Developing and Improving Modified Achievement Level Descriptors: Rationale, Procedures, and Tools

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Developing and Improving Modified Achievement Level Descriptors: Rationale, Procedures, and Tools

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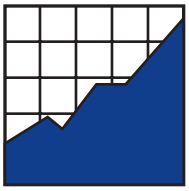

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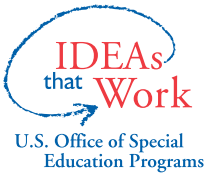

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Introduction

Some states are developing alternate assessments based on modified achievement standards (AA-MAS) to measure the academic achievement of some students with disabilities (Albus, Lazarus, Thurlow, & Cormier, 2009; Lazarus, Thurlow, Christensen, & Cormier, 2007). These assessments measure the same content as the general assessment for a given grade-level, but the AA-MAS may have different expectations of content mastery than the general assessment, according to federal regulations and guidance. The United States Department of Education's Non-regulatory Guidance (2007b) for AA-MAS states:

> This assessment is based on modified academic achievement standards that cover the same grade-level content as the general assessment. The expectations of content mastery are modified, not the grade-level content standards themselves. The requirement that modified academic achievement standards be aligned with grade-level content standards is important; in order for these students to have an opportunity to achieve at grade level, they must have access to and instruction in grade-level content. (p. 9)

State policymakers have struggled to understand the underlying educational logic of the distinctions of the same grade-level content but different expectations of content mastery. Filbin (2008) described content alignment issues as one of the primary challenges for the first six states that submitted their AA-MAS for Peer Review under the 2001 Elementary and Secondary Education Act (ESEA) requirements. She found that it is challenging to design an assessment based on grade-level content standards that is of an appropriate difficulty and complexity for this population, based on peer review analyses. Since that first review, special education, curriculum, and measurement experts have posed several questions related to the nature of the distinctions between content coverage and difficulty or complexity (Perie, 2009a).

A key to understanding the relationship of content and difficulty underlying a standards-based test is in the standards themselves. In a standards-based assessment, and specifically in a test that is defined as having "modified achievement standards," these standards should communicate what kind of performance on which content targets demonstrates acceptable achievement. A standards-based test requires clear definitions of the content being assessed—in relation to articulated content standards—as well as definitions of "how well" students need to perform on the content to be considered proficient—or performance standards. These descriptions are included in the process of standard-setting on a standards-based test.

Standards-based reform has resulted in increased attention to performance standards (Cizek, 2006; Crane & Winter, 2006; Haertel, 2008; Hambleton, 2001; Perie, 2009b; Zieky, Perie, & Livingston, 2008). In 2003, the Council of Chief State School Officers took a broad approach to the definition, defining performance standards as:

> Indices of qualities that specify how adept or competent a student demonstration must be and that consist of the following four components: (1) levels that provide descriptive labels or narratives for student performance (i.e., advanced, proficient, etc.); (2) descriptions of what students at each level must demonstrate relative to the tasks; (3) examples of student work at each level illustrating the range of performance within each level; and (4) cut scores clearly separating each performance level. (p. 10)

It is the second component of performance standards—the descriptions of what students must demonstrate on the assessment—that we address here.

Although measurement experts have referred to the four components together as performance standards, and the descriptions of student performance as performance level descriptors (PLDs), ESEA 2001 and IDEA 2004 refer to them as "achievement standards." The AA-MAS gets its name from that statutory language. Given that we are focusing on the AA-MAS, the term we use in this paper is achievement standards, and we specifically refer to the second component described in the CCSSO definition of these achievement standards as achievement level descriptors (ALDs).

Purpose and Use of This Paper

The purpose of this paper is to provide a rationale, procedures, and tools to develop and continuously improve AA-MAS ALDs. As states make decisions on whether and how to develop an AA-MAS, they will also be developing a defense of the choices they make. Filben (2008) documented the early peer review process and outcomes and it is clear that choices made must be built on a complex educational logic reflecting content coverage, complexity, and the characteristics of the potential participants. In this paper, we propose a process to guide state work so that stakeholders and policymakers can articulate, from the very beginning, the educational rationale for their choices and the implications of this rationale for the specific design choices they make related to their ALDs. By building on this rationale, involving key policymakers and stakeholders through a systematic process to articulate the underlying logic, and documenting how this logic has influenced state choices using the tools and templates provided, states will have compelling evidence for peer review defense. More importantly, they will have confidence in the educational implications of the choices for students and schools in their state.

Uses of this paper in development of AA-MAS ALDs

Background information for policymakers and stakeholders involved in guiding state choices: A summary of why and how ALDs reflect policy imperatives is provided, for use as background for policymakers and to prepare and train stakeholders for participation in advisory roles. Pages 1–12.

Procedures for working with stakeholder and policymaker groups in development and improvement of ALDs: Concrete procedural steps are provided for facilitators who will guide stakeholders and policymakers as they work through the key questions and come to consensus on state choices. See Pages 13–16; Appendices A–C.

Tools and templates for clarifying and articulating the educational logic of the state choices: Key questions are posed for group discussion and reflection; templates and examples are provided for recording consensus understandings and agreements. See Pages 17–22; Appendices A and C.

Although ALDs from four states were used to develop the paper, our comparison of these states' general assessment and AA-MAS ALDs is not meant to make judgments on the quality of each state's work. Instead, our comparative examples from these states are used to develop and test the rationale, procedures, and tools we provide for states to use as they develop and evaluate their ALDs for AA-MAS in relation to the general assessment. These four ground-breaking states developed ALDs prior to the release of final regulations or to the policy discussion that surrounded the regulations. We recognize these states for their work and realize that they did not design their AA-MAS ALDs for this type of scrutiny. Still, we believe they have provided a great service to states that follow by demonstrating how states may consider the characteristics of modified achievement standards, and over time, the field will have a better understanding of the educational logic inherent in these tests.

It should be noted that this paper is based on considerations of best practice, and it does not attempt to present an authoritative interpretation of federal policies related to AA-MAS. The processes and tools described in this paper are not necessarily endorsed by the federal government, but they may be helpful to states in meeting federal requirements related to AA-MAS.

Background and Selected Literature for Policymakers and Stakeholders

Achievement level descriptors for a standards-based assessment reflect both the content assessed and the challenge or difficulty of the assessment. ALDs describe how different performance levels on a test reflect specific skills and knowledge in the content being assessed. They are important for that reason—it is where teachers, parents, and the public should be able to learn not only what a student should know and do to be proficient, but how well they should do it. In addition, because the ALDs describe how one level of achievement differs from another, they show which specific content, skills, or knowledge are the next steps in learning. As such, the ALDs can be powerful policy statements and often serve as the only source where content and achievement expectations for students are specifically written down in concise terms.

The choices states make about how the achievement standards differ between the general assessment and the AA-MAS reflect an educational logic of sorts, whether or not test developers have formally articulated the logic. In theory, in a comprehensive assessment system like those developed under current ESEA requirements, states that are developing AA-MAS should determine whether the AA-MAS leads logically to other achievement standards within the assessment system, for example, to grade-level achievement standards (GLAS) or to alternate achievement standards (AAS), or if they stand-alone and are disconnected. Those discussions should then guide development of ALDs for each test. States will vary on these decisions. Perie, Hess, and Gong (2008) have suggested that in some states, the early AA-MAS ALDs and items reflected added supports and scaffolding but the content coverage was the same as the general assessment. In other states, the AA-MAS ALDs and items reflected content knowledge and skills that were different from the general assessment. As the regulatory language refined state understanding of the need for the same content coverage as the general assessment, content differences have been minimized in most states approaches.

Based on regulatory language (USED, 2007a) and guidance (USED, 2007b), the comparative status of the AA-MAS to the general assessment as the same content but different expectations of mastery should be reflected in the language of each test's ALDs. That is, the ALDs of the two tests should be comparable in terms of content coverage by grade but reflect less challenging attainment of the content for similar performance levels, such as proficiency on the general assessment in comparison to proficiency on the AA-MAS.

Less challenging achievement standards may be defined in one or more of several ways by varying several conditions. For example, Perie (2009b) suggests that the descriptors can vary in these ways: (1) reducing the cognitive complexity of the required skill, (2) decreasing the number of elements required, or (3) adding appropriate supports and scaffolds to the description of the knowledge and skills required. Further, she suggests that some combination of the options can be used:

> In practice, those drafting the modified achievement level descriptors could choose to adopt more than one of these strategies. That is, they could choose to reduce the depth of knowledge required for proficiency on some of the skills, add scaffolds to the statements about other skills, and provide specific examples to others indicating that the student is required to perform a narrower range of tasks than what is required in the grade-level achievement standards. (pp. 244-245)

ALDs are not always developed prior to test development. Measurement experts disagree on whether they should be drafted to guide test development or determined statistically later by difficulty of items and cut scores (Perie, 2009b). For these initial states, whether they developed them first or statistically after the fact, there should be a noticeable logic underlying the content differences if the test is to achieve the apparent intent of the regulations.

Because the "proficient" level has primary importance in current standards-based accountability designs, ALDs describing the proficient level would arguably be the most promising of the levels to detect the underlying differences and assumptions between general and modified ALDs. Thus, we have limited our analysis to comparing ALDs at the "proficient" level in development of the following tools and procedures. By comparing and contrasting how states describe "proficiency" for the general assessment and the AA-MAS, we were able to identify patterns of variation between them, and assign category names to the patterns for easier analysis. We also identified procedures to make the comparisons more efficient and visible. These categories and procedures were formatted into analyses worksheets and were field-tested on the initial state examples. Practitioners, researchers, and other interested stakeholders can use these tools—the category names and procedures—in development of new ALDs or evaluation of existing ALDs.

Methods Used to Develop the Tools

Collection of achievement level descriptors from state Web sites was completed in early 2009. The collection included only those states that had both general and AA-MAS ALDs for the proficient level available online for reading and math, at grades 4, 8, and 10. This process resulted in ALDs from four states which were then used to develop and test the tools. Appendix A provides side-by-side ALD texts taken from the full document versions of ALDs posted online for each state.

Category Names for Comparing and Contrasting ALDs

In this report, we demonstrate processes and tools to help build a defense of state choices for AA-MAS. We compare and contrast ALDs for the general assessments and the AA-MAS. We have not included a comparison of each state's content standards, and have tried to avoid the use of terms associated with each of the most widely used alignment methodologies. Although the ALDs reflect the content standards and are often considered in alignment studies, the terms used in alignment methodologies have specific and complex meanings that are inherent to each of the approaches (Porter & Smithson, 2002; Rothman, Slattery, Vranek, & Resnick, 2002; Wakeman, Flowers, & Browder, 2007; Webb, 1999).

Instead, we used more generic terms that can be tailored to a specific setting, as appropriate, as test developers or policymakers work to improve the quality of their ALDs. For example, rather than using terms like "cognitive complexity" or "depth of knowledge," we used categories of "content" (what), "application" (how), and "degree" (how well). Rather than using a term like "scaffolding," we chose the general category of "context" (under what conditions). These categories and their definitions are shown in Table 1.

Researchers or practitioners who use this approach to compare and contrast ALDs on specific assessments can refine these coding categories consistent with the terminology used in test development and alignment studies in their state. For example, as the tools are tailored to state use by state staff or facilitators, additional terms or clarifications for each category could include for example the term "frequency" or "how often or consistently" in the definition of degree. This comparative analysis tool is simply a tool, and can be amended to better match existing policy and practice choices.

Table 1. Categories Used for Comparing and Contrasting ALDs in Tool Development

Content: *What* is to be known by the student.
Application: *How* the student uses the content.
Degree: *How well* or *how much* is to be known by the student.
Context: *Under what conditions* the student demonstrates the content.

To test our categories, two project researchers coded all achievement descriptors for each state's general assessment and AA-MAS. After they independently coded text for the proficient levels, the results were compared and any disagreements were discussed and resolved. Remaining questions or discrepancies were brought to a third project staff person for resolution. There were relatively few areas for resolution, and in all cases, were recorded as decisions rules. See Appendix B for decision rules developed during the process of applying the coding categories, along with other questions and issues identified by research staff. When the tool is used by states, similar notes on decision rules, questions, and issues should be identified to flag areas for further discussion and clarification.

After the initial coding and resolution was completed, the preliminary comparisons were presented to members of a project expert panel (measurement, content, and special education experts) for validation of the process. The expert panel indicated that the categories for coding could be helpful to the field, and endorsed the procedures as useful for both researchers and for practitioners.

Coding Category Examples from State ALDs for General Assessments and AA-MAS

When coding differences in ALDs, project staff looked at the sets of ALDs side by side, as shown in Table 2. Staff members then determined whether each difference was a **content** difference, an **application** difference, a **degree** difference, a **context** differences, or **multiple** differences. Full texts are provided in Appendix A, first in original form and then in coded form. Appendix B provides additional information on how decisions were made for coding. Examples of each type of difference are presented in Table 2 in bold within the listed descriptors. The difference categories are more fully described in Tables 3 through 7. Only one example of each coding category is shown in Table 2; others were identified in the actual analyses.

Table 2. Examples of Difference Categories in Original Text Samples for the General Assessment and AA-MAS Grade 8 Mathematics ALDs at "Meets Standard" Level for State 1

General Assessment ALD	AA-MAS ALD
Satisfactory performance; at or above state passing standard; sufficient understanding of the mathematics [state] curriculum [context difference] Students Who Met the Standard 1. **Can read for meaning and detail and have an adequate math vocabulary [content difference]** 2. Often exhibit persistence, endurance, and stamina 3. Are somewhat comfortable with math 4. **Often retain and apply prior math knowledge [degree difference]** 5. Have adequate problem-solving skills (e.g., use some strategies, can usually distinguish between essential and extraneous information, apply necessary skills, often justify answers and check solutions for reasonableness) 6. Demonstrate adequate abstract thinking skills (e.g., algebraic reasoning) 7. **Can usually visualize geometric shapes and solids [degree, application and context difference]** 8. Have an adequate understanding of measurement concepts and tools 9. Make some connections among math concepts 10. Have general number sense (e.g., estimation, fractions, decimals, percents) 11. Demonstrate adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; can usually compute with accuracy 12. **Can apply proportional reasoning skills to familiar situations [application difference]** 13. Show adequate understanding of math symbols and formulas 14. Have an emerging ability to recognize multiple representations of linear functions	**Satisfactory performance; at or above modified passing standard; sufficient understanding of the mathematics [state] curriculum measured at this grade level [context difference]** Students Who Met the Standard 1. **Have an adequate math vocabulary [content difference]** 2. **Sometimes retain and apply prior math knowledge[degree difference]** 3. Have adequate problem-solving skills (e.g., use some strategies, apply necessary skills, sometimes justify answers and check solutions for reasonableness) 4. Are developing abstract thinking skills (e.g., algebraic reasoning) with or without the use of models 5. **Sometimes describe two- and three-dimensional figures with or without the use of models [degree, application, and context difference]** 6. Have an adequate understanding of measurement concepts and tools 7. Make some connections among math concepts 8. Have general number sense (e.g., estimation, fractions, decimals, percents) 9. Demonstrate an adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; usually compute with accuracy 10. **Understand proportions and are developing proportional reasoning skills [application difference]** 11. Show adequate understanding of math symbols and formulas 12. Sometimes recognize multiple representations of linear functions

Note: Bolded words indicate a substantive difference.

An example of a **content difference** is presented in Table 3. Content difference is defined as "*what* is to be known by the student." These texts were coded as a content difference because the general ALD mentions that the student will be able to read for meaning and detail as well as have an adequate math vocabulary and the AA-MAS ALD only mentions having an adequate math vocabulary.

Table 3. Coding Example: Content Difference in ALDs for the General Assessment and AA-MAS Grade 8 Mathematics at "Meets Standard" Level for State 1

General ALD	AA-MAS ALD
Can read for meaning and detail and have an adequate math vocabulary	Have an adequate math vocabulary

See Table 2 for source of example.

Table 4 shows an example of an **application difference**. Application difference is defined as "*how* the student uses the content." The general version states that a student "can apply proportional reasoning skills to familiar situations" and the AA-MAS version says a student will "understand proportions." Although the language is similar, the terminology suggests a difference in the application of skills.

Table 4. Coding Example: Application Difference in ALDs for the General Assessment and AA-MAS Grade 8 Mathematics at "Meets Standard" Level for State 1

General ALD	AA-MAS ALD
Can apply proportional reasoning skills to familiar situations	Understand proportions and are developing proportional reasoning skills

See Table 2 for source of example.

The third coding category, presented in Table 5, shows a **degree difference**. Degree difference is defined as "*how well* or *how much* is to be known by the student." The general ALD says the student will "often retain and apply prior math knowledge" and the AA-MAS ALD says the student will "sometimes retain and apply prior math knowledge." So, the difference described is about the degree or frequency that a student retains and applies prior math knowledge.

Table 5. Coding Example: Degree Difference in ALDs for the General Assessment and AA-MAS Grade 8 Mathematics at "Meets Standard" Level for State 1

General ALD	AA-MAS ALD
Often retain and apply prior math knowledge	Sometimes retain and apply prior math knowledge

See Table 2 for source of example.

The fourth coding example, in Table 6, shows **context differences**. Context difference is defined as "*under what conditions* the student demonstrates the content." In this example, one of the contextual differences is found in the addition of language for the AA-MAS ALD on the right. It repeats the same language of the general ALD but adjusts and adds language that sets apart the skills being described to the different context of the "modified passing standard…measured at this grade level."

Table 6. Coding Example: Context Difference in ALDs for the General Assessment and AA-MAS Grade 8 Mathematics at "Meets Standard" Level for State 1

General ALD	AA-MAS ALD
Satisfactory performance; at or above state passing standard; sufficient understanding of the mathematics [state] curriculum	Satisfactory performance; at or above modified passing standard; sufficient understanding of the mathematics [state] curriculum measured at this grade level

See Table 2 for source of example.

ALDs often have **multiple coding differences** represented on one chunk of text. The final example from the Grade 8 Mathematics general assessment and AA-MAS (see Table 2) shows text that was coded as having three differences; in degree, application, and context (see Table 7). The degree difference was between "can usually" in the general ALD and "sometimes" in the AA-MAS. The application difference was between visualize in the general *versus* describe in the AA-MAS version. The context difference is shown in the AA-MAS ALD that allows for the student to use models that are not mentioned in the general ALD. Content was described differently for geometric shapes and solids and two and three dimensional figures, so it is unclear whether this is also a content difference.

Table 7. Coding Example: Multiple Codes in ALDs for the General Assessment and AA-MAS Grade 8 Mathematics at "Meets Standard" Level for State 1

Grade 8 Mathematics Achievement Level Descriptors	
General ALD	**AA-MAS ALD**
Can usually visualize geometric shapes and solids	Sometimes describe two- and three-dimensional figures with or without the use of models

See Table 2 for source of example.

Clarification of Grade-Level Nuances Observed in Reading ALDs

Reading ALDS were handled in the same way as mathematics ALDs, but there was an additional complexity to consider given the emphasis in the AA-MAS regulatory language on grade-level content coverage. The ALDs for reading need careful articulation of the nature of the passages used in any reading assessment in order to clarify the grade-level content coverage requirement. In the four states that we examined, it was not always clear what was intended. Because we did not study state content standards, it is possible that areas we saw as unclear are in fact specified in the grade level content definitions. In the example shown in Table 8, both the general and AA-MAS ALDs included the phrase "grade appropriate" in describing the reading materials. However, the state further specified how the material was different for the AA-MAS ALDs, describing it as having a reduced cognitive load on grade level in addition to having limited inferential processes and simplified sentence structure. We want to underscore the importance of states being explicit about what they mean by "on-grade level" when used in reading ALDs, and that it is important to be transparent in describing any difference of this type. In Table 8, we highlight the grade-level specific language and language describing text specific to a student's IEP, even though in addition to specific grade-level references in both ALDs, the general ALD specifically notes independent reading and the addition of technical and persuasive text in comparison to the AA-MAS ALD.

Table 8. Grade-level Complexities in Grade 8 Reading ALDs for the General Assessment and AA-MAS

General ALD	AA-MAS ALD
When *independently* reading **grade-appropriate narrative, expository**, *technical and persuasive text*, a proficient student has satisfactory comprehension	When reading **grade-appropriate narrative and expository text**, a meets standard student has satisfactory comprehension when using modified achievement standards for eligible students with an IEP which includes: **• reduced cognitive load on grade level** **• limited inferential processes** **• sentence structure simplified**

Table A-5b, State 2 is the source of these examples.

Procedures to Articulate the Educational Logic of ALDs for AA-MAS

When the achievement to be described for some students—for example, students with disabilities—differs in any way from what is expected for most students, then the developers have an obligation to state how it is different and a rationale for why those differences can promote positive outcomes. Then, a systematic process can be used to categorize the general assessment ALDs and identify specific changes that would support students with the specific needs and characteristics of the students who may participate in AA-MAS. This process can be done during the development of AA-MAS ALDs or it can be done to evaluate and improve existing AA-MAS ALDs. The procedures and tools presented in this paper provide ways to develop (or to check on existing) draft achievement level descriptors that reflect intended underlying assumptions.

Based on our analyses of four states' ALDs for the general assessment and AA-MAS, we concluded that it is possible to use these categorization procedures to articulate the educational logic for ALDs for AA-MAS. This logic should be built on a definition of who the students are who may benefit from participation in AA-MAS, and the specific needs and characteristics of these students that require a different approach to assessment than the general assessment.

Four-Step Process for Use of Procedures and Tools

The four-step process is described here. The process overview and tool templates are provided in Appendix C.

Step 1

The first step is to **identify and recruit key policymakers and stakeholders** to participate in the process, and to whom background information and training will be provided to ensure a common understanding. Like other standard-setting procedures, the participants should include people with experience and expertise in the content and with the students, and their credentials should be documented. A common understanding of the purpose of the procedures should be developed. The background materials in this paper can be used as part of that training. The remaining steps involve these policymakers and stakeholders as part of a virtual or face-to-face group process, typically facilitated similar to other standard-setting procedures used in the state.

Step 2

Once the participants are convened and trained, the second step is to work with them to **identify the needs and characteristics of students** who may participate in the AA-MAS. This assumes

that the state has identified the likely AA-MAS participants through a systematic data-based process that involves analysis of current test-taking patterns and outcomes (see Hess, McDivitt, & Fincher, 2008; Lazarus & Thurlow, in press; Perie, 2008; Quenemoen, 2009; Thurlow, 2008). The needs and characteristics of the students will inform your decisions about the ALDs, and help policymakers articulate the assumptions and rationale for any proposed ALDs.

Here are a set of questions to help identify and articulate underlying assumptions and rationale for AA-MAS ALD development or improvement. As Step 1 assumes, it is best to involve stakeholders who know the students, the content, and the assessment design opportunities and constraints in a study group format to answer the questions. This is especially important for developing descriptors for a different achievement standard than that used for most students, like the AA-MAS. This discussion should be informed by evidence and data that incorporate understanding of opportunities to learn, even if the data come from other states or research studies. This will ensure that historical limited opportunities to learn are not reinforced by assumptions that current achievement is all that can be expected. Policymakers should guide the discussion to focus on what to expect when students have received appropriate instruction in the content to be assessed.

The following questions can guide the work of your study group:

- What are your assumptions about these students' ability to learn and to show what they know? What data do you have to support those assumptions?

- Are these students different from students without disabilities who have performed poorly on the large-scale assessment? How? How do you know?

- What is the nature of the barriers to the targeted students' participation? Are they unable to show what they know on the assessment due to barriers related to their disability? What data do you have to understand the nature of those barriers?

- Are the students unable to participate because their actual knowledge and skills are too low to be adequately assessed on the general assessment? How do you know?

- Have the students been provided appropriate opportunities to learn the standards-based curriculum covered by the assessment? How do you know? Depending on what the barriers are to their participation, what are the characteristics of these students? This question may need to be answered for several different groups of students, depending on the barriers you identify.

A resource to consider for the stakeholder study group is the Perie (2008) white paper on AA-MAS, and the white paper chapter on identifying the students (Quenemoen, 2009). Section I (Table 9) of the tool template in Appendix C can be used to summarize your findings.

Table 9. Section I of Tool Template

Summarize the needs and characteristics of the students who may participate in the AA-MAS here, based on your work with stakeholders	Evidence to support these ideas/conclusions

Step 3

Once the stakeholder study group comes to consensus on the summary needs and characteristics and evidence to support the assertions, the third step is to **identify specific rationales for differences between ALDs for general assessment and AA-MAS**. Decisions on how the descriptors differ should reflect stakeholder consensus, and rationales should clearly track back to the summary of student needs and characteristics in the tool (see Table 9). For example:

- If content (what) is going to be differ in some way within the constraints of the regulatory language, how does it relate to what you know about the students?
- How will you maintain grade-level alignment while varying the content?
- If the application or degree (how, how well, how much) is different, how do those choices relate to the nature of the barriers to their participation?
- If the context (under what conditions) is different, what specific characteristics of the students leads you to these changes in context?
- What are implications of this decision if you have determined that many of the students have not been taught what is on the test?
- What are implications of these decisions for future learning and assessments in later grades?
- What implications do these changes have for interpreting test results?

You can use the categories of potential changes that are used in this study (i.e., content, context, degree, application) or you can use terms that are commonly used in your state (e.g., depth of knowledge, cognitive complexity, difficulty, etc.).

Step 4

The fourth step is to use the tools provided in Appendix C and the examples below to **articulate the summary of AA-MAS student needs and characteristics** (see Section I), **the general assessment ALDs** (see Section II, Column 1), **the rationale for any changes proposed for these students** (Section II, Column 2), and then either **development of or comparison to AA-MAS ALDS** (Section II, Column 3). Check these drafts for consistency with the consensus statements of your stakeholder group and the specific student needs and characteristics. As you work, capture areas of concern or questions for curriculum, assessment, and special education partners to address. Focus first on the proficient descriptors. After they are complete, move to the other levels to ensure a logical connection between the general assessment and AA-MAS and within each assessment.

It may be helpful for the meeting facilitators to complete this summary work on the tools during a break such as lunch or between meeting days or times. This transfer of consensus statements to the tool template should be an opportunity to consolidate key issues and ideas in a format that makes the work more focused. If the facilitators transfer the discussion summaries into a final working tool, be sure to allow the meeting participants to check the accuracy of the summaries prior to your final working session.

Regardless of the changes made and rationales for the differences, test developers should use comparable formats for achievement level descriptors that differ from those on the general assessment. Parents and teachers should be able to see exactly what is the same and what is different when the general assessment proficient descriptor is side by side with the modified achievement descriptor. Ideally, developers would include the justifications for why they are different, to inform parents and teachers of the specific purpose and ramifications of the differences.

Evaluating Differences Between the General Assessment and AA-MAS ALDs

Using Section II of Tool Template with Existing AA-MAS ALDs

In order to evaluate the differences between the general assessment achievement level descriptors and the AA-MAS achievement level descriptors, it is important to begin with the ALD texts and match up the language used for each grade level and subject area. Placing these ALD texts in the appropriate columns permits examination of the texts side-by-side. In this comparison process, it may be difficult to match the ALDs precisely. For instance, the skills may be listed in different order. In that case, a process of elimination may be followed to match up each ALD text. It may also be difficult to ascertain whether texts are paraphrases or distinctly different terminology reflecting actual differences. Team members categorizing the ALD texts should make note of their own decision rules as well as areas of questions or issues that arise for further discussion. Appendix B has examples of both decisions rules and issues found by our project staff, but are meant as examples only.

In Table 10, the first steps of aligning the texts in Columns 1 and 3 have been completed, using examples from Appendix A. A next step not illustrated here is to evaluate the rationale for the differences detected between the general assessment and AA-MAS ALD texts. Specific rationales are not fully developed in the example because we do not know the rationale used by the states we studied.

Table 10. Example for Evaluation of *Existing* AA-MAS ALDs using Section II of Tool Template

Column 1: ALDs for General Assessment	**Column 2: Rationale for Changes Made Based on Student Needs and Characteristics** *(For evaluation: use this column to test the logic of observed differences.)*	**Column 3: ALDs for AA-MAS** *(For evaluation, insert existing ALDs.)*
State 3, Grade 4 Mathematics: Compare fractions and decimals (including the use of benchmarks)	**Content Differences Identified:** Comparison of decimals mentioned in general assessment but not AA-MAS. *Rationale for each*	State 3, Grade 4 Mathematics: compare fractions (including the use of benchmarks)
State 4, Grade 4 Reading: drawing conclusions	**Degree Differences Identified:** Conclusions to be drawn are "simple" in AA-MAS, but are not qualified in any manner in the general assessment. *Rationale for each*	State 4, Grade 4 Reading: drawing simple conclusions
State 2, Grade 8 Reading: This student is likely to ... compare and contrast	**Application Differences Identified:** Comparison and contrast are applied in general assessment, but an awareness of comparison and contrast is expected in AA-MAS. *Rationale for each*	State 2, Grade 8 Reading: This student is likely to have awareness of ... compare and contrast
State 4, Grade 8 Reading: Students scoring at the Satisfactory level typically read and comprehend grade level reading material using the following skills: . . .	**Context Differences Identified:** Reading material in AA-MAS is reported to be "grade-level-modified," whereas the general assessment expects use of reading material which is at grade level being assessed. This marks a parallel reading condition, using similar texts, but which have been modified in AA-MAS. *Rationale for each*	State 4, Grade 8 Reading: Students scoring at the Satisfactory level typically read and comprehend grade-level-modified reading material and will . . .
State 2, Grade 8 Reading: When independently reading grade-appropriate narrative, expository, technical and persuasive text, a proficient student has satisfactory comprehension.	**Context Differences Identified:** Reading texts in AA-MAS have conditions placed around them, including a reduction in cognitive load, as well as stated differences in inferential processing and sentence structure, whereas there are no conditions present in the texts in general assessment. *Rationale for each*	State 2, Grade 8 Reading: When reading grade appropriate narrative and expository text, a meets standard student has satisfactory comprehension when using modified achievement standards for eligible students with an IEP which includes: • reduced cognitive load on grade level • limited inferential processes • sentence structure simplified

Note: The content area and grade varies in this example. The proficient level is used in all examples.

Using Section II of Tool Template to Develop New AA-MAS ALDs

In order to develop new achievement level descriptors for the AA-MAS, the beginning point is to place the existing ALD text from the general assessment into the tool in the appropriate column. The team would provide proposed changes in the center column, along with a specification of the rationale for these differences. Rationales should include what is known about the students identified as appropriately participating in the AA-MAS, and whether student characteristics suggest differences in content (what is being taught), degree (how well or how much is to be known), application (how it is to be demonstrated), and context (under what conditions it is to be demonstrated).

Another rationale element could include consideration of what barriers students who may participate in the AA-MAS would encounter in demonstrating what they know and can do. Further considerations reflected in the rationale may reflect whether the affected students have been provided opportunities to receive the same instructional content as other students, and the implications if they have not been. Review team members should consider how these ALDs relate to other grade levels from earlier and later in students' learning and assessment. It is important to reflect on what the differences imply for interpreting test results of the AA-MAS.

After these differences are identified, and rationales are specified, the formulation of the wording of the AA-MAS ALDs is entered. Table 11 shows examples in Column 1 from Appendix A in order to demonstrate the use of the tool.

A next step not completed here is to describe proposed changes and the rationale for the differences detected between the general assessment and AA-MAS ALD texts. As the changes and rationales are proposed, development team members must determine whether they are defensible based on what is understood about the students who may participate.

Table 11. Example for *Development of New* AA-MAS ALDs Using Tool Template

Column 1: ALDs for General Assessment	**Column 2: Rationale for Changes Made Based on Student Needs and Characteristics** *(For development use this column to inform the MAS Draft ALDs.)*	**Column 3: ALDs for AA-MAS** *(For development, use this column as a working space for drafting MAS ALDs.)*
State 3, Grade 4 Reading: Be able to use functional print, information resources such as dictionaries, charts, and diagrams, and to properly use the Internet.	**Content Differences Proposed:** Remove "and to properly use the Internet." *Rationale for each:* Some possible considerations for rationale: Are content differences around use of technology called for in what the AA-MAS ought to assess? What factors suggest that this is the case?	
State 4, Grade 8 Mathematics: often successful at organizing and interpreting data	**Degree Differences Proposed:** Substitute another frequency word in place of "often." *Rationale for each* Some possible considerations for rationale: Should a different qualifier be used for frequency of success—for instance, perhaps "often" is 75% or more, so "mostly" or another word could be used instead to indicate at least 50% of the time. If this frequency is changed, is that changing the cut-point? If so, what does this mean for students taking the AA-MAS?	
State 1, Grade 8 Reading: remain focused on the text	**Application Differences Proposed:** Remove and rephrase "remain focused on." *Rationale for each* Some possible considerations for rationale: Is this focusing skill appropriate for the students? If so, is there any way that it needs to be operationalized/measured for the students on the AA-MAS? If not, what skill around tracking the text is more appropriate?	
State 2, Grade 4 Mathematics: application of the statistical measures (minimum and maximum value, range, mode, median, and mean)	**Context Differences Proposed:** Add "real-world" as a type of application. *Rationale for each* Some possible considerations for rationale: Are there any barriers which would limit students from demonstrating this skill area in any types of application, including those that are hypothetical and not part of students' experience? How might these barriers affect the interpretation of test results?	

A final procedural step for state assessment staff and the state vendors will include studying the alignment of the assessment itself and the proposed ALDs. As mentioned in the opening section, experts differ on whether ALDs should be developed before test development or after. Depending on which approach to ALD development is taken, states have an obligation to ensure that the assessment and the ALDs are aligned. For example, if the assessment is developed first, or an existing general assessment is "modified" in some way and then the ALDs are written, the type of changes to the ALDs should be consistent with the design, revisions, and enhancements made to the assessment. If the assessment is developed or "modified" after the ALDs are drafted, the types of changes in the ALDs should drive the types of revisions and enhancements made to the assessment. And, once the final AA-MAS form is created, the ALDs should be compared to what students are actually expected to show they know and can do on the assessment. This will ensure a strong alignment between the two. For example, the ALDs should not include references to scaffolding (e.g., segmented texts) or other contextual features that are not provided in the assessment.

Tips for Tailoring Use of the Tools to Specific State Contexts and Stakeholder Teams

The use of these tools and procedures can support high expectations and improved outcomes for students who may participate in an AA-MAS. Engaging key stakeholders with varied perspectives and expertise in the process of building the rationale for the assessment can ensure these outcomes. Such interdisciplinary teaming is powerful but challenging, and it may take time and group discussion to ensure that varied perspectives are understood and considered.

Through use of the example ALD comparisons in Appendix A, the team can use neutral text from another state to develop understanding of the tool and process. There are several benefits from a stakeholder team working together on a tryout of the tool using another state's example from Appendix A. First, the example allows content experts and special educators to discuss in theory what changes are defensible to ensure these students can show what they know but still maintain the integrity of the intended content, before applying it to their own state example. This allows the discussion to be initiated in a nonthreatening way.

A tryout of the tools using an example from Appendix A also can identify procedural choices that will work well when using actual state ALDs. Content experts on your team can identify the terms and definitions to use for your categories to replace or refine the ones used here (i.e., content, context, application, degree). Special educators on your team will be able to consider how the needs and characteristics of the students affect their learning and demonstration of content from the examples. Based on the try out and discussions, the tool can be modified to reflect the specific context in your state.

The examples provided in Appendix A represent early work on development of AA-MAS PLDs. Since that time, many states have developed new ways of thinking about the issues related to content coverage at grade level and difficulty or complexity. These include concepts like embedded use of scaffolds (e.g., timelines, graphic organizers) to organize information, shorter segmented reading passages, or use of reminders of the key problem solving steps in mathematics. As peer review continues on state submissions, it will be important to identify and make use of examples from publicly available PLDs from states that receive approval for their AA-MAS. These new examples may provide additional ideas for your stakeholder groups as you work to build an AA-MAS that meets the regulatory requirements and that can help improve the achievement of students who participate in the assessment option.

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Appendix A

Side-By-Side Tables of Achievement Level Descriptors for Grade-Level and Modified Assessments

The tables contained in this appendix are organized to present the process by which the ALDs from the four states were analyzed, and as examples for state team training and tryouts of procedures. We ordered the subjects alphabetically, and the grade levels sequentially, so that grade 4 math precedes grade 4 reading, and grade 4 reading precedes grade 8 reading, for instance. We organized each of the states' ALDs at each subject area and grade level before proceeding to the next subject area and grade level. The purpose for this decision was so that readers can consider different ways that each subject and grade was approached, and to ease comparison among these approaches.

In this project, we decided to focus on proficient level descriptors. Although there is value in comparing the other achievement levels to one another, it is beyond the scope of this report.

For each state there are two tables by subject (Reading and Math) for each of the three grade levels (4, 8, and 10). The first of the pair is the full text of the achievement level descriptors for the grade-level assessment and the modified assessment. The texts are shown as written by the states, with some variations to remove state-specific terminology. The differences that we identified between the two texts are placed in ***bold italics***, for ease of readers' recognition. The second table of the pair shows the individual differences between the texts and how the differences were categorized: **content**, **degree**, **application**, and **context**.

A few other conventions were employed with the second table of each pair. Ellipses indicate that the wording was part of a larger sentence of text. Some phrases were included for clarification, although they did not differ between the texts. When this was done, the words that were not different were placed in brackets. This was commonly done with **degree** difference, in order to clarify to what the qualifying word was modifying, as in: "often [justify]" versus "sometimes [justify]." In some cases, a phrase represented more than one category of difference, so the relevant word was underlined to show in the table which word was being identified with which type of difference. Finally, in some cases an ALD appeared in one text and not the other; that is, in the grade-level and not the modified, or vice-versa. When this occurred, the term "[absent]" was applied to show that the specific ALDs were not in the text, whether grade-level or modified.

These examples of states' ALDs are not attributed to a specific state, but are listed by a numeral, and randomized in order. This decision was made to focus on the analytic process and not the specific state ALD decisions for the purpose of this report.

Table A-1. Categories used for comparing and contrasting ALDs in tool development

Content: *What* is to be known by the student. **Application:** *How* the student uses the content. **Degree:** *How well* or *how much* is to be known by the student. **Context:** *Under what conditions* the student demonstrates the content.

Table A-2. Mathematics, Grade 4

Table A-2a. State 1

STATE 1	
GRADE 4 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Satisfactory performance; at or above ***state passing standard***; sufficient understanding of the mathematics [state] curriculum **Students Who Met the Standard** ***1. Can read for meaning and detail*** and have an adequate math vocabulary ***2. Often exhibit persistence, endurance, and stamina*** ***3. Are somewhat comfortable with math*** ***4. Often*** retain and apply prior math knowledge 5. Have adequate problem-solving skills (e.g., use some strategies, ***can usually distinguish between essential and extraneous information***, apply necessary skills, ***often*** justify answers and check solutions for reasonableness) 6. Are developing abstract thinking through the use of models ***7. Can usually visualize geometric shapes and solids*** 8. Have an adequate understanding of measurement concepts and tools 9. Make some connections among math concepts 10. Have general number sense (e.g., estimation, rounding, place value) 11. Demonstrate adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; can usually compute with accuracy 12. Can usually recognize and extend patterns	Satisfactory performance; at or above ***modified passing standard***; sufficient understanding of the mathematics [state] curriculum measured at this grade level **Students Who Met the Standard** 1. Have an adequate math vocabulary ***2. Sometimes*** retain and apply prior math knowledge 3. Have adequate problem-solving skills (e.g., use some strategies, apply necessary skills, ***sometimes*** justify answers and check solutions for reasonableness) 4. Are developing abstract thinking through the use of models ***5. Sometimes describe two- and three-dimensional figures with or without the use of models*** 6. Have an adequate understanding of measurement concepts and tools 7. Make some connections among math concepts 8. Have general number sense (e.g., estimation, rounding, place value) 9. Demonstrate an adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; usually compute with accuracy 10. Usually recognize and extend patterns

STATE 1		
GRADE 4 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… state passing standard …	… modified passing standard …	Context
Can read for meaning and detail …	[absent]	Content
Often exhibit persistence, endurance, and stamina	[absent]	Content
Are somewhat comfortable with math	[absent]	Content
Often [retain and apply] …	Sometimes [retain and apply] …	Degree
… can usually distinguish between essential and extraneous information …	[absent]	Content
… often [justify] …	… sometimes [justify] …	Degree
… usually [visualize] …	… usually [describe] …	Degree
… visualize …	… describe …	Application
… geometric shapes and solids	… two- and three-dimensional figures …	Content
[absent]	… with or without the use of models	Context

Table A-2b. State 2

STATE 2	
GRADE 4 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
The proficient student uses some problem-solving techniques and is unable to ***explain the process he/she uses when solving mathematical problems.*** A student scoring at the [below proficient] level is ***likely*** to perform ***inaccurately at lower cognitive levels and on most areas of emphasis.*** The student ***struggles to demonstrate*** content knowledge and application skills. Fourth grade students ***will demonstrate knowledge and skills in*** the following ***four areas of emphasis:*** **Number and Computation –** • place value concepts and notations • concepts of whole number properties • one- and two-step real-world problems with addition, subtraction, and multiplication • relationships between mathematical operations **Algebra –** • one variable, one-step whole number equations with basic facts, money, and time • one operation function tables • mathematical relationships using various models **Geometry –** • plane figures within a composite figure • measurement tools • reasonable estimations of measurements and calculations • single transformation of two-dimensional figures • first quadrant coordinate grids **Data –** • graphs presented in a variety of formats including bar, pictograph, circle, Venn, line plot • application of the statistical measures (minimum and maximum value, range, mode, median, and mean)	A student scoring at the [proficient] level ***usually*** performs ***consistently and accurately when working on grade-level mathematical tasks based on modified achievement standards*** for eligible students with an IEP which includes. • ***reduced cognitive load on grade level*** • increased visual representations • simplified reading and sentence structure The student ***demonstrates sufficient*** content knowledge and application skills. The student ***usually understands and uses*** • place value concepts and notations • concepts of whole number properties • measurement tools The student is ***usually accurate when*** • ***solving*** one variable, one-step whole number equations with basic facts, money, and time • ***using*** one operation function tables • ***performing*** single transformation of two-dimensional figures • ***reading and plotting points*** in the first quadrant of a coordinate grid The student ***uses some problem-solving techniques to accurately solve*** • one- and two-step real-world problems with addition, subtraction, and multiplication • ***real-world applications*** of the statistical measures (minimum and maximum value, range, mode, median, and mean) The student ***uses representations*** and ***usually explains the reasoning process*** used to • ***represent*** relationships between mathematical operations • ***describe*** mathematical relationships with various models • ***identify*** plane figures within a composite figure • ***make*** reasonable estimations of measurements and calculations • ***graph data presented in a variety of formats*** including bar graph, pictograph, circle graph, Venn diagram, line plot

STATE 2		
GRADE 4 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	**Category**
… is unable to explain the process he/she uses when solving mathematical problems	[absent]	Content
… likely to perform inaccurately	… usually performs consistently and accurately	Degree
… at lower cognitive levels and on most areas of emphasis	… when working on grade-level mathematical tasks based on modified achievement standards …	Context
… in the following four areas of emphasis: [Number and Computation, Algebra, Geometry, Data]	[absent]	Content
… struggles to demonstrate … will demonstrate …	… demonstrates sufficient …	Degree
… demonstrate knowledge and skills in …	… usually understands and uses …	Degree
… demonstrate knowledge and skills in …	… usually understands and uses …	Application
... demonstrate knowledge and skills in ...	... usually accurate when ... solving ...	Degree
... demonstrate knowledge and skills in ...	... usually accurate when ... solving ...	Application
... demonstrate knowledge and skills in ...	... usually accurate when ... using ...	Degree
... demonstrate knowledge and skills in ...	... usually accurate when ... using ...	Application
... demonstrate knowledge and skills in ...	... usually accurate when ... performing ...	Degree
... demonstrate knowledge and skills in ...	... usually accurate when ... performing ...	Application
... demonstrate knowledge and skills in ...	... usually accurate when ... reading and plotting points ...	Degree
... demonstrate knowledge and skills in ...	... usually accurate when ... reading and plotting points ...	Application
… demonstrate knowledge and skills in …	... uses some problem-solving techniques to accurately solve ...	Application
… demonstrate knowledge and skills in …	... uses some problem-solving techniques to accurately solve ...	Degree

Table A-2b. State 2 (continued)

STATE 2		
GRADE 4 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	**Category**
application …	real-world applications …	Context
... demonstrate knowledge and skills in ...	... uses representations ...	Context
[absent]	… explains the reasoning process …	Content
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... represent ...	Degree
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... represent ...	Application
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... describe ...	Degree
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... describe ...	Application
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... identify ...	Degree
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... identify ...	Application
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... make ...	Degree
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... make ...	Application
... demonstrate knowledge and skills in ...	... usually explains the reasoning process used to ... graph data presented in a variety of formats ...	Degree

Table A-2c. State 3

STATE 3	
Grade 4 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of all students at this grade level. Students scoring at the Satisfactory level typically will: • Be able to recognize, describe, and extend patterns. • Be able to solve open sentences. • Understand ***place value to six digits*** and decimals to hundredths. • Be able to use addition and subtraction of whole numbers to estimate and to solve problems. • Compare fractions and ***decimals*** (including the use of benchmarks). • ***Multiply*** and ***divide 2- and 3-digit numbers***. • Apply geometric (spatial reasoning) and measurement concepts using customary and metric units of measure (including estimation). • Analyze and interpret data in graphs. • ***Apply mental math techniques***.	Students performing at the Satisfactory level on the [AA-MAS] demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of students at this grade. Students scoring at the Satisfactory level typically will: • be able to recognize, describe, and extend patterns; • be able to solve open sentences ***involving addition and subtraction with whole numbers***; • understand ***place value of whole numbers to four digits*** and decimals to the hundredths; • ***compare and order*** whole numbers; • be able to use addition and subtraction of whole numbers (to four digits) to estimate and to solve problems; • compare fractions (including the use of benchmarks); • ***estimate and find the product of up to two 2-digit numbers to solve problems***; • ***find the quotient of*** a ***one-digit divisor and a two-digit dividend to solve problems***; • ***identify and compare angles and lines***; • apply geometric (spatial reasoning) and measurement concepts using customary and metric units of measure (including estimation); • analyze and interpret data in graphs.

STATE 3		
GRADE 4 Mathematics		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
[absent]	… involving addition and subtraction with whole numbers	Content
… place value to six digits …	… place value of whole numbers to four digits …	Content
[absent]	compare and order whole numbers	Content
Compare … decimals	[absent]	Content
[absent]	estimate …	Content
Multiply … 2- and 3-digit numbers	… find the product of … up to two 2-digit numbers …	Content
[absent]	… to solve problems	Application
… divide … 2- and 3-digit numbers	find the quotient of a one-digit divisor and a two-digit dividend …	Content
[absent]	… to solve problems	Application
[absent]	identify and compare angles and lines	Content
Apply mental math techniques	[absent]	Content

Table A-2d. State 4

STATE 4	
GRADE 4 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level. Students performing at [proficient level] generally show understanding and computational accuracy. The students ***consistently respond*** with appropriate answers or procedures. They use ***a variety of*** problem-solving strategies. [Proficient level] students ***frequently show number sense by comparing, ordering, estimating, and representing numbers*** from 0.01 to 99,999. They are ***usually consistent*** when multiplying and dividing multi-digit numbers; they use strategies including ***estimation*** of products and quotients in appropriate situations. They also add and subtract ***numbers*** with like denominators. Students solve problems involving perimeter of plane figures and area of rectangles. Students use ***coordinate planes*** to ***describe the location and relative position of points***. They ***describe lines*** correctly as parallel or perpendicular. Students collect, organize, analyze, and display data using a variety of graphs. They use range, median, and mode to describe a set of data. Students design and use simple experiments to ***investigate and describe*** the probability of events. Students ***generally can use the order of operations or the identity, commutative, associative, and distributive properties***.	Students performing at this level consistently demonstrate mastery of the grade level subject matter and skills and are well prepared for the next grade level. Students performing at this level consistently demonstrate basic knowledge and skills in this subject area. Students performing at [proficient level] generally show conceptual understanding, compute accurately, and ***respond*** with appropriate answers or procedures. They use ***basic*** problem-solving strategies. In grade four, students are given the opportunity to develop the following skills. ***Expectations include number sense for rational numbers*** 0.01 through 99,999 and ***fluency*** with multiplication and division using multi-digit numbers. They add and subtract ***rational numbers*** (halves, fourths, eighths, thirds, sixths, twelfths, fifths, tenths, hundredths, and mixed numbers) with like denominators. Students solve problems involving the perimeter of plane figures and the area of rectangles. In fourth grade, students ***identify, predict, and describe the results of transformations*** of ***plane figures***. They collect, organize, analyze, and display data using a variety of graphs. Students use range, median, and mode to describe a set of data. Fourth graders design and use simple experiments to ***investigate, discuss, and describe*** the probability of an event. Students ***use symbols to represent*** simple proportional relationships and solve problems. They ***use the order of operations to verify and translate mathematical relationships with symbols, words, numbers, and pictures***. Fourth-graders apply these concepts as well as those developed in previous years.

STATE 4		
GRADE 4 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	**Category**
… consistently respond …	… respond …	Degree
… a variety of …	… basic …	Degree
… frequently show …	Expectations …	Application
… by comparing, ordering, estimating, and representing numbers	[absent]	Application
… usually consistent …	Expectations include … fluency	Application
… numbers …	… rational numbers …	Content
… estimation …	[absent]	Content
… numbers …	… rational numbers …	Content
… coordinate planes …	… plane figures	Content
… describe the location and relative position of points …	... identify, predict, and describe the results of transformations ...	Application
… describe lines …	[absent]	Content
… investigate and describe …	… investigate, discuss, and describe …	Content
[absent]	… use symbols to represent …	Content
… generally can use the order of operations or the identity, commutative, associative, and distributive properties	… use the order of operations to verify and translate mathematical relationships with symbols, words, numbers, and pictures	Content
… generally can use the order of operations or the identity, commutative, associative, and distributive properties	… use the order of operations to verify and translate mathematical relationships with symbols, words, numbers, and pictures	Context

Table A-3. Mathematics, Grade 8

Table A-3a. State 1

STATE 1	
GRADE 8 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Satisfactory performance; at or above ***state passing standard***; sufficient understanding of the mathematics [state] curriculum [Proficient] Students … 1. ***Can read for meaning and detail*** and have an adequate math vocabulary 2. ***Often exhibit persistence, endurance, and stamina*** 3. ***Are somewhat comfortable with math*** 4. ***Often*** retain and apply prior math knowledge 5. Have adequate problem-solving skills (e.g., use some strategies, ***can usually distinguish between essential and extraneous information***, apply necessary skills, ***often*** justify answers and check solutions for reasonableness) 6. ***Demonstrate adequate*** abstract thinking skills (e.g., algebraic reasoning) 7. ***Can usually visualize geometric shapes and solids*** 8. Have an adequate understanding of measurement concepts and tools 9. Make some connections among math concepts 10. Have general number sense (e.g., estimation, fractions, decimals, percents) 11. Demonstrate adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; can usually compute with accuracy 12. ***Can apply proportional reasoning skills to familiar situations*** 13. Show adequate understanding of math symbols and formulas 14. ***Have an emerging ability to recognize*** multiple representations of linear functions	Satisfactory performance; at or above ***modified passing standard***; sufficient understanding of the mathematics [state] curriculum measured at this grade level [Proficient] Students ... 1. Have an adequate math vocabulary 2. ***Sometimes*** retain and apply prior math knowledge 3. Have adequate problem-solving skills (e.g., use some strategies, apply necessary skills, ***sometimes*** justify answers and check solutions for reasonableness) 4. ***Are developing*** abstract thinking skills (e.g., algebraic reasoning) ***with or without the use of models*** 5. ***Sometimes describe two- and three-dimensional figures with or without the use of models*** 6. Have an adequate understanding of measurement concepts and tools 7. Make some connections among math concepts 8. Have general number sense (e.g., estimation, fractions, decimals, percents) 9. Demonstrate an adequate knowledge of basic addition, subtraction, multiplication, and division facts and algorithms; usually compute with accuracy 10. ***Understand proportions and are developing proportional reasoning skills*** 11. Show adequate understanding of math symbols and formulas 12. ***Sometimes recognize*** multiple representations of linear functions

STATE 1		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… state passing standard …	… modified passing standard …	Context
Can read for meaning and detail …	[absent]	Content
Often exhibit persistence, endurance, and stamina	[absent]	Context
Are somewhat comfortable with math	[absent]	Context
Often retain and apply …	Sometimes retain and apply …	Degree
… can usually distinguish between essential and extraneous information …	[absent]	Content
… often justify …	… sometimes justify …	Degree
Demonstrate adequate …	Are developing …	Application
[abstract]	… with or without the use of models …	Context
Can usually visualize …	Sometimes describe …	Degree
Can usually visualize …	Sometimes describe …	Application
… geometric shapes and solids …	... two- and three-dimensional figures ...	Content
[abstract]	… with or without the use of models …	Context
Can apply proportional reasoning skills …	Understand proportions and are developing proportional reasoning skills	Content
Can apply proportional reasoning skills …	Understand proportions and are developing proportional reasoning skills	Application
… to familiar situations	[absent]	Context
Have an emerging ability to recognize …	Sometimes recognize	Degree
Have an emerging ability to recognize …	Sometimes recognize	Application

Table A-3b. State 2

STATE 2	
GRADE 8 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
The proficient student uses some problem-solving techniques and ***explains*** the process he/she uses when solving mathematical problems. A student scoring at the proficient level is ***likely*** to perform at ***all cognitive levels*** on ***many elements*** of the ***four areas of emphasis***. The student demonstrates sufficient content knowledge and application skills. Grade eight students will ***demonstrate knowledge and skills*** in the following four areas of emphasis: **Number and Computation** – • multiplication and division of numbers between 0 and 1, numbers larger than one, and multiplication of zero • subsets of real numbers • application of real number properties • computation with integers and order of operations with rational numbers • real-world problems with rational numbers, pi, and percents **Algebra** – • one- and two-step linear equations • ***representations of real-world problems*** • ***numerical, graphical, tabular, and symbolic representations of linear relationships*** • ***graphical, algebraic and geometric models*** • **Geometry** – corresponding parts of congruent and similar figures • Pythagorean Theorem • ordered pairs, slope, and vertical/horizontal distance **Data** – • probability of compound independent events • ***prediction of simple events*** • measures of central tendency with rational numbers	A student scoring at the meets standard level ***usually*** performs ***consistently and accurately*** when working on grade-level mathematical tasks based on modified achievement standards for eligible students with an IEP which includes • ***reduced cognitive load on grade level*** • increased visual representations • simplified reading and sentence structure The student ***demonstrates sufficient content knowledge and application skills***. The student ***usually understands and uses*** • subsets of real numbers • the Pythagorean Theorem • corresponding parts of congruent and similar figures • measures of central tendency with rational numbers • ordered pairs, slope, and vertical/horizontal distance The student is ***usually accurate when*** • ***computing*** with integers and order of operations with rational numbers • ***applying*** real number properties • ***solving*** one- and two-step linear equations • ***multiplying and dividing*** numbers between 0 and 1, numbers larger than one, and multiplying by zero • ***finding*** the probability of compound and independent events The student ***uses some problem-solving techniques to accurately solve*** • real-world problems with rational numbers, pi, and percents The student ***uses representations*** and ***usually explains the reasoning process used to*** • ***represent real-world problems*** • ***translate between*** numerical, graphical, tabular, and symbolic representations of linear relationships • ***model*** situations graphically, algebraically and geometrically • ***predict*** simple events

STATE 2		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		**Category**
Text of Differences		
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… explains [the process] …	… usually explains [the reasoning process] …	Degree
… likely [to perform] …	… usually [performs] consistently and accurately …	Degree
… all cognitive levels …	… reduced cognitive load on grade level	Context
… many elements …	[absent]	Degree
… four areas of emphasis … [Number and Computation, Algebra, Geometry, Data]	[absent]	Content
… demonstrate knowledge and skills …	… demonstrates sufficient content knowledge and application skills …	Degree
… demonstrate knowledge and skills …	… usually understands and uses …	Degree
… demonstrate knowledge and skills …	… usually understands and uses …	Application
… demonstrate knowledge and skills …	… usually accurate when … computing …	Degree
… demonstrate knowledge and skills …	… usually accurate when … applying …	Degree
… demonstrate knowledge and skills …	… usually accurate when … solving …	Degree
… demonstrate knowledge and skills …	… usually accurate … when multiplying and dividing …	Degree
… demonstrate knowledge and skills …	… usually accurate when … finding …	Degree
… demonstrate knowledge and skills …	… uses some problem-solving techniques to accurately solve …	Application
… demonstrate knowledge and skills …	… uses some problem-solving techniques to accurately solve …	Degree
… demonstrate knowledge and skills … representations of real-world problems	[absent]	Application
[absent]	… usually explains the reasoning process …	Degree

STATE 2		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		Category
Text of Differences		
[absent]	… explains the reasoning process …	Content
[absent]	… uses representations …	Context
… demonstrate knowledge and skills …	... explains the reasoning process used to ... translate between ...	Application
… demonstrate knowledge and skills …	... explains the reasoning process used to ... model ...	Application
… demonstrate knowledge and skills …	... explains the reasoning process used to ... predict ...	Application

Table A-3c. State 3

STATE 3	
GRADE 8 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of all students at this grade level. Students scoring in the [proficient] range typically will: • Compare, order, and ***use*** different forms of positive and negative rational numbers ***to solve problems***. • Solve single and ***multi-step*** algebraic equations and inequalities. • ***Develop, select,*** and apply appropriate formulas for given situations. • Classify solid figures and ***apply the concepts of surface area and volume*** to real world settings. • Use ratio and proportion to solve problems involving similar geometric figures. • ***Determine probabilities of uncertain events happening.*** • Analyze samples and select and apply appropriate charts and graphs to represent collected data.	Students performing at the Satisfactory level on the [AA-MAS] demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of students at this grade. Students scoring at the [proficient] level on the [AA-MAS] typically will: • solve ***one-step and two-step*** algebraic equations and ***one-step*** inequalities; • compare and order positive and negative rational integers and decimals; • use the rules of exponents, including integer exponents (excluding raising a power to a power), to solve problems; • classify solid figures and ***estimate surface area and volume of rectangular solids*** in real-world settings; • use ratio and proportion to solve problems involving similar geometric figures; • apply appropriate formulas for given situations; • analyze samples and select and apply appropriate charts and graphs to represent collected data; • ***find the measures of central tendency (mean, median, and mode) of a set of data.***

STATE 3		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
Compare, order, and use …	compare and order …	Application
Compare, order, and use … to solve problems	compare and order …	Content
… multi-step algebraic equations	… one-step and two-step algebraic equations	Content
… multi-step … inequalities	… one-step inequalities	Content
Develop, select, and apply appropriate formulas …	apply appropriate formulas …	Application
... apply the concepts of surface area and volume ...	... estimate surface area and volume of rectangular solids ...	Application
... apply the concepts of surface area and volume ...	... estimate surface area and volume of rectangular solids ...	Content
Determine probabilities of uncertain events happening	[absent]	Content
find the measures of central tendency (mean, median, and mode) of a set of data	[absent]	Content

Table A-3d. State 4

STATE 4	
GRADE 8 MATHEMATICS, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students performing at this level consistently demonstrate ***mastery*** of grade level subject matter and skills and are ***well prepared*** for the next grade level. Students performing at [proficient level] generally show understanding, compute accurately, and respond with appropriate answers or procedures. They use a variety of problem-solving strategies. [Proficient level] students ***consistently show a proficient level of understanding*** of ***real numbers including irrational numbers***. They ***generally are correct in use*** of indirect measurements. Students are ***usually successful at using the Pythagorean Theorem to solve problems***. [Proficient level] students are ***often successful at organizing and interpreting data,*** using scatterplots and approximating a line of best fit. Students at [proficient level] ***demonstrate an understanding of functions and can usually convert functions between forms and interpret slope and intercepts***. They are ***generally successful at using*** linear equations and inequalities to solve problems, ***translating between words, tables, and graphs***.	Students performing at this level consistently demonstrate mastery of the grade level subject matter and skills and are well prepared for the next grade level. Students performing at this level consistently demonstrate ***basic knowledge*** of grade level subject matter and skills and are ***minimally prepared*** for the next grade level. Students performing at [proficient level] generally show conceptual understanding, compute accurately, and respond with appropriate answers or procedures. They use a variety of ***basic*** problem-solving strategies. In grade eight, students are ***exposed to and show basic proficiency*** in the following concepts: ***develop the concept of and make estimates with irrational numbers***. Students ***use the Pythagorean Theorem*** and ***apply concepts*** of indirect measurement ***to solve problems***. Eighth graders ***represent data on graphs*** and approximate lines of best fit for scatter plots. Students ***develop an understanding of functions and write equations for linear relationships***. They ***use*** linear equations and inequalities to solve problems and ***justify solutions***. They ***apply*** grade eight ***concepts*** as well as those developed in previous years ***to solve relevant and authentic problems***.

STATE 4		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… mastery …	… basic knowledge …	Degree
… well prepared …	… minimally prepared …	Degree
… a variety of problem-solving strategies …	… a variety of basic problem-solving strategies …	Degree
consistently show a proficient level of understanding ...	exposed to and show basic proficiency ... develop the concept of and make estimates	Degree
consistently show a proficient level of understanding ...	exposed to and show basic proficiency ... develop the concept of and make estimates	Application
... real numbers including irrational numbers	... irrational numbers	Content
generally are correct in use ...	... apply concepts of ... to solve problems	Application
usually successful at using the Pythagorean Theorem to solve problems	use the Pythagorean Theorem	Degree
usually successful at using the Pythagorean Theorem to solve problems	use the Pythagorean Theorem	Application
often successful at organizing and interpreting data …	represent data on graphs ...	Degree
… often successful at organizing and interpreting data …	represent data on graphs ...	Application
demonstrate an understanding of functions …	develop an understanding of functions …	Application
… can usually convert functions between forms and interpret slope and intercepts	… write equations for linear relationships	Degree
… can usually convert functions between forms and interpret slope and intercepts	… write equations for linear relationships	Application
generally successful at using ...	… use …	Degree
... translating between words, tables, and graphs	… justify solutions	Application

STATE 4		
GRADE 8 MATHEMATICS, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
[absent]	apply ... concepts ... to solve relevant and authentic problems	Context

Table A-4. Reading, Grade 4

Table A-4a. State 1

STATE 1	
GRADE 4 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Satisfactory performance; at or above state passing standard; a sufficient understanding of the [state] reading curriculum **Students Who Met the Standard** 1. ***Use*** an on-grade-level reading vocabulary to construct meaning from text 2. ***Frequently apply a variety*** of word-identification strategies to understand unfamiliar words 3. ***Sufficiently comprehend a variety*** of texts, such as print, instructions, graphics, maps, etc. 4. Often recognize important ideas and make connections between and among those ideas to infer meaning 5. ***Regularly draw on*** reading strategies in other content areas and in real-world situations 6. Exhibit on-grade-level fluency, ***generally remain focused on*** the text, and read for a purpose 7. Distinguish main idea and supporting information 8. ***Generally*** recognize how story elements, such as plot, setting, characterization, and problem resolution impact text 9. ***Have a sufficient understanding*** of how an author's perspective (judgments, biases, attitude) and purpose influence text 10. Recognize how an author's use of ***literary techniques*** and organizational structures conveys ideas/meaning	Satisfactory performance; at or above modified passing standard; sufficient understanding of the reading [state] curriculum measured at this grade level **Students Who Met the Standard** 1. ***Have*** sufficient reading vocabulary to construct meaning from text 2. ***Apply some*** word-identification strategies to understand unfamiliar words 3. ***Comprehend some*** texts such as print, instructions, graphics, maps, etc. 4. Often recognize important ideas and ***sometimes*** make connections between and among those ideas to infer meaning 5. ***Sometimes use*** reading strategies in other content areas and in real-world situations 6. ***Sometimes follow the meaning of*** the text and read for a purpose with developing fluency 7. ***Sometimes*** distinguish main idea and supporting information 8. ***Sometimes*** recognize how story elements such as plot, setting, characterization, and problem resolution impact text 9. ***Are developing an understanding*** of how an author's perspective (judgments, biases, attitude) and purpose influence text 10. ***Are beginning to*** recognize how an author's use of organizational structures (e.g., sequencing, cause and effect) conveys ideas/meaning

STATE 1		
GRADE 4 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
Use … vocabulary …	Have … vocabulary …	Application
Frequently apply a variety …	Apply some …	Degree
Sufficiently comprehend a variety of texts	Comprehend some texts	Degree
… make connections …	… sometimes make connections …	Degree
Regularly draw on reading strategies	Sometimes use reading strategies	Degree
… generally remain focused on the text …	Sometimes follow the meaning of the text …	Degree
Distinguish …	Sometimes distinguish …	Degree
Generally recognize …	Sometimes recognize …	Degree
… *sufficient* understanding ...	… understanding ...	Degree
Have a sufficient understanding ...	Are developing an understanding ...	Application
Recognize …	Are beginning to recognize …	Application
… literary techniques …	[absent]	Content

Table A-4b. State 2

STATE 2	
GRADE 4 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
When ***independently*** reading grade-appropriate ***narrative, expository, and technical text***, a proficient student has satisfactory comprehension: This student constructs literal meaning that generally matches the author's intent. This student is likely to recognize • the topic, main idea, and supporting details • vocabulary in context • correct retelling • the author's purpose • text features This student ***makes obvious connections and perceives some relationships*** to construct ***inferential meaning***. This student is likely to • ***draw*** accurate conclusions • ***compare and contrast*** • ***determine cause and effect*** This student recognizes simple techniques authors use to communicate their ideas with words. This student is likely to have awareness of • text structures • the difference between fact and opinion • literary elements of fiction (setting, character, plot)	When reading grade appropriate ***narrative and expository text***, a meets standard student has satisfactory comprehension **when using modified achievement standards for eligible students with an IEP which includes:** • ***reduced cognitive load on grade level*** • **limited inferential processes** • **sentence structure simplified** This student constructs ***literal meaning*** that generally matches the author's intent. This student is likely to ***recognize***: • the topic, main idea, and supporting details • vocabulary in context • the author's purpose • text features • correct retelling***** • ***accurate conclusions**** This student recognizes simple techniques authors use to communicate their ideas with words. This student is likely to ***have awareness of***: • text structures • the difference between fact and opinion • literary elements of fiction (setting, character, plot) • ***compare and contrast*** • ***determine cause and effect*** *****these concepts will not appear on the multiple choice portion of the [alternate assessment based on modified achievement standards]

STATE 2		
GRADE 4 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
When independently reading grade-appropriate … text	When reading grade-appropriate … text	Application
… narrative, expository, and technical text …	… narrative and expository text …	Content
makes obvious connections and perceives some relationships	[absent]	Content
[absent]	when using modified achievement standards for eligible students with an IEP which includes: • *reduced cognitive load on grade level* • limited inferential processes • sentence structure simplified	Context
inferential meaning	literal meaning	Degree
draw accurate conclusions	recognize … accurate conclusions	Application
compare and contrast	have awareness of … compare and contrast	Application
determine cause and effect	have awareness of … cause and effect	Application

Table A-4c. State 3

STATE 3	
GRADE 4 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students demonstrate a general understanding of the reading knowledge and skills expected of all students at this grade level. Students scoring at the Satisfactory level typically read and comprehend ***grade-level*** reading material using the following skills: • Identify new words using structural analysis in combination with context clues and ***other word-meaning resources***. • Identify the major elements of story structure such as plot, setting, and characters, and be able to make logical predictions based on text information. • Recognize and interpret relationships ***in narrative and expository text*** to include cause and effect, sequence, and compare/contrast. • Determine the central purpose, ***theme or main idea, and important details***. • Make inferences, draw conclusions, and make generalizations but not in a complex way. • ***Interpret*** figurative language in poetry and descriptive passages. • Identify ***and analyze*** the characteristics of a variety of genres. • Distinguish between fact, opinion, and supported inferences in a variety of texts. • Determine the author's purpose and ***the point of view presented***. • Identify similarities and differences ***between and*** in reading selections, as well as summarize events. • Be able to use functional print, information resources such as dictionaries, charts, and diagrams, and to ***properly use the Internet***. • Answer literal questions about the reading selection. • Identify character traits. • Identify synonyms, antonyms, and homonyms.	Students performing at the Satisfactory level on the [AA-MAS] demonstrate a general understanding of the reading knowledge and skills expected of students at this grade. Students scoring at the Satisfactory level typically read and comprehend ***grade-level-modified*** reading material and will: • identify new words using structural analysis in combination with context clues; • identify synonyms, antonyms, and homonyms; • identify the major elements of story structure, such as plot, setting, and characters, and be able to make logical predictions based on text information; • identify character traits; • recognize and interpret cause and effect, sequence, and compare/contrast; • recognize the main ideas, key concepts, and key actions in text; • make inferences, draw conclusions, and make generalizations but not in a complex way; • ***recognize simple*** figurative language in poetry and descriptive passages; • distinguish among facts, opinions, and supported inferences in a variety of texts; • determine the purposes of different types of texts; • identify similarities and differences in text and summarize events; • use functional print information resources such as dictionaries, charts, and diagrams; • answer literal questions about the reading selection; • identify characteristics of a variety of genres.

STATE 3		
GRADE 4 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… grade-level reading material …	… grade-level-modified reading material …	Content
… other word-meaning resources.	[absent]	Content
... in narrative and expository text ...	[absent]	Content
... theme or main idea, and important details.	[absent]	Content
Interpret figurative language …	recognize … figurative language …	Application
… figurative language …	… simple figurative language …	Degree
Identify and analyze …	identify …	Application
... the point of view presented.	[absent]	Content
… between and in …	… in …	Application
... properly use the Internet.	[absent]	Content

Table A-4d. State 4

STATE 4	
GRADE 4 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students performing at this level consistently demonstrate mastery of grade-level subject matter and skills and are well prepared for the next grade level. Students performing at proficient level can apply a ***combination of enabling strategies and skills*** to read and comprehend a variety of texts, including fiction, nonfiction, poetry, and drama, as required in the [state curriculum] at grade four. This includes ***making generalizations, connections, inferences and relevant predictions***; ***analyzing characters***; ***identifying problems and solutions, main idea, and supporting details***; ***drawing conclusions***; ***summarizing***; comparing and contrasting; and ***determining the meaning of unfamiliar words*** and ***author's purpose***. Students are able to ***use information from multiple sources*** such as charts, graphs, and maps and can ***interpret information*** that is not explicitly stated in the text to determine theme, mood, main idea, and word choice.	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level. Students performing at this level demonstrate ***basic grade level knowledge and skills***. Students performing at proficient level demonstrate grade level reading comprehension skills as required in the [state curriculum] at grade 4. Students can comprehend a variety of fourth grade level texts, such as fiction, literary and informational nonfiction, poetry, and drama. Students may ***examine author's word choice and identify author's purpose***. They utilize basic skills and strategies such as ***making straightforward inferences***, ***drawing simple conclusions***, comparing and contrasting, and ***determining main idea***. They also ***use basic text features and text structures to comprehend***. Students ***examine reasons for characters' actions***, and can ***determine meaning of some unfamiliar vocabulary from in context***.

STATE 4		
GRADE 4 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… combination of ...	… basic …	Degree
… enabling strategies and skills.	… grade level knowledge and skills.	Application
making generalizations, connections, inferences and relevant predictions	making ... inferences	Content
[absent]	… straightforward …	Degree
analyzing …	examine …	Application
… characters	… reasons for characters' actions	Content
identifying problems and solutions … and supporting details	[absent]	Content
identifying … main idea	determining main idea	Application
drawing conclusions	drawing simple conclusions	Degree
Summarizing	[absent]	Content
determining the meaning of unfamiliar words	… some …	Degree
determining the meaning of unfamiliar words	determine meaning of … unfamiliar vocabulary from in context	Application
use information from multiple sources	[absent]	Content
interpret information	[absent]	Content
[absent]	use basic text features and text structures to comprehend	Application
[absent]	examine reasons for characters' actions	Content

Table A-5. Reading, Grade 8

Table A-5a. State 1

STATE 1	
GRADE 8 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Satisfactory performance; at or above state ***passing standard***; a sufficient understanding of the state reading curriculum Students Who Met the Standard 1. Use an ***on-grade-level*** reading vocabulary to construct meaning from text 2. ***Frequently apply a variety*** of word-identification strategies to understand unfamiliar words 3. ***Sufficiently comprehend a variety*** of texts, such as print, instructions, graphics, maps, etc. 4. Often recognize important ideas and ***make connections*** between and among those ideas to infer meaning 5. ***Regularly draw on*** reading strategies in other content areas and in real-world situations 6. Exhibit ***on-grade-level fluency***, ***generally remain focused on the text***, and read for a purpose 7. ***Distinguish*** main idea and supporting information 8. ***Generally*** recognize how story elements, such as plot, setting, characterization, mood, and problem resolution impact text 9. Have a ***sufficient*** understanding of how an author's perspective (judgments, biases, attitude, tone) and purpose influence text 10. ***Recognize*** how an author's use of literary techniques and organizational structures conveys ideas/meaning	Satisfactory performance; at or above ***modified passing standard***; sufficient understanding of the reading state curriculum measured at this grade level Students Who Met the Standard 1. Have ***sufficient*** reading vocabulary to construct meaning from text 2. ***Apply some*** word-identification strategies to understand unfamiliar words 3. ***Comprehend some*** texts such as print, instructions, graphics, maps, etc. 4. Often recognize important ideas and ***sometimes make connections*** between and among those ideas to infer meaning 5. ***Sometimes use*** reading strategies in other content areas and in real-world situations 6. ***Sometimes follow the meaning of the text*** and read for a purpose with ***developing fluency*** 7. ***Sometimes distinguish*** main idea and supporting information 8. ***Sometimes*** recognize how story elements such as plot, setting, characterization, mood, and problem resolution impact text 9. Have ***some*** understanding of how an author's perspective (judgments, biases, attitude, tone) and purpose influence text 10. ***Sometimes recognize*** how an author's use of literary techniques and organizational structures (e.g., sequencing, cause and effect) conveys ideas/meaning

STATE 1		
GRADE 8 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… passing standard …	… modified passing standard …	Context
… on-grade-level …	… sufficient …	Application
Frequently apply a variety …	Apply some …	Degree
Sufficiently comprehend a variety …	Comprehend some …	Degree
... make connections ...	... sometimes make connections ...	Degree
Regularly draw on ...	Sometimes use ...	Degree
Regularly draw on ...	Sometimes use ...	Application
… on-grade-level fluency …	… developing fluency	Application
… generally remain focused on the text …	Sometimes follow the meaning of the text …	Degree
… generally remain focused on the text …	Sometimes follow the meaning of the text …	Application
Distinguish …	Sometimes distinguish …	Degree
… sufficient …	… some …	Degree
Recognize …	Sometimes recognize …	Degree

Table A-5b. State 2

STATE 2	
GRADE 8 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
When ***independently*** reading grade-appropriate narrative, expository, ***technical and persuasive text***, a proficient student has satisfactory comprehension: This student constructs literal meaning that generally matches the author's intent. This student is likely to identify • the topic, main idea supporting details, and theme • vocabulary in context • correct paraphrasing and summarizing • the author's purpose • text features This student makes obvious connections and perceives some relationships to ***construct inferential meaning***. This student ***is likely to*** • ***draw conclusions*** • ***compare and contrast*** • ***recognize cause and effect relationships*** • ***identify implied main ideas*** This student recognizes simple techniques authors use to communicate their ideas with words. This student is likely to have awareness of • the relationship between text structure and comprehension • the difference between fact and opinion • propaganda and persuasive techniques • connections between setting, character, plot • figurative language • author's style	When reading grade appropriate narrative and expository text, a meets standard student has satisfactory comprehension **when using modified achievement standards for eligible students with an IEP which includes:** • **reduced cognitive load on grade level** • **limited inferential processes** • **sentence structure simplified** This student constructs literal meaning that generally matches the author's intent. This student ***is likely to identify***: • the topic, main idea supporting details, and theme • vocabulary in context • the author's purpose • text features • correct paraphrasing and summarizing***** • ***accurate conclusions**** This student recognizes simple techniques authors use to communicate their ideas with words. This student ***is likely to have awareness of***: • the relationship between text structure and comprehension • the difference between fact and opinion • propaganda and persuasive techniques • connections between setting, character, plot • figurative language • author's style • ***compare and contrast*** • ***cause and effect relationships*** • ***implied main ideas**** *****these concepts will not appear on the multiple choice portion of the [AA-MAS]

STATE 2		
GRADE 8 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… independently …	[absent]	Application
… technical and persuasive text …	[absent]	Content
[absent]	when using modified achievement standards for eligible students with an IEP which includes: • reduced cognitive load on grade level • limited inferential processes • sentence structure simplified	Context
… construct inferential meaning …	[absent]	Content
… is likely to … draw conclusions	… is likely to identify … accurate conclusions	Application
… is likely to … compare and contrast	… is likely to have awareness of … compare and contrast	Application
… is likely to … recognize cause and effect relationships	… is likely to have awareness of … cause and effect relationships	Application
… is likely to … identify implied main ideas	… is likely to have awareness of … implied main ideas	Application

Table A-5c. State 3

STATE 3	
GRADE 8 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students demonstrate a general understanding of the reading knowledge and skills expected of all students at this grade level. Students scoring at the Satisfactory level typically read and comprehend ***grade level reading material*** using the following skills: • Determine literal and nonliteral word meanings using a variety of strategies. • ***Analyze*** informational text, poetry, short stories, novels, dramas. • ***Determine main idea*** and ***themes (stated or implied)*** and recognize relevance of details. • ***Interpret*** figurative language and elements of poetry. • Infer, predict, and ***generalize ideas***. • ***Judge author's purpose/point of view, accuracy of text,*** and ***fact/opinion***. • Use appropriate strategies to organize and summarize information.	Students performing at the Satisfactory level on the [AA-MAS] demonstrate a general understanding of the reading knowledge and skills expected of students at this grade. Students scoring at the Satisfactory level typically read and comprehend ***grade-level-modified reading material*** and will: • determine literal and nonliteral word meanings using a variety of strategies; • ***recognize the characteristics*** of both literary and informational texts; • ***identify main idea*** and recognize the relevance of details; • ***identify and explain*** figurative language and elements of poetry; • make inferences and predictions, ***draw conclusions***, and ***paraphrase ideas in a variety of texts***; • ***identify point of view;*** • ***determine author's purpose;*** • ***distinguish stated fact and opinion;*** • use appropriate strategies to organize and summarize information.

STATE 3		
GRADE 8 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… grade level reading material …	… grade-level-modified reading material …	Context
Analyze …	recognize the characteristics …	Application
Determine main idea …	identify main idea …	Application
… themes (stated or implied) …	[absent]	Content
Interpret …	identify and explain …	Application
[absent]	… draw conclusions	Content
… generalize ideas	… paraphrase ideas in a variety of texts	Application
Judge author's purpose …	determine author's purpose	Application
Judge … point of view …	identify point of view	Application
… accuracy of text …	[absent]	Content
Judge … fact/opinion	distinguish stated fact and opinion	Application
… fact/opinion	… stated fact and opinion	Content

Table A-5d. State 4

STATE 4	
GRADE 8 READING, PROFICIENT LEVEL	
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**
Students performing at this level consistently demonstrate mastery of grade-level subject matter and skills and are well prepared for the next grade level. Students performing at [proficient level] demonstrate mastery of reading comprehension outlined in the [state curriculum] at grade eight. Students ***make inferences and predictions***, ***summarize information***, ***generate questions and ideas***, ***cite sources used***, ***evaluate problems and solutions***, and ***determine importance and accuracy of information***. These students ***evaluate the effect of bias and emotional factors*** and ***identify effectiveness of tone, style, and use of language***. They ***accurately evaluate print and nonprint materials***. Students ***interpret literary elements, genres, figurative language, dialogue, flashback, allusion, irony, and symbolism***. They ***use context clues to identify and define unknown words and compare and contrast related concepts***.	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level. Students performing at this level consistently demonstrate basic knowledge of grade level subject matter and skills and are prepared for the next grade level. Students performing at [proficient level] demonstrate grade level reading comprehension skills as required in the [state curriculum] at grade 8. Students ***show evidence of literal comprehension of a variety of eighth grade level texts, such as fiction, literary and informational nonfiction, poetry, and drama***. Students ***compare and contrast elements within text to make meaning based on evidence***. Students ***may infer***, ***draw conclusions***, and ***determine author's purpose***. They ***may recognize literary elements and different points of view***.

STATE 4		
GRADE 8 READING, PROFICIENT LEVEL		
Text of Differences		**Category**
Grade-Level Achievement Level Descriptors	**Modified Achievement Level Descriptors**	
… make inferences and predictions	… may infer	Application
… summarize information …	[absent]	Content
... generate questions and ideas ...	[absent]	Content
... cite sources used ...	[absent]	Content
... evaluate problems and solutions ...	[absent]	Content
... determine importance and accuracy of information	[absent]	Content
[absent]	... may draw conclusions ...	Content
[absent]	... may determine author's purpose ...	Content
.. evaluate the effect of bias and emotional factors ...	[absent]	Content
... identify effectiveness of tone, style, and use of language	[absent]	Content
... accurately evaluate print and nonprint materials	[absent]	Content
... interpret literary elements …	... may recognize literary elements …	Application
... interpret literary elements, genres, figurative language, dialogue, flashback, allusion, irony, and symbolism.	... may recognize literary elements and different points of view	Content

Appendix B

Achievement Level Descriptor Analysis Decision Rules

1. When the text uses the word "some" in one test type and not the other, this is a degree difference.

2. When the text uses the word "generally" in one test type and not the other, this is considered a throw-away word [that is, this is not a degree difference]. An exception is if the phrase containing "generally" is paired with a modifier-word in the other test [which would make it a degree difference due to the modifier-word].

3. When a phrase begins, "e.g." or "such as" after a content area, the following content are simply examples and do not need to match up with the other test type's content. When a phrase has no preposition or uses "i.e." after a content area, the content is intended to be the entire content or skill set for that content—if the other test type has no corresponding list, there is a difference in content.

4. If a modifier or application was used in a sentence that was clearly meant to apply to text that followed as in a bulleted list for example, that modifier or application word was used to apply to each item in the list when comparing to the general text. In at least one instance, a sentence that said it applied to following skills was not clear as to when those skills referred to ended. In these cases, the state may need to be contacted for clarity.

5. In instances where there was text addressing content not in common between the two tests, it was only counted as a content difference if it contained a modifier or application that were also not in common.

6. When one test had text that was an "umbrella" term for a content area, and the other test had a clear "part" of the content within the umbrella content, the "part" of the content was counted as an application rather than separate additional content (e.g., functions & slope intercepts in regular, with equations for linear relationships for MAS). However, some instances were not so clear (e.g., real numbers with irrational numbers in regular vs. irrational numbers in MAS where they might have assumed real numbers for MAS.

7. When a state appeared to have an obvious error or inconsistency within their own text, the difference was treated as if the state meant it to be there to draw attention to the problem (e.g., difference in degree within same document describing mastery and basic for same skills).

8. Some states appeared to use "to solve problems" as vague filler language rather than alluding to "problem solving" as separate content or skills. In most instances "to solve problems" was not considered a point of difference depending on our reading of it in context.

9. Some states include noncognitive descriptor language such as degree of motivation, interest, or student preferences. These differences were not coded in this particular review, but may be of interest to other researchers or practitioners.

Other Points to Discuss: This section provides examples from Appendix A that were unclear to the research team, but that probably can be resolved by people who deeply understand their content standards. On the other hand, identifying questions like this helps point out to evaluators or developers where more explanation or specific language is needed.

- In State 2 4th grade math, the AA-MAS PLD text reads:

  The student is usually accurate when reading and plotting points in the first quadrant of a coordinate grid

  [Note: The related GLAS PLD text reads: "Fourth grade students will demonstrate knowledge and skills in . . . first quadrant coordinate grids"]

  Issue: Is the "reading and plotting points" a specific skill which narrows the set of skills, making it an application difference from the GLAS, or is the "when reading and plotting points" a unique contextual condition around the topic area of coordinate grids?

  [Comment: we think it is the former, but considering the possibility of it being the latter instead]

- In State 2 4th grade math, the AA-MAS PLD text reads:

  The student uses some problem-solving techniques to accurately solve real-world applications of the statistical measures (minimum and maximum value, range, mode, median, and mean)

  [Note: The related GLAS PLD text reads: "Fourth grade students will demonstrate knowledge and skills in . . . application of the statistical measures (minimum and maximum value, range, mode, median, and mean)"]

  Issue: Is the "real-world applications" framing a specific type of application, and if so, is that a content or context difference?

[Comment: we think it is the latter, but considering the possibility of it being the former instead]

- In State 2 4th and 8th grade math, the AA-MAS PLD text reads:

  A student scoring at the meets standard level usually performs consistently and accurately when working on grade-level mathematical tasks based on modified achievement standards for eligible students with an IEP which includes.• reduced cognitive load on grade level• increased visual representations• simplified reading and sentence structure.

  [Note: The related GLAS PLD text reads: "A student scoring at the proficient level is likely to perform at all cognitive levels on many elements of the four areas of emphasis."]

  Issue: Is the segment on "grade-level mathematical tasks based on modified achievement standards" considered both content and context, since it specifies tasks yet also indicates conditions that narrow the content? [See also example below on [state] 4th grade reading for similar but different issue to contrast with this question]

- In State 2 4th and 8th grade reading, the GLAS PLD text reads:

  When independently reading grade-appropriate . . . text, a proficient student has satisfactory comprehension . . .

  [Note: The related AA-MAS PLD text reads: "When reading grade appropriate . . . text, a meets standard student has satisfactory comprehension when using modified achievement standards for eligible students with an IEP . . ."]

  Issue: Is the term "independently" considered application in that independent reading is a specific type of reading, or is it considered context because it is a condition around which the reading is being accomplished?

  [Comment: we think it is the former, but considering the possibility of it being the latter instead]

  In State 4 4th grade math, the AA-MAS PLD text reads:

  In fourth grade, students identify, predict, and describe the results of transformations of plane figures.

  [Note: The related GLAS PLD text reads: "Students use coordinate planes to describe the location and relative position of points."]

Issue: Is the clause "identify, predict, and describe" considered application due to

their being parts or skills within the umbrella content of planes, or is it content because each of the skills is a separate content area?

[Comment: we think it is the former, but considering the possibility of it being the latter instead]

- In State 4 4th grade math, the AA-MAS PLD text reads:

  They use the order of operations to verify and translate mathematical relationships with symbols, words, numbers, and pictures.

  [Note: The related GLAS PLD text reads: "Students generally can use the order of operations or the identity, commutative, associative, and distributive properties."

  Issue: Is the phrase "with symbols, words, numbers, and pictures" considered application or context?

  [Comment: we think it is the latter, but considering the possibility of it being the former instead]

- In State 4 8th grade math, the GLAS PLD text reads:

  [Proficient level] students consistently show a proficient level of understanding of real numbers including irrational numbers.

  [Note: The related AA-MAS PLD text reads: "In grade eight, students are exposed to and show basic proficiency in the following concepts: develop the concept of and make estimates with irrational numbers."]

  Issue: It is unclear as to how to conceptualize the phrase "real numbers including irrational numbers." That is, the MAS text doesn't clarify that irrational numbers might assume students could show understanding with real numbers—so maybe there is a difference in texts because the GLAS specifies both? Perhaps students would understand real numbers before making estimates with irrational ones?

  [Comment: While uncertain, we considered this a content difference.]

- In State 4 8th grade reading, the AA-MAS PLD text reads:

  Students compare and contrast elements within text to make meaning based on evidence.

  [Note: The related GLAS PLD text reads: "They use context clues to identify and define unknown words and compare and contrast related concepts."

  Issue: Is the phrase "within text" considered application because it pertains to the application of a skill (compare and contrast) in a particular way, or is it context because it places conditions around the way in which the skill (compare and contrast) is accomplished?

- In State 3 4th grade reading, the AA-MAS PLD text reads:

  Students scoring at the Satisfactory level typically read and comprehend grade-level-modified reading material and will: . . . recognize and interpret cause and effect, sequence, and compare/contrast

  [Note: The related GLAS PLD text reads: "Students scoring at the Satisfactory level typically read and comprehend grade-level reading material and will: . . . recognize and interpret relationships in narrative and expository text to include cause and effect, sequence, and compare/contrast"]

  Issue: The GLAS is missing the specific types of texts; is this a content difference because the MAS may have different content than the GLAS [either less content and a narrowing of the curriculum] or is it the same content? Or is this a context difference because the MAS may be narrowing the text types that the GLAS doesn't? Or might the content be the same because we do not know the nature of "grade level modified reading material" in relation to "grade level" reading material?

  [Comment: we think it is the former, but considering the possibility of it being the latter instead]

- In State 1 4th grade and 8th grade math there is the following difference:

  GLAS PLD text:

  Satisfactory performance; at or above state passing standard; sufficient understanding of the mathematics [state] curriculum

AA-MAS PLD text:

Satisfactory performance; at or above modified passing standard; sufficient understanding of the mathematics [state] curriculum measured at this grade level

Issue: Is the use of the word "modified" in referring to the passing standard for the AA-MAS a difference not worth noting, or is this a context difference?

[Comment: we think it is the latter, but considering the possibility of it being the former instead]

NOTE: In [state], some content was noted as not being assessed using multiple choice items. Given the current design, there are other MM (Multiple Measure) items considered as field test items under development for potential future use. It is unclear if the content is intended to be measured using MM items instead, but if it is they may not be counted now as part of the regular assessment.

Appendix C

Procedures and Tools to Evaluate or Develop AA-MAS ALDs

Step 1: Identify, recruit, and train policymakers and stakeholders who will serve as advisors, and convene them in a virtual or face-to-face meeting.

Step 2: Identify the needs and characteristics of students who may participate in the AA-MAS.

With a stakeholder group, discuss these questions:

1. What are your assumptions about these students' ability to learn and to show what they know? What data do you have to support those assumptions?

2. Are these students different from students without disabilities who have performed poorly on the large-scale assessment? How? How do you know?

3. What is the nature of the barriers to their participation? Are they unable to show what they know on the assessment due to barriers of the test and their disability? What data do you have to understand the nature of those barriers?

4. Are they unable to participate because their actual knowledge and skills are too low to be adequately assessed on the general assessment? How do you know?

5. Have the students been provided appropriate opportunities to learn the standards-based curriculum covered by the assessment? How do you know?

6. Depending on what the barriers are to their participation, what are the characteristics of these students? This question may need to be answered for several different groups of students, depending on the barrier.

Step 3: Identify specific rationales for differences between ALDs for general assessment and AA-MAS.

Decisions on how the descriptors should differ should reflect stakeholder consensus, and rationales should clearly track back to the answers to the study group questions. For example:

- If content (what) is going to be vary in some way within the constraints of the regulatory language, how does it relate to what you know about the students?

- If the application or degree (how, how well, how much) is different, how do those choices relate to the nature of the barriers to their participation?
- If the context (under what conditions) is different, what specific characteristics of the students leads you to these changes in context?
- What are implications of this decision if you have determined that many of the students have not been taught what is on the test?
- What are implications of these decisions for future learning and assessments in later grades?
- What implications do these changes have for interpreting test results?

NOTE: You can use the categories of potential changes that are used in this study (i.e., content, context, degree, application) or you can use terms that are commonly used in your state (e.g., depth of knowledge, cognitive complexity, difficulty, etc.).

Step 4: Use the tool template to analyze and summarize student needs and characteristics for AA-MAS (Section I), the general assessment ALDs (Section II, Column 1), the rationale for any changes proposed for these students (Section II, Column 2), and then either evaluation or development of MAS ALDS (Section II, Column 3). Check these drafts for consistency with the consensus statements of your stakeholder group.

Tool Template to Evaluate or Develop ALDs for AA-MAS

Section I

Summarize the needs and characteristics of the students who may participate in the AA-MAS here, based on your work with stakeholders.	Evidence to support these ideas/conclusions.

Section II: Comparisons and Rationales for Changes to General Assessment ALDs

Subject: Grade Level: Proficiency Level:

Column 1: ALDs for General Assessment *(Insert here.)*	**Column 2: Rationale for Changes Made Based on Student Needs and Characteristics** *(For evaluation: use this column to test the logic of observed differences. For development use this column to inform the MAS Draft ALDs.)* *Use categories provided or insert ones used in your state* **Content Differences Identified/ Proposed:** *Rationale for each* **Context Differences Identified/ Proposed:** *Rationale for each* **Application Differences Identified/ Proposed:** *Rationale for each* **Degree Differences Identified/ Proposed:** *Rationale for each*	**Column 3: ALDs for AA-MAS** *(For evaluation, insert existing ALDs. For development, use this column as a working space for drafting MAS ALDs.)*