WYOMING
SCIENCE ACADEMIC CONTENT STANDARDS

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Jim McBride, Ed.D., State Superintendent of Public Instruction

Joe Simpson, Deputy State Superintendent of Public Instruction

Kay Post, Director of Standards, Assessment, and Accountability

WYOMING SCIENCE ACADEMIC CONTENT STANDARDS
for
Students with the Most Significant Cognitive Disabilities

RATIONALE

Wyoming has high academic expectations of all students as evidenced in the Wyoming Content and Performance Standards. The State Academic Content Standards Committee, which developed the Science Academic Content Standards for students with the most significant cognitive disabilities recognizes the mission of science instruction as providing the essential skills that allow students with the most significant cognitive disabilities to achieve high academic expectations and to access the general academic curriculum. Instructional opportunities addressing the rigorous Academic Content Standards combined with instructionally supportive assessment with clear targets enable all students to achieve high standards of academic performance.

The *No Child Left Behind Act of 2001* (NCLB) and the *Individuals with Disabilities Education Act* of 2004 (IDEA 2004) require students with the most significant cognitive disabilities to be assessed in the same grades as regular education students and to have access to challenging instructional opportunities linked to State Standards. These instructional targets are defined in the Academic Content Standards.

The basis of the Academic Content Standards is to provide a K - 12 framework for instruction of students with the most significant cognitive disabilities and to assist school districts, schools, and communities in developing and strengthening curriculum rather than prescribing courses, materials, or instructional methodology. The Academic Content Standards specify the essential learning that all students must master. Teachers ensure that students achieve mastery by using a range of instructional strategies they select based on students' needs and grade-specific, linked Academic Content Standards and Academic Benchmarks. The specifics of how students learn the knowledge and skills are determined at the district level.

The Academic Content Standards focus on a broad range of outcomes. Students with the most significant cognitive disabilities vary widely in their forms of communication and access skills. The basic skills essential to successful science instruction are embedded at all benchmark levels. A teacher's instruction to these essential skills is differentiated on the basis of individual skills and communication levels of students. Students with the most significant cognitive disabilities access challenging standards at varying levels of complexity and often through the use of a wide range of accommodations and assistive technology.

ORGANIZATION OF ACADEMIC CONTENT STANDARDS

The Academic Content Standards specify the essential learning that must be mastered. Kindergarten through eighth grade teachers, students, and parents work toward the achievement of grade-level linked Academic Benchmarks. Ninth grade through eleventh grade teachers, students,

and parents work toward the achievement of the eleventh grade-level linked Academic Benchmarks. Success at each benchmark level requires the effort and commitment of all who prepare for that level.

The Science Academic Content Standards are organized into grade spans: K – 4, 5 – 8, and 9 – 12. They are presented in a three column format. The first column is a statement of each Wyoming benchmark in science. The second column is a statement of the essence of each Wyoming state benchmark written as a grade-level linked Academic Benchmark. The increasing Levels of Complexity of the Academic Benchmarks are described with examples in the last column. The Levels of Complexity define the consistency and levels of independence associated with the Academic Benchmark as the cognitive complexity and performance of the skill increases from a Level 1 (most basic) to a Level 4 (more complex).

In science, there are three Academic Content Standards which are Concepts and Processes, Science as Inquiry, and History and Nature of Science in Personal and Social Decisions. Each Academic Content Standard has corresponding Academic Benchmarks. In some instances, the general education benchmarks have been combined and are represented by one Academic Benchmark. Teachers should be informed of the requirements at the next level of Academic Benchmarks, as they prepare instruction for the current grade level enrollment of individual students, in order that prerequisite skills are introduced and addressed over time. They must also be informed of the requirements at the previous level so they provide practice opportunities and application for skills that have already been mastered.

IMPORTANT GENERAL TERMS

There are several important terms that need to be defined for educators, parents, and interested Wyoming citizens.

Academic Content Standards State what students with the most significant cognitive disabilities are expected to know and be able to do. The specifics of how the students learn the knowledge and skills are determined at the district level. Academic Content Standards provide a common set of goals and expectations for all students with the most significant cognitive disabilities in Wyoming. They provide a consistent framework for challenging instruction promoting access to the general education curriculum

Academic Benchmarks Linked to grade-level Wyoming Content Standards and benchmarks, the Academic Benchmarks comprise the competencies, skills, and knowledge that students with the most significant cognitive disabilities need to know and be able to do at the benchmark grade levels in order to attain the Academic Content Standards. In this document, grade spans K – 4, 5 – 8, and 9 - 12 are represented in order to promote access to the general education standards and participation in rigorous levels of Academic Benchmarks that support individual growth

ACADEMIC BENCHMARK TERMS

Complexity Level	Example Term (complexity level may vary depending on the skill or construct being measured and possible responses)
4	**Determines**: Actively applies, selects, or decides without presented choices
3 – 4	**Recognizes and labels**: Combines two steps into a process.
3 – 4	**Labels or Names:** Actively applies or produces a name or label for a concept.
2 – 4	**Chooses or Selects:** Selects from a field of choices. Selects without presented choices.
2 – 4	**Identifies:** Passively selects a name or label when given choices. No product. Examples: Selects from 2 – 3 choices, points to, gestures, uses PECS, verbally labels, uses sign to show answer. Selects without provided choices
2 – 3	**Matches:** For concrete objects, such as picture cards and word cards, pairs two like or related concepts. For actions, repeats the action. Examples: Selects like things, matches number to number or set to set.
2	**Interacts with:** Shows active excitement or engagement with a task or activity, although may not correctly complete the task. Examples: Purposefully manipulates or touches, teacher stimulates a response or selection.
1 – 3	**Recognizes:** Indicates recognition through gestures, vocalization, eye gaze, or gestures. Indicates a selection when given choices. No product.
1 - 2	**Indicates:** Shows through some action or signal, selects.
1 – 2	**Responds to or Engages:** Actively engages with a task or activity. Similar to **Attends to**, but at a slightly higher level. Examples: Recognizes and reacts.
1	**Attends to:** Actively shows that attention is being paid to a task or event. Examples: Watches teacher for an appropriate length of time, indicates interest.

INTRODUCTION TO THE STANDARDS

As described in the rationale, the Academic Content Standards represent a consensus of a diverse group of stakeholders from around the state of Wyoming including special education teachers, regular education teachers, parents, curriculum specialists, diagnosticians, and University of Wyoming representatives. In the spring and summer of 2005, representatives from these groups drafted grade-level linked Academic Content Standards using the Wyoming Content and Performance Standards and the previously written Expanded Standards. The Academic Content Standards for students with the most significant cognitive disabilities were derived from the Wyoming Science Content and Performance Standards. The Wyoming Science Content and Performance Standards represent a cooperative effort. In 1997-1998, representatives from each of the districts participated in regional groups along with community college, university, students, and business representatives. The process began with regional meetings during which the participants compiled drafts using local district standards. The state committee, consisting of regional representatives, utilized the regional documents to draft the state standards. National standards and several states' standards were referenced to establish the rigor of the Wyoming Science Content and Performance Standards. Consequently, this rigor is found in the Academic Content Standards for students with the most significant cognitive disabilities, which are directly linked to grade level Wyoming Content and Performance Standards. These documents included the following publications:

- National Research Council, Inquiry and the National Science Education Standards, National Academy Press, 2101 Constitution Avenue NW, Washington, DC 20418.
- National Research Council, National Science Education Standards, National Academy Press, 2101 Constitution Avenue NW, Washington, DC 20418.
- National Science Teachers Association, Pathways To The Science Standards: Elementary School Edition, 1840 Wilson Blvd., Arlington, VA 22201.
- National Science Teachers Association, Pathways To The Science Standards: High School Edition, 1840 Wilson Blvd., Arlington, VA 22201.
- National Science Teachers Association, Pathways To The Science Standards: Middle School Edition, 1840 Wilson Blvd., Arlington, VA 22201.
- American Association for the Advancement of Science, Benchmarks for Science Literacy: Project 2061, Oxford University Press, New York 1993.
- American Association for the Advancement of Science, Science For All Americans: Project 2061, Oxford University Press, New York 1990.
- Arizona – Science Standards, http://www.ade.state.az.us.
- California – The Challenge Initiative -- Superintendent's Challenge Initiative, California Department of Education, Telephone (916) 657-3011.
- Colorado – Colorado Model Science Standards, http://www.cde.state.co.us.
- Hawaii – Science Standards, http:www.k12.hi.us.

- Indiana – Science In Action For All Indiana Students, http://www.doe.state.in.us.
- New Jersey – Science Standards
- Virginia – Science Standards of Learning, http://www.pen.k12.va.us.
- Wyoming Science Content and Performance Standards, July, 2003
- Bloom's Taxonomy
- The Center for Applied Special Technology (CAST)

STANDARD STRANDS

This document has been organized into three major science strands:

1. **Concepts and Processes**
   - **Students learn about scientific content through inquiry.**
2. **Science as Inquiry**
   - **Students use inquiry to better understand their world.**
3. **History and Nature of Science in Personal and Social Decisions**
   - **Students use scientific knowledge to make personal decisions.**