Michigan's Alternate Content Expectations for Science

Development Process and Structure

July 7, 2020

Purpose

This document represents the revised MI-Access Science Assessment alternate content expectations developed to align with the Michigan K-12 science standards adopted by the Michigan Board of Education in November of 2015. These alternate content expectations are developed for students with the most significant cognitive disabilities and serve as the foundation for classroom instruction and assessment as well as Michigan's alternate assessment, MI-Access. The document serves to:

- provide important and pertinent background information on MI-Access, the three MI-Access assessments, and how the new MI-Access science alternate content expectations were developed;
- describe what the MI-Access Functional Independence, Supported Independence, and Participation assessments look like, including who is assessed, and what is measured by each, to set the foundation for the development of new alternate content expectations in science;
- enable districts, public school academies, schools, special educators, and others to begin aligning curriculum, assessment, and instruction as needed; and
- inform students, parents, teachers, curriculum specialists, administrators, and the public about the new MI-Access science alternate content expectations.

MI-Access Background

Every Student Success Act (ESSA) requires[1]:

> …states and districts to ensure that all students, including children with disabilities, English learners, and other historically underserved groups, graduate high school ready for college or a career. To measure progress against that goal and maintain a critical focus on educational equity and excellence for all, the law maintains the requirement that states administer to all students annual statewide assessments in reading/language arts and mathematics in grades 3-8 and once in high school, as well as assessments once in each grade span in science for all students and annual English language proficiency assessments in grades K-12 for all English learners. The law also includes important

[1] https://www2.ed.gov/policy/elsec/leg/essa/essaassessmentfactsheet1207.pdf

protections to ensure that all students are tested, offered appropriate accommodations when needed, and held to the same high standards.

ESSA further outlines guidelines for students with the most significant cognitive disabilities[1]:

- To ensure that the vast majority of students take a state's general assessment and only students with the most significant cognitive disabilities take an alternate assessment aligned with alternate academic achievement standards, the ESSA limits the number of students who may take such assessments to 1 percent of all tested students in a given subject. There is no cap on individual schools or districts.
- The law allows a state to request a waiver of this 1 percent cap and the regulations provide states greater clarity relating to the criteria for approving these requests to ensure that waivers are reserved for exceptional situations, in which states need to assess additional students with the most significant cognitive disabilities with such assessments and that waiver requests provide transparent state-level information on the number and percentage of students, including by subgroup, taking the alternate assessment.
- Recognizing that a state should do everything it can to ensure students are being held to the appropriate standards and that only students with the most significant cognitive disabilities should be taking the alternate assessment aligned with alternate achievement standards, and to ensure that it is making substantial progress toward reducing the percentage to fewer than 1 percent, the regulations require a state seeking a waiver to have a plan of action to meet the 1 percent limit in the future.
- Consistent with the Individuals with Disabilities Education Act (IDEA), states must have guidelines for Individualized Education Program (IEP) teams in determining on a case-by-case basis whether a student is most appropriately assessed with an alternate assessment aligned with alternate academic achievement standards.
- The regulations highlight the critical state role in ensuring that general and special education teachers, paraprofessionals, teachers of English learners, and other appropriate staff receive necessary training so that they know how to administer alternate assessments and make use of appropriate accommodations to support students with disabilities.

MI-Access, Michigan's Alternate Assessment based on Alternate Achievement Standards, consists of three statewide assessments (each of which is

comprised of one or more components) designed specifically for students with the most significant cognitive disabilities. All three assessments are based on alternate content expectations (in some cases referred to as "Essential Elements" in English language arts, mathematics, science, and social studies (social studies at the Functional Independence level only).

Students who participate in MI-Access must meet the definition of a student with the most significant cognitive disabilities, following the guidelines for participation in MI-Access.[2] For such students, their Individualized Education Program (IEP) Teams must determine that progress cannot be measured using the Michigan Tests of Educational Progress (M-STEP), even with assessment accommodations in order to qualify to take MI-Access.

The three current MI-Access assessments are:

- MI-Access Functional Independence, which was administered for the first time statewide to students in grades 3 through 8 in fall 2005 and in grade 11 in spring 2006 in the content areas of English language arts and mathematics; in grades 4, 7, and 11 for science beginning in the fall of 2007 and spring of 2008; and in grades 5, 8, and 11 for social studies, beginning in the spring of 2015. The MI-Access Functional Independence assessment measures alternate content expectations that are at the target/high level of the "Michigan range of complexity" as outlined in the alternate content expectations for each content area.

- MI-Access Supported Independence, which was administered for the first time statewide in 2002 (English language arts and mathematics only). In the spring of 2016, MI-Access Supported Independence for ELA and mathematics shifted from assessment as a grade band (grades 3-5, 6-8, and 11) to individual grade levels in grades 3-8 and 11. This is consistent with a shift to measuring the current ELA and mathematics Essential Elements with Michigan range of complexity. Science was measured at grades 4, 7, and 11 for the first time in the fall of 2007 and spring of 2008. The MI-Access Supported Independence assessment measures alternate content expectations that are at the medium level of the "Michigan range of complexity" as outlined in the alternate content expectations for each content area.

- MI-Access Participation, which was administered for the first time statewide in 2002 (English language arts and mathematics only). In

[2] https://www.michigan.gov/documents/mde/Should_My_Student_Take_the_Alternate_Assessment_556705_7.pdf

> the spring of 2016, MI-Access Participation for ELA and mathematics shifted from assessment as a grade band (grades 3-5, 6-8, and 11) to individual grade levels in grades 3-8 and 11. This is consistent with a shift to measuring the current ELA and mathematics Essential Elements with Michigan range of complexity. Science was measured at grades 4, 7, and 11 for the first time in the fall of 2007 and spring of 2008. The MI-Access Participation assessment measures alternate content expectations that are at the low level of the "Michigan range of complexity" as outlined in the alternate content expectations for each content area.

Detailed training[3] is available for IEP teams to determine if a student does or not does not qualify to take MI-Access as well as which MI-Access assessment a student should take.

Michigan K-12 Science Standards Background

The Michigan Board of Education adopted a new set of academic standards for science in November of 2015. These standards are based off and strongly align with the Next Generation Science Standards.

These standards can be found on the Michigan Department of Education (MDE) web site.[4] https://www.michigan.gov/documents/mde/K-12_Science_Performance_Expectations_v5_496901_7.pdf

The following background is found within that document:

> In Michigan, these standards are used to outline learning expectations for Michigan's students and are intended to guide local curriculum development and assessment of student progress. The Michigan Science Standards are performance expectations for students. They are not curriculum and they do not specify classroom instruction. Standards should be used by schools as a framework for curriculum development with the curriculum itself prescribing instructional resources, methods, progressions, and additional knowledge valued by the local community. [In Michigan,]…local school districts and public school academies can use these standards…to make decisions about curriculum, instruction, and assessment.

[3] https://mdoe.state.mi.us/mdedocuments/AssessmentSelectionGuidelinesTraining/index.html
[4] https://www.michigan.gov/documents/mde/K-12_Science_Performance_Expectations_v5_496901_7.pdf

This document further outlines how the K-12 science standards are arranged and constructed:

> Michigan's science standards are organized by grade level K-5, and then by grade span in middle school and high school. The K-5 grade level organization reflects the developmental nature of learning for elementary students in a manner that attends to the important learning progressions toward basic foundational understandings. By the time students reach traditional middle school grades (6-8), they can begin to build on this foundation to develop more sophisticated understandings of science concepts within and across disciplines. This structure also allows schools to design local courses and pathways that make sense for their students and available instructional resources.
>
> Within each grade level/span the performance expectations are organized around topics. While each topical cluster of performance expectations addresses the topic, the wording of each performance expectation reflects the three-dimensions of science learning outlined in *A Framework for K-12 Science Education*: *cross-cutting concepts, disciplinary core ideas, and science and engineering practices*.[5]

Detailed information about the framework can be found at: https://www.nextgenscience.org/. The following brief summary of the framework is provided here as outlined in the Michigan K-12 science standards.[4]

> **Cross Cutting Concepts (CCC)**. The seven Crosscutting Concepts outlined by the Framework for K-12 Science Education are the overarching and enduring understandings that provide an organizational framework under which students can connect the core ideas from the various disciplines into a "cumulative, coherent, and usable understanding of science and engineering" (Framework, pg. 83). These crosscutting concepts are…
>
> 1. Patterns
> 2. Cause and Effect
> 3. Scale, Proportion, and Quantity
> 4. Systems and System Models
> 5. Energy and Matter in Systems
> 6. Structure and Function
> 7. Stability and Change of Systems

[5] A New Conceptual Framework." A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas. Washington, DC: The National Academies Press, 2012.

Disciplinary Core Ideas (DCI). The crosscutting concepts cross disciplines. However, within each discipline are core ideas that are developed across grade spans, increasing in sophistication and depth of understanding. Each performance expectation (PE) is coded to a DCI. A list of DCIs and their codes can be found on the MDE website and in the MDE Guidance Documents.

Science and Engineering Practices. In addition to the Crosscutting Concepts and Disciplinary Core Ideas, the National Research Council has outlined 8 practices for K-12 science classrooms that describe ways students should be engaged in the classroom as a reflection of the practices of actual scientists and engineers. When students "do" science, the learning of the content becomes more meaningful. Lessons should be carefully designed so that students have opportunities to not only learn the essential science content, but to practice being a scientist or engineer. These opportunities set the stage for students to transition to college or directly into STEM careers.

Listed below are the Science and Engineering Practices from the Framework:

1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Development of Alternate Content Expectations in Science

In the spring of 2018, internal discussions began regarding how to create new alternate content expectations in science, aligned to the current K-12 science standards[4]. These new alternate content expectations were to be developed to form a solid foundation for science instruction for students with the most significant cognitive disabilities. To this end, as much as possible, the new alternate content expectations in science would be developed to retain the three dimensions of the Michigan K-12 standards (cross cutting concepts, disciplinary core ideas, and science and engineering practices).

Additionally, alternate content expectations for science, with a full range of complexity, was developed for all grade levels K-5, middle school and high school, rather than just focusing on the grade levels for which students would be assessed at the state level.

Groups of panelists were formed to conduct the work of "extending" the Michigan K-12 content expectations for students with the most significant cognitive disabilities. The panel was made up of classroom teachers, special education teachers and supervisors, special education administrators, independent consultants, and representatives from higher education. A list of roles and locations of the panelists can be found in Appendix A.

In September of 2018, the educator panels convened for the first time in East Lansing. This session consisted of two days. The first day consisted of an overview of the Michigan K-12 science framework and unpacking of those academic standards. The second day was an in-depth look at "students with the most significant cognitive disabilities" to become familiar with the population of students for whom these new alternate content expectations would be written. Part of this second day included a high-level review of Essential Elements in ELA and mathematics as a foundation for what students with the most significant cognitive disabilities should be expected to know and demonstrate.

The second gathering of the educator panels took place in November and December of 2018. The educators reviewed the K-12 science standards and started working on creating/aligning extended "target/high" alternate content expectations based on what students with significant cognitive disabilities are expected to know and demonstrate in ELA and mathematics.

Once the "high" range of complexity was completed, the development plan included two additional multi-day sessions. One session was to be for extending the content expectations from the high range to the middle range and the other was to extend the alternate content expectations from the medium level to the low range. However, as each group started this work, they came to the same conclusion, that it was better to look at the full range of complexity at one time. The agenda for the work was adjusted and the groups worked to extend the full range of complexity for each target alternate content expectation in January and February of 2019.

Given the complexity and volume of the work at the high school level, additional time was given to this group to complete their development of the range of complexity. Once the group's work was completed, it was further reviewed by an additional science content specialist from MDE's test development vendor, Data Recognition Corporation.

Through the summer and fall of 2019, MDE staff spent time to review submissions of the groups and start looking at the skills progressions. Some additional minor adjustments in alignment were made.

In December of 2019, draft alternate content expectations for science were posted to the MDE MI-Access web page. This posting was done so that MDE's Office of Assessment and Accountability's Assessment of Students with Disabilities Advisory Committee could comment on the draft alternate content expectations. The educator panel members that drafted the alternate content expectations were also asked to provide a review and feedback as well. Comment from this committee was open from January 8, 2020 through January 27, 2020. As a result of this feedback, MDE staff met and made minor revisions and drafts were replaced on the MDE MI-Access web page.

Public comment opened for the revised draft content expectations on January 30, 2020 and closed on March 1, 2020. Communications about the need for public comment were sent through the Office of Assessment and Accountability's Spotlight on Student Assessment three times during the month of February. In addition, a mass communication went out to special education contacts through the MDE Office of Special Education, with a copy to the Michigan Alliance for Families.

Based on the small number of responses during public comment, the alternate content standards were sent out to various science organizations within Michigan on April 6, 2020, with the invitation to provide additional comments. The message also included an invitation to pass on the link to the standards to others so that any interested party could provide feedback. Final feedback from this invitation was received on May 7, 2020. Based on feedback that included concerns about the specificity of some of the high school alternate content expectations, the MDE Assessment Consultant for Science and one of Data Recognition Corporation's science consultants further reviewed these, providing additional feedback and editing suggestions.

Final edits were made to the draft alternate content expectations for science in May and June of 2020. The alternate assessment plan for science was created, receiving review from MDE and DRC science content experts, as well as the Assessment for Students with Disabilities Advisory Committee. That document is available as a supplement to this document and outlines how these standards will be measured using MI-Access. The Assessment for students with Disabilities Advisory Group members (at the time of the

alternate content expectations review and at the time of the assessment plan review) are found in Appendix B.

Final drafts submitted for MDE leadership approval are found in Appendixes C through J of this document.

Appendix A

Educator Panels for Developing Alternate Content Expectations for Science

Educator Panelists

Elementary Science Teacher: Henry Ford Academy, School for Creative Studies

Independent Science Consultant

Special Education Teacher: Carrollton Public Schools

Curriculum and Instruction Consultant: Muskegon Intermediate School District

Special Education Teacher: Troy School District

Special Education Teacher: Genesee Intermediate School District

Special Education Teacher: Detroit Public Schools Community District

Assistant Professor of Special Education: Indiana University South Bend

Elementary Science Teacher: Detroit Public Schools Community District

Special Education Teacher: Grand Haven Area Public Schools

Director of Special Education Programs: Livingston Educational Service Agency

Special Education Teacher: Genesee Intermediate School District

Special Education Teacher: Public Schools of Petoskey

Special Education Teacher: Muskegon Intermediate School District

Retired Special Education Consultant

Middle School Science Teacher: Bates Academy

Middle School Science Teacher: Birch Run Area Schools

Special Education Teacher: Novi Community School District

Special Education Teacher: Dearborn Public Schools

Special Education Teacher: Jackson Public Schools

Special Education Teacher: Sanilac Intermediate School District

Special Education Teacher: Ottawa Intermediate School District

Special Education Teacher: Montcalm Area Intermediate School District

Assistant Principal, Center-Based Program School: Genesee Intermediate School District

High School Science Teacher: Detroit Public Schools Community District

Researcher: Michigan State University

Special Education Teacher: Detroit Public Schools Community District

Special Education Teacher: Mecosta-Osceola Intermediate School District

Special Education Teacher: Ann Arbor Public Schools

Special Education Teacher: Walled Lake Consolidated District

Special Education Teacher: Ingham Intermediate School District

Transition Coordinator: Genesee Intermediate School District

Michigan Department of Education and Contractor Staff

Consultant for Students with Disabilities, Michigan Department of Education

MI-Access assessment contractor, Michigan Department of Education

Science Assessment Consultant, Michigan Department of Education

Special Education Assessment Specialist, Data Recognition Corporation

3 Science content specialists, Data Recognition Corporation

Appendix B

Assessment of Students with Disabilities Advisory Committee

Kristy Walters, Corunna Public Schools

Bridgit Sova, Midland Public Schools

Matthew Koekkoek, Newaygo County Regional Educational Service Agency, Representing Michigan Council for Exceptional Children

Monica Harris, Grand Valley State University, Representing Higher Education

James Loser, Ionia Intermediate School District, Representing Michigan Association for Administrators of Special Education

JoAnne Thorsen, Ottawa Intermediate School District, Representing Center Based Programs

Michigan Department of Education Representatives:

Antoinette Dorsett, Assessment Consultant for Students with Disabilities

John Jaquith, Test Development Manager

Beth Rice, Low Incidence Outreach, Office of Special Education

Johanna Brutvan, Low Incidence Outreach, Office of Special Education

Jennifer Paul, English Learner and Accessibility Specialist

Dan Evans, Departmental Analyst, Office of Educational Assessment and Accountability

Rebecca McIntyre, Manager, Program Accountability Unit, Office of Special Education