 different worksheets. John was given the number of students in the class and the worksheets. The teacher needed John to figure out how many crayons were needed for each worksheet set. John was to write the total on a Post-it note on the front of the pile of worksheets.</p>		
<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.	
John was able to count the correct amount of crayons for four out five of the worksheets.	John did all of the counting on the first 4 sets independently. On the last set John was reminded how to skip count by fives.	
<b>Level of Accuracy</b> ___ 80 ___ %	<b>Level of Independence</b> _ 80 ___ %	



118 John's work

4 worksheets C  
 2 crayons per worksheet  
 8 Total Crayons

4 worksheets  
 1 crayons per worksheet C  
 4 Total Crayons

4 C worksheets  
 3 crayons per worksheet  
 12 Total Crayons

4 worksheets  
 4 crayons per worksheet X  
 15 Total Crayons

4 worksheets C  
 5 crayons per worksheet  
 20 Total Crayons

John was assisted by reminding him how to skip count by 5s to help get the answer.

Chapter 3

**Student Work Record**

Actual student product is attached.

<b>Student Name: John</b>		<b>Grade: 10</b>	<b>Date: 2/15</b>
<b>Content Area: Mathematics</b>		<b>Strand: 1</b>	
<b>API: NO9.8</b>	<b>Description: Use representation such as concrete materials or pictures to represent a multiplication or division situation.</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)                  During snack time, John was to tell the paraprofessional how many grapes were on each table. Each table had four students at it; at each table students were to get 3, 5, 6, 8 or 9 grapes. The goal was to make four piles of grapes with the same amount in each pile.</p>			
<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. John solved the following multiplication problems correctly: 6x4, 3x4 and 5x4. He was unable to solve the following correctly: 8x4 and 9x4.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. John was given no content assistance during this task and completed the task independently.		
<b>Level of Accuracy</b> ___ 60 ___ %	<b>Level of Independence</b> ___ 100 ___ %		



**Entry/Data Summary Sheet**

Student Name: John		Grade: 10	
<b>Mathematics</b>			
Strand 2: Measurement (ME)			
API #: ME3.4a	API Description: Select needed coins and/or bills to make a purchase.		
<b>Collection Period 1</b> January 8 – February 2		<b>Collection Period 2</b> February 5 – March 2	
Dates do not need to be in chronological order.			
<b>Date</b>	1/11	1/10	1/17
<b>Data Type</b>	Submitted Student Work Record	Data Point	Data Point
<b>Is Tangible Student Work Attached?</b>	Y (N)	Do not submit Student Work Record for these Data Points.	Do not submit Student Work Record for these Data Points.
<b>Accuracy %</b>	80	90	95
<b>Independence %</b>	60	80	80
<b>Average % for Collection Period</b>	Accuracy: 88		Accuracy: 88
	Independence: 73		Independence: 87

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	88
<b>Level of Independence</b>	80

**Chapter 3**



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> John	<b>Grade:</b> 10	<b>Date:</b> 1/11
<b>Content Area:</b> Mathematics	<b>Strand:</b> 2	
<b>API: ME3.4a</b>	<b>Description:</b> Select needed coins and/or bills to make a purchase.	
<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 at the community center, John ordered a snack and a drink at the café. After eating the snack, John had to pay for his food. Data was taken for five days. Every time John counted out the correct change and paid the bill exactly without requiring change he got credit for selecting the correct coins.</p>		
<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.	
On Monday John paid the bill completely wrong and on Tuesday and Wednesday with the use of a cue John paid the bills with the correct coins. John was able to pay his bills exactly on Thursday and Friday, requiring no change or assistance.	John needed content assistance in the form of cue cards on 2 out of the 5 days.	
<b>Level of Accuracy</b> ___ 80 ___ %	<b>Level of Independence</b> _60___ %	



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> John		<b>Grade:</b> 10	<b>Date:</b> 2/15
<b>Content Area:</b> Mathematics		<b>Strand:</b> 2	
<b>API: ME3.4a</b>	<b>Description:</b> Select needed coins and/or bills to make a purchase.		
<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 at the community center, John ordered a snack and a drink at the café. After eating the snack, John had to pay for his food. Data was taken for five days. Every time John counted out the correct change and paid the bill exactly without requiring change he got credit for selecting the correct coins.</p>			
<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.  John was able to pay the bill accurately each day.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence.  John needed content assistance in the form of cue cards on 1 out of the 5 days.		
<b>Level of Accuracy</b> ___ 100 ___ %	<b>Level of Independence</b> _ 80 ___ %		

Chapter 3



### Entry/Data Summary Sheet

Student Name: John		Grade: 10	
Mathematics			
Strand 2: Measurement (ME)			
API #:	API Description: Identify actual time to the hour.		
ME2.2c			
Collection Period 1 January 8 – February 2		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/25	1/10	1/12
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	Y (N)	Do not submit Student Work Record for these Data Points.	Do not submit Student Work Record for these Data Points.
Accuracy %	100	90	80
Independence %	100	100	100
Average % for Collection Period		Accuracy: 83	
		Independence: 100	

	API Entry Average
Level of Accuracy	87
Level of Independence	100



**Student Work Record**

Actual student product is attached.

<b>Student Name: John</b>		<b>Grade: 10</b>	<b>Date: 1/11</b>
<b>Content Area: Mathematics</b>		<b>Strand: 2</b>	
<b>API: ME2.2c</b>	<b>Description: Identify actual time to the hour.</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)                  During the day, John was asked to read the clock to other students so that they would know what time it was between 4 different classes and lunch time.</p>			
<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.  John read the clock correctly at 8:00, 9:00, 11:00, 12:00 and 2:00.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence.  John required no content assistance to read the clock.		
<b>Level of Accuracy</b> ___ 100 ___ %	<b>Level of Independence</b> ___ 100 ___ %		

Chapter 3



**Student Work Record**

Actual student product is attached.

<b>Student Name: John</b>		<b>Grade: 10</b>	<b>Date: 2/15</b>
<b>Content Area: Mathematics</b>		<b>Strand: 2</b>	
<b>API: ME2.2c</b>	<b>Description: Identify actual time to the hour.</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.)          During the evening at home, John was asked to read the clock when his favorite programs came on TV. His parent recorded the time he had stated and sent the homework back to school.</p>			
<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. John was able to identify the time on the clock for all five of his favorite shows during the week.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. John was given no content assistance in reading the clock.		
<b>Level of Accuracy</b> ___ 100 ___ %	<b>Level of Independence</b> _ 100 ___ %		

Name John Favorite TV Shows and Telling Time

Day of the Week	Favorite Show	What time is it on the clock when the show starts?	Did John need help? If yes, describe the help you gave him.
Monday	Dukes of Hazard	6:00	No
Tuesday	Who Wants to Be a Millionaire	8:00	No
Wednesday	Dukes of Hazard	7:00	Yes - I had to ask John to look at the clock.
Thursday	Discover show on ants	6:00	No
Friday	Discover show on spiders	8:00	No

This does not lower John's independence because this is not content specific assistance.

Three: MAP-A Components



Chapter 3



# Connor



**Entry/Data Summary Sheet**

Student Name: Connor		Grade: 5	
Communication Arts			
API #:	API Description: Use letter sound association to read simple words with assistance.		
RD3.2			
Collection Period 1 January 8 – February 2		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/25	1/20	1/24
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	Y (N)	Do not submit Student Work Record for these Data Points.	Y (N)
Accuracy %	64	87	78
Independence %	72	87	94
Average % for Collection Period	Accuracy: 76		Accuracy: 67
	Independence: 84		Independence: 82
		Submitted Student Work Record	Data Point
		2/11	2/06
			Data Point
			2/09
			Data Point
			Do not submit Student Work Record for these Data Points.
			68
			82
			75
			90

API Entry Average	72
Level of Accuracy	83
Level of Independence	

**Chapter 3**



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> Connor	<b>Grade:</b> 5	<b>Date:</b> 1/25
<b>Content Area:</b> Communication Arts		<b>Strand:</b> 1 (RD, RP)
<b>API:</b> RD3.2	<b>Description:</b> Use letter sound association to read simple words with assistance.	
<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>Connor's task was to use letter sound association to read simple words in a book of his choice which was level appropriate. He chose to read a book titled "Zac the Rat," which contains simple 3 letter words.</p>		
<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.	
Connor struggled with reading most of the three-letter words in the book; however, he did very well on most of his high frequency words (e.g., is, the, and, to, etc.). There were 37 words to read and Connor was able to read 24/37 words correctly for an accuracy score of 64%.	Connor's independence level was measured by whether or not he needed visual, verbal, or physical help to sound out a word. Connor was given content-specific prompting on 10 words out of 37 words, which resulted in an independence level of 72%.	
<b>Level of Accuracy</b> ___ 64 ___ %	<b>Level of Independence</b> ___ 72 ___ %	



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> Connor		<b>Grade:</b> 5	<b>Date:</b> 2/11
<b>Content Area:</b> Communication Arts		<b>Strand:</b> (RD, RP)	
<b>API:</b> RD3.2	<b>Description:</b> Use letter sound association to read simple words with assistance.		
<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>Connor's task was to use letter sound association to read simple words in a book of his choice which was level appropriate. He chose to read a book titled "Peg the Hen," which contains simple three-letter words.</p>			
<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.		
Connor struggled with reading most of the two-letter words in the book (e.g., is, in, to, go, etc.) and tended to skip words. There were 41 words to read and Connor was able to read 24/41 words correctly for an accuracy score of 58%.	Connor's independence level was measured by whether or not he needed visual, verbal, or physical help to sound out a word. Connor was prompted 11/41 times, which resulted in an independence level of 73%.		
<b>Level of Accuracy</b> ___58___%	<b>Level of Independence</b> __73___%		

Chapter 3



**Entry/Data Summary Sheet**

Student Name: Connor		Grade: 5	
Communication Arts			
Strand 1: Reading (RD and/or RP)			
API #: RD1.17	API Description: Identify uppercase and lowercase letters.		
Collection Period 1 January 8 – February 2		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/25	1/20	1/24
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	Y (N)	Do not submit Student Work Record for these Data Points.	Do not submit Student Work Record for these Data Points.
Accuracy %	88	75	88
Independence %	88	60	80
Average % for Collection Period	Accuracy: 84		Accuracy: 92
	Independence: 79		Independence: 85

	<b>API Entry Average</b>
<b>Level of Accuracy</b>	88
<b>Level of Independence</b>	82



**Student Work Record**

Actual student product is attached.

<b>Student Name: Connor</b>		<b>Grade: 5</b>	<b>Date: 1/25</b>
<b>Content Area: Communication Arts</b>		<b>Strand: 1 (RD/RP)</b>	
<b>API: RD1.17</b>	<b>Description: Identify uppercase and lowercase letters.</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>Connor will identify uppercase and lowercase letters in a classroom bingo game. Cards are drawn containing letters of the alphabet. Connor must identify the alphabet letter correctly on his card in order to place a bingo chip on the card. Each card contains 8 letters.</p>			
<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.		
Connor was able to correctly identify 7 out of the 8 letters on his bingo card with one verbal prompt. Connor's accuracy level was 88%.	Connor received one verbal prompt to help him identify one of the eight letters. Connor's level of independence was 88%.		
<b>Level of Accuracy</b> __88__%	<b>Level of Independence</b> __88__%		

Chapter 3



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> Connor	<b>Grade:</b> 5	<b>Date:</b> 2/11
<b>Content Area:</b> Communication Arts	<b>Strand:</b> 1 (RD/RP)	
<b>API:</b> RD1.17	<b>Description:</b> Identify uppercase and lowercase letters.	
<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>Connor will identify uppercase and lowercase letters in a classroom bingo game. Cards are drawn containing letters of the alphabet. Connor must identify the alphabet letter correctly on his card in order to place a bingo chip on the card. Each card contains 8 letters.</p>		
<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.	
Connor was able to correctly identify 8 out of the 8 letters on his bingo card with no verbal prompts. Connor's accuracy level was 100%.	Connor was able to complete the bingo card independently giving him a Level of Independence score of 100%.	
<b>Level of Accuracy</b> __ 100 ____ %	<b>Level of Independence</b> __ 100 ____ %	



**Entry/Data Summary Sheet**

Student Name: Connor		Grade: 5	
Communication Arts			
API #: WC1.4	API Description: Print letters legibly, using left-to-right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.		
Strand 2: Writing (WC)		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
Date	1/25	1/20	1/24
Data Type	Submitted Student Work Record	Data Point	Data Point
Is Tangible Student Work Attached?	(Y) N	Do not submit Student Work Record for these Data Points.	(Y) N
Accuracy %	100	90	100
Independence %	100	80	60
Average % for Collection Period	Accuracy: 96	Accuracy: 99	Accuracy: 99
	Independence: 67	Independence: 82	Independence: 82

Level of Accuracy	API Entry Average
80	98
Level of Independence	75

**Chapter 3**



**Student Work Record**

Actual student product is attached.

<b>Student Name: Connor</b>		<b>Grade: 5</b>	<b>Date: 1/25</b>
<b>Content Area: Communication Arts</b>		<b>Strand: Writing (WC)</b>	
<b>API: WC1.4</b>	<b>Description: Print letters legibly, using left-to-right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.</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>Connor's task was to form uppercase and lowercase letters. After reading a story with the teacher, Connor was asked to dictate his favorite part(s) of the story to his teacher as well as include a drawing of his favorite part. The teacher wrote down what Connor said, and then Connor copied the letters that had been written.</p>			
<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.	Is this application? If not, how could it become application?	
Of the 11 letters, Connor was able to copy the uppercase and lowercase letters without any mistakes. Connor received 11/11 for an accuracy of 100%.	Connor independently completed all 11 letters, which gave Connor a level of independence score of 100%.		
The student work on the next page does not have the first m in Mom capitalized. Should this be 10/11?			
<b>Level of Accuracy</b> ___ 100 ___ %		<b>Level of Independence</b> ___ 100 ___ %	



1-25-08  
1-25-08

WC1.4. Prints letters legibly, using left to right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.

Snowplow



Mom



Accuracy 100%  
Independence 60%

Chapter 3



**Student Work Record**

Actual student product is attached.

<b>Student Name:</b> Connor	<b>Grade:</b>	<b>Date:</b> 2/11
<b>Content Area:</b> Communication Arts	<b>Strand 2: Writing (WC)</b>	
<b>API: WC1.4</b>	<b>Description: Print letters legibly, using left-to-right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.</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>Connor's task was to form uppercase and lowercase letters. After reading a story with the teacher, Connor was asked to dictate his favorite part(s) of the story to his teacher as well as include a drawing of his favorite part. The teacher wrote down what Connor said, and then Connor copied the letters that had been written.</p>		
<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 Level of Accuracy.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence.	Is this application? If not, how could it become application?
Of the 7 letters, Connor was able to copy the uppercase and lowercase letters without any mistakes. Connor received 7/7 for an accuracy of 100%.	Connor was given a content-specific, verbal reminder for making an uppercase "S," which gave Connor a Level of Independence score of 86%.	
<b>Level of Accuracy</b> __ 100 __ %	<b>Level of Independence</b> __ 86 __ %	



Accommodate  
to the student's  
writing style

Connor Smith  
Connor Smith

WC1.4. Primitively legible, using left to right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.

Snowman





### Entry/Data Summary Sheet

Student Name: Connor		Grade: 5	
Communication Arts			
Strand 2: Writing (WC)			
API Description: Use correct spelling of own first and last names, and/or personal information.			
API #: WC4.1			
Collection Period 1 January 8 – February 2		Collection Period 2 February 5 – March 2	
Dates do not need to be in chronological order.			
<b>Date</b>	1/25	1/20	1/24
<b>Data Type</b>	Submitted Student Work Record	Data Point	Data Point
<b>Is Tangible Student Work Attached?</b>	(Y) N	Do not submit Student Work Record for these Data Points.	(Y) N
<b>Accuracy %</b>	100	70	70
<b>Independence %</b>	100	80	100
<b>Average % for Collection Period</b>	Accuracy: 80		
	Independence: 93		
	Accuracy: 81		
	Independence: 87		
	2/11	2/06	2/09
	Submitted Student Work Record	Data Point	Data Point
	Do not submit Student Work Record for these Data Points.		

	<b>API Entry Average</b>
Level of Accuracy	81
Level of Independence	90



**Student Work Record**

Actual student product is attached.

<b>Student Name: Connor</b>		<b>Grade: 5</b>	<b>Date: 1/25</b>
<b>Content Area:</b> Communication Arts		<b>Strand: 2 (WC)</b>	
<b>API: WC4.1</b>	<b>Description: Use correct spelling of own first and last names, and/or personal information.</b>		
<b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.) Connor will spell both his first and last names correctly when labeling his work.			
<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. Connor was able to write his name with no mistakes out of a total of eleven letters. Connor's accuracy score was 100%.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. Connor was able to do this activity independently; therefore, he received an independence score of 100%.		
<b>Level of Accuracy</b> __100__%	<b>Level of Independence</b> __100__%		

Chapter 3

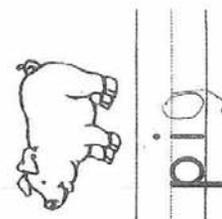
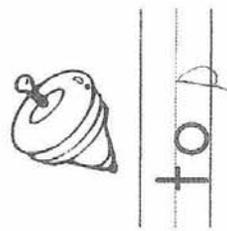
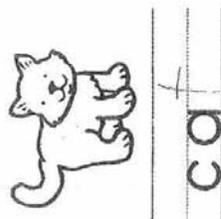
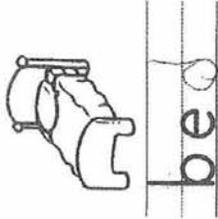
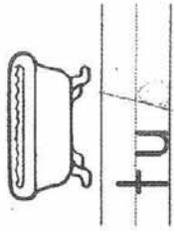


Ending Consonants Connor Smith 1/25/06

Worksheet 1002

### More Ending Sounds

Listen for the ending sound of each picture. Write it at the end of each word.





**Student Work Record**

Actual student product is attached.

<b>Student Name: Connor</b>		<b>Grade: 5</b>	<b>Date: 2/11</b>
<b>Content Area:</b> Communication Arts		<b>Strand: 2 (WC)</b>	
<b>API: WC4.1</b>	<b>Description: Use correct spelling of own first and last names, and/or personal information.</b>		
<p><b>Task/Activity:</b> (Write a brief description of the task/activity, its connection to the API, and how it demonstrates application.) Connor will spell both his first and last names correctly when labeling his work.</p>			
<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. Connor was able to write his name with only two mistakes out of a total of eleven letters, for 9/11. Connor's accuracy score was 82%.	Describe and evaluate the student's actual independence performance. Describe how the percentages were determined for Level of Independence. Connor was able to do this activity independently; therefore, he received an independence score of 100%.		
<b>Level of Accuracy</b> <u>82</u> %	<b>Level of Independence</b> <u>100</u> %		

Chapter 3



Connor Smith  
 Connor Smith  
 3/1/10  
 -2 trials  
 100% independent

WC1.4 Prints letters legibly, using left to right, top-to-bottom directionality and correct spacing between letters and words, with assistance as needed to form uppercase and lowercase letters.

# Snowman



## Appendix E: 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. The rubric will be applied to **each** API 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 E.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% Accuracy</b>	Student performance of skills demonstrates some understanding of concepts. <b>51–75% Accuracy</b>	Student performance of skills demonstrates a limited understanding of concepts. <b>26–50% Accuracy</b>	Student performance of skills demonstrates a minimal understanding of concepts. <b>0–25% Accuracy</b>	Entry contains insufficient information to determine a score.

**Table E.2: Description of Scoring Rubric Dimensions for Level of Accuracy**

Score Point	Description
<b>4</b>	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.
<b>3</b>	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.
<b>2</b>	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.
<b>1</b>	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.
<b>NS</b>	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 API 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 E.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 E.4: Description of Scoring Rubric Dimensions for Level of Independence**

Score Point	Description
<b>4</b>	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.
<b>3</b>	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.
<b>2</b>	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.
<b>1</b>	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.
<b>NS</b>	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 E.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 E.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 E.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 in two standards-based activities, one in each of two collection periods.	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.

**Table E.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.

Table E.9 compares acquisition activities (skill and drill) to standards-based application activities.

**Table E.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 F: Sample Reports

---

## 2007 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
Packing Slip	
Roster	



**MAP-A 2007**

*Missouri Assessment  
Program - Alternate*

**Student Report  
Communication Arts  
(Teacher's Copy)**

Name: John Q. Student

MOSIS: 1234567890

Date of Birth: 01/01/91 Grade: 8

School of Residence:  
Little School District R-8  
Little Red School Elementary  
001-001-1234

School of Attendance:  
Big School District  
Elementary Attendance Center  
001-001-5678

**MAP-A Communication Arts Achievement Level: Basic**

<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>

API Description		Level of Accuracy	0
Strand 1	RD1.16 Understand punctuation has meaning.	Level of Independence	1
		Connection to Standards	2
		Comments	01, 03, 14
		Level of Accuracy	3
Strand 2	RP2.4 Self-question: Who, what, where, when, why, and how?	Level of Independence	4
		Connection to Standards	0
		Comments	03, 14
		Level of Accuracy	1
Strand 2	WP2.13 Use sensory details to describe the object, person, character, place, and/or event.	Level of Independence	2
		Connection to Standards	3
		Comments	14
		Level of Accuracy	0
Strand 2	WP5.5a Using words/pictures/symbols/objects/actions, write notes to self in response to others' interactions. Provide one main idea in a topic sentence.	Level of Independence	4
		Connection to Standards	4
		Comments	14
		Level of Accuracy	0

See comment definitions on reverse side.

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 or Communication Arts)
- Student's MAP-A achievement level
- Achievement level descriptions (Advanced, Proficient, Basic, Below Basic, and LND)
- Descriptions of the Alternate Performance Indicators (APIs) assessed
- Level of Accuracy, Level of Independence, and Connection to Standards scores for each API
- Scoring comment codes, if reported, for each API

**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 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;
- 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, as shown in the table below.

Content Area	Strand	Required at:
Mathematics	Numbers and Operations	All Grade Levels 3-8 and 10
	Algebraic Relationships and/or Geometric and Spatial Relationships	Elementary Grades 3-5
	Data and Probability	Middle School Grades 6-8
	Measurement	High School Grade 10
Communication Arts	Reading	All Grade Levels 3-8 and 11
	Writing Composition	Elementary Grades 3-5
	Writing Process	Middle & High School Grades 6-8 and 11

Two 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
- Level of Independence
- Connection to the Standards

The maximum total raw score on the MAP-A is 44. The four APIs that make up the MAP-A are assigned a score for each of the scoring dimensions. Eleven points are possible for each API. The raw scores for each API 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 API entries during MAP-A scoring are noted with the codes in the table below. Up to three codes per API may be reported.

Comment Code	Scoring Irregularity
1	A required Entry/Data Summary Sheet is missing.
2	No dates are given on Entry/Data Summary Sheet and on Student Work Records.
3	No API is identified on a Student Work Record or Entry Data/Summary Sheet.
4	The API is not grade-span appropriate.
5	The API is not consistent across the two collection periods.
6	One out of two collection periods is incomplete.
7	A collection period does not have a minimum of three data points.
8	A collection period does not include at least one Student Work Record.
9	The activity described on a Student Work Record does not connect to the API.
10	One or more Student Work Records shows acquisition rather than application of the API.
11	Task/Activity Description and/or Evaluation of Student's Performance section is missing from the Student Work Record.
12	The same API is used in more than one entry.
13	An API Entry is missing.
14	Dates on the Entry/Data Summary Sheet and Student Work Records are outside the collection periods.
15	Percentages on Student Work Record or Entry Data/Summary Sheet are miscalculated.
16	Percentage calculations for Level of Accuracy and/or Level of Independence cannot be verified for a Student Work Record.



**MAP-A 2007**  
**Missouri Assessment**  
**Program - Alternate**

**Student Report**  
**Mathematics**  
**(Parent Copy)**

Name: Sample Student  
 MOSIS: 1234567890 MAP-A #: 1234  
 Date of Birth: 01/01/91 Grade: 7

School of Residence:  
 School District  
 School Building  
 001-001-1234

School of Attendance:  
 School District  
 School Building  
 001-001-1234

**MAP-A Mathematics Achievement Level: Basic**

<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>

API Description		Level of Accuracy	Level of Independence	Connection to Standards
Stand 1	NO1.2.a Use number words together to create the counting sequence by 1s. Start counting sequence with 1 (e.g., 1, 2, ...)	4	4	1
		0	0	0
		0	0	0
Stand 2	NO1.4.a Represent and number collections of items. Show 1 to 100 items.	3	4	1
		4	4	4
		4	4	4
Stand 2	DP1.1 Formulate questions that can be addressed with data collection.	3	4	1
		4	4	4
		4	4	4
Stand 2	DP1.2 Collect data.	4	4	4
		4	4	4
		4	4	4

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 or Communication Arts)
- Student's MAP-A achievement level
- Achievement level descriptions (Advanced, Proficient, Basic, Below Basic, and Level Not Determined)
- Descriptions of the Alternate Performance Indicators (APIs) assessed
- Level of Accuracy, Level of Independence, and Connection to Standards scores for each API

#### *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 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, as shown in the table below.

Content Area	Strand	Required at:
Mathematics	Numbers and Operations	All Grade Levels 3-8 and 10
	Algebraic Relationships and/or Geometric and Spatial Relationships	Elementary Grades 3-5
	Data and Probability	Middle School Grades 6-8
	Measurement	High School Grade 10
Communication Arts	Reading	All Grade Levels 3-8 and 11
	Writing Composition	Elementary Grades 3-5
	Writing Process	Middle & High School Grades 6-8 and 11

Two 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
- Level of Independence
- Connection to the Standards

The maximum total raw score on the MAP-A is 44. The four APIs that make up the MAP-A are assigned a score for each of the scoring dimensions. Eleven points are possible for each API. The raw scores for each API 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.



**MAP-A 2006**

**Missouri Assessment  
Program - Alternate**

**District Report**

**Big School District  
Bigtown, Missouri  
123 - 457**

Grade 3, 4, 5	Mathematics						Communication Arts					
	District results			State results			District results			State results		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	135	30 %	1236	36%	135	30 %	1236	36%	135	30 %	1236	36%
Proficient	227	51 %	1544	44%	227	51 %	1544	44%	227	51 %	1544	44%
Basic	45	10 %	333	10%	45	10 %	333	10%	45	10 %	333	10%
Below Basic	12	3 %	125	4%	12	3 %	125	4%	12	3 %	125	4%
Level Not Determined	27	6 %	243	7%	27	6 %	243	7%	27	6 %	243	7%
Total Count	446		3481		446		3481		446		3481	
Grade 6, 7, 8	Mathematics						Communication Arts					
	District results			State results			District results			State results		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	135	30 %	1236	36%	135	30 %	1236	36%	135	30 %	1236	36%
Proficient	227	51 %	1544	44%	227	51 %	1544	44%	227	51 %	1544	44%
Basic	45	10 %	333	10%	45	10 %	333	10%	45	10 %	333	10%
Below Basic	12	3 %	125	4%	12	3 %	125	4%	12	3 %	125	4%
Level Not Determined	27	6 %	243	7%	27	6 %	243	7%	27	6 %	243	7%
Total Count	446		3481		446		3481		446		3481	
Grade 10	Mathematics						Communication Arts					
	District results			State results			District results			State results		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced	135	30 %	1236	36%	135	30 %	1236	36%	135	30 %	1236	36%
Proficient	227	51 %	1544	44%	227	51 %	1544	44%	227	51 %	1544	44%
Basic	45	10 %	333	10%	45	10 %	333	10%	45	10 %	333	10%
Below Basic	12	3 %	125	4%	12	3 %	125	4%	12	3 %	125	4%
Level Not Determined	27	6 %	243	7%	27	6 %	243	7%	27	6 %	243	7%
Total Count	446		3481		446		3481		446		3481	
Grade 11	Mathematics						Communication Arts					
	District results			State results			District results			State results		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Advanced												
Proficient												
Basic												
Below Basic												
Level Not Determined												
Total Count												

Mathematics not tested  
at Grade 11.

Communication Arts  
not tested at Grade 10.

## Appendix G: Surveys

### MAP-A Training Feedback Summary Sheet

**MAP-A  
Train-the-Trainer Workshop  
August 10, 2006**

	1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree	Average
Overall the training worked well. <b>Comment:</b>				4	18	4.80
The overview and manual walk through were helpful. <b>Comment:</b>			1	2	19	4.90
Applying the Step-by Step procedures to a student sample helped me understand the new MAP-A process. <b>Comment:</b>			1	3	18	4.86
The Lessons Learned portion was helpful. <b>Comment:</b>			1	1	20	4.95
The process and report information was helpful. <b>Comment:</b>				3	19	4.86
The questions I had about the MAP-A were answered. <b>Comment:</b>				2	20	4.90
The materials provided were helpful. <b>Comment:</b>				2	20	4.90

Three things that worked well in this experience...

- Going through student assessment, talking about lessons learned, Q&A at the end
- Review of student data
- Lessons learned were good
- Writing questions at beginning and giving answers at the end.
- Student examples – scenarios – myths
- Reviewing the sample portfolios
- Group questions to answer session
- Samples of student packets were helpful.
- Suggestions for changes were taken seriously and will be used.
- Materials presenters, things were kept light and casual.
- Great food let us know ahead so don't eat before hand
- Walking through first example together
- Going through manual.
- Having multiple people available to answer questions.
- Discussion in small groups
- Great presenters!
- All presenters very knowledgeable and gave very good examples; explanations clear
- PowerPoint and handouts very helpful
- Pace of training relaxed and not a feeling of pressure to get through.
- Student samples
- Working in small group with samples
- New samples, including John and Connor
- Answering questions as we trained
- Box - questions
- Materials are improved
- Questions answered specifically
- Opportunity for interaction
- Too many "off subject" questions/comments were entertained, it take sup everyone's time and it is not relevant to all. The enrollment on line information was a waste of time.
- Lessons learned
- Overview and changes rather than full training
- All the examples and discussion
- John Connor (sample)
- Examples – walk step by step questions answered/processing
- Thanks for great presentation – sequenced – talk us through not at us – sense of humor.
- Handouts – organization (of information) – expertise of trainers was evident.

<p>Three things that did not work well in this experience...</p>	<ul style="list-style-type: none"> <li>• Going through the enrollment procedure – just probably needed information and how to get to it.</li> <li>• Temperature of room</li> <li>• Nothing noted</li> <li>• Enrollment is usually not done by SPED</li> <li>• Independent work – did not feel all questions answered thoroughly need more time/practice (but not all in one day)</li> <li>• Some slides were too small (reports)</li> <li>• Length</li> <li>• Enrollment walk through</li> <li>• Few breaks</li> <li>• Going through enrollment on computer</li> <li>• I would like to have had a hands on copy of sample reports as PowerPoint. Could not make it read able on screen. Room and food was great!</li> </ul>
<p>Questions I still have...</p>	<ul style="list-style-type: none"> <li>• None till I get out of training and teaches begin asking questions but I know now to call Michael.</li> <li>• Need more information on scoring students.</li> <li>• How are MAP-A students now figured into AYP?</li> <li>• None</li> <li>• Could DESE look at the students in LD who may still be working on a basic math skills be doing a test that is more like passing a GED instead of MAP by grade 10 if time document they can't plot – do algebra etc. These students will never use the skills on the MAP for life and taking that test is just more failure.</li> <li>• Will RPDC's be allowed to change for MAP –A training and follow up knowing MAP budget has allowed for food and room costs?</li> </ul>

The process and report information was helpful.

- Like it presented.

The questions I had about the MAP-A were answered.

- As a 1<sup>st</sup> time trainer, I don't know what questions I might have.

The materials provided were helpful.

- Looking for power point program presented today.

**Additional comments:**

ARC and Measured Progress are Great trainers!

## Appendix H: Stakeholder Lists

---

### MAP-A Administration Training Attendance List August 10, 2006

Name	Organization
Susan Hekmat	Southwest RPDC
Diana Humphreys	Heart of Missouri RPDC
Susan Kasper	Kansas City RPDC
Meg Sneed	Kansas City RPDC
Deb Drury	Northeast RPDC
Julia Schmitz	Northwest RPDC
Sandy Majchrzak	South Central RPDC
Charlotte Spencer	Willow Springs R-IV
Kris Luginbill	Southwest RPDC
Jim Matthews	Southwest RPDC
Kathy Diehl	St. Louis RPDC/CSD
Janice Putman	St. Louis RPDC/CSD
Regina Higgins	Central RPDC
Kimberly Swedberg	Southwest RPDC
Vicki Myers	Heart of Missouri RPDC
Judy Johnson	Kansas City RPDC
Brenda Vann	Kansas City RPDC
Joetta Walter	Northeast RPDC
Jane Jackson	Northwest RPDC
Mary Coker	Central RPDC
Chris Montgomery	St. Louis RPDC/CSD
Robin Martin	DESE Special Education,
Dee Ragsdale	DESE, Special Education
Walt Brown	DESE, Curriculum and Assessment
Karen Wells	DESE, Special Education
Pam Williams	DESE, Special Education
Michael Muenks	DESE, Assessment
SheilaThurman	DESE, Assessment

### MAP-A Advisory Committee

Name	Business/School Name
Karen Allan	Mexico 59 School District
Nikki Beichler	Special Services Cooperative
Walt Brown	DESE, Director of Assessment
Mary Coker	Central Missouri State RPDC
Deb Drury	Truman RPDC
Lynn Fain	Derby Ridge Elementary School
Melissa Frazier	Parent
Susan Hekmat	Southeast MO State University
Diana Humphreys	Univ. of MO-Columbia RPDC
Susan Izard	Measured Progress
Shirley Kemna	DESE
Robin Krick	Gateway (Elias) Michael Elementary School
Kris Luginbill	Missouri State RPDC
Robin Martin	DESE
Carol Martin	Greene Valley State School
Cheryl McCutcheon	Joplin School District, Washington Ed. Center
Michael Muenks	DESE
Tim Parshall	Assessment Resource Center
Maureen Rauscher	St. Louis RPDC
Susie Register	Lawson Elementary School
Julia Schmitz	NWRPDC
Lisa Sireno	Assessment Resource Center
Meg Sneed	University of MO-Kansas City, School of Education
Tana Stewart	Pemiscot County Special School District
Karen Wells	SSSH
Pam Williams	DESE
Kathie Wolff	Special School District of St. Louis County
Bev Woodhurst	Parent
Susan Newbold	DESE

# Appendix I: Linking Report

---

# **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**

<b>Grade Span</b>	<b>Content Area</b>	<b>N Appealed</b>	<b>% Appealed</b>	<b>N Score Changed</b>	<b>% Score Changed</b>	<b>N Achievement Level Changed</b>	<b>% Achievement Level Changed</b>
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)**

<b>Category</b>	<b>Subcategory</b>	<b>Pop N</b>	<b>Rescore N</b>	<b>Non-rescore N</b>	<b>Pop %</b>	<b>Rescore %</b>	<b>Non-rescore %</b>
<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