

OFFICE OF INSTRUCTIONAL ENHANCEMENT AND INTERNAL OPERATIONS
Summary of State Board of Education Agenda Items
June 14-15, 2012

OFFICE OF STUDENT ASSESSMENT

09. Approval to begin the Administrative Procedures Act process: To revise the Mississippi Extended Curriculum Frameworks

Executive Summary

The Mississippi Extended Curriculum Frameworks (MECF) includes curriculum content that students with significant cognitive disabilities are expected to learn during the course of their instructional programs. The MECF guides the development of the Mississippi Alternate Assessment of the Extended Curriculum Frameworks (MAAEACF) that assess the knowledge and skills representative of these extended standards.

The MECF was revised by Mississippi Educators that included special education teachers, special education directors, and a school district superintendent in collaboration with the Office of Student Assessment to include additional objectives. A total of 59 new objectives have been added across all grades and content areas to assist as the State transitions Alternate Assessment to the Partnership for Assessment of Readiness for College and Careers (PARCC) Equivalent Consortium (Dynamics Learning Maps) led by the University of Kansas.

NOTE: Proposed new objectives are highlighted in yellow.

Recommendation: Approval

Back-up material attached



Mississippi Extended Curriculum Frameworks

Elementary School Version

Language Arts, Mathematics, & Science
for
Students with Significant Cognitive Disabilities

The Mississippi Department of Education does not discriminate on the basis of sex, race, religion, age, national origin, ancestry, creed, pregnancy, marital or premarital status, sexual orientation, or physical, mental, emotional, or learning disability.

*Revised August 2012 by Mississippi Educators in collaboration with the Office of Student Assessment and Measured Progress

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Introduction

The Mississippi Extended Curriculum Frameworks (MECF) Elementary School Version includes curriculum content that students with significant cognitive disabilities in grades 3 through 5 are expected to access and learn during the course of their instructional programs. The primary purpose of this document is to share the prioritized academic content with teachers, family members, and other educational stakeholders, and to guide the development of high-quality alternate assessments that assess the knowledge and skills representative of these extended standards.

Teachers should use this document to plan instruction and collect student work samples (e.g., documented teacher observations, student work products, recorded media) that can be used to establish a baseline about what students know and can do at the beginning of the school year and to measure progress on the same skills and concepts on the final assessment later in the school year. These student work samples can then be used as part of the submission for the Mississippi Alternate Assessment of Extended Curriculum Frameworks (MAAECF).

Designed specifically for students with significant cognitive disabilities, the MAAECF is a portfolio assessment that is aligned with the Mississippi Extended Curriculum Frameworks for Language Arts (Reading and Writing), Mathematics, and Science. The assessment measures student performance based on alternate achievement standards.

The MAAECF portfolio is a collection of student work from throughout the school year. Teachers select appropriate objectives for assessing students. Students are initially assessed on these objectives through baseline activities developed by the teacher. The teacher then provides instruction on the selected objectives throughout the school year. The teacher assesses these same objectives through final activities that he or she has developed. Student work samples from both the baseline and final activities are submitted in the student's portfolio. This student work is utilized to determine the student's performance level and the level of complexity at which the student is working.

This document provides the curriculum frameworks that bring the prioritized grade-level content standards to life for language arts, mathematics, and science instruction. It is expected that teachers working with students with significant cognitive disabilities will incorporate instruction of all identified competencies at every grade level in the grade span. The alternate assessment tasks will be drawn from clusters and objectives most appropriate for specific individual students and their learning strengths and needs based upon the Data Collection Requirements document that outlines the allowable assessment objectives at each grade level. The learning objectives within each cluster were developed to provide a range of breadth and complexity, so that all students can access and demonstrate learning of each grade-level competency.

There is an overview of the competencies and clusters for each content area at the beginning of each section of this document:

- Language Arts (pages 4-7),
- Mathematics (pages 8-12), and
- Science (pages 13-17).

LANGUAGE ARTS EXTENDED CURRICULUM FRAMEWORKS

Reading Strand: Students use reading skills and strategies to decode and interpret symbols, words, and larger blocks of text. Students demonstrate the ability to use reading to acquire new information, refine perspectives, respond to the needs and demands of society and the workplace, and provide for personal fulfillment.

Competency 1: Use word recognition and vocabulary (word meaning) skills and strategies to communicate.

Cluster 1A. Concepts of Print

Cluster 1B. Phonological Awareness

Cluster 1C. Word Identification, Vocabulary, and Decoding Strategies

Competency 2: Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.

Cluster 2A. Using Text Features and Text Structures

Cluster 2B. Reading Comprehension

Writing Strand: Students develop a working knowledge of language as well as grammatical structures, diction and usage, punctuation, spelling, layout, and presentation. Students develop the ability to express personal ideas, understandings, desires, and needs in writing.

Competency 3: Express, communicate, evaluate, or exchange ideas effectively.

Cluster 3A. The Writing Process

Cluster 3B. Audience and Purpose

Competency 4: Apply Standard English to communicate.

Cluster 4A. Writing Mechanics

MAAECF ELA – Grades 3 – 5

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use word recognition and vocabulary (word meaning) skills and strategies to communicate.	Cluster 1A. Concepts of Print	
	R1A.a	Student locates print and interprets the message/meaning (common symbols and signage, environmental print).
	R1A.b	Student follows text and demonstrates directionality: left-to-right and top-to-bottom; 1-1 matching of words spoken to words in print.
	R1A.b1	Student locates where to begin reading a text.
	R 1A.c	Student recognizes or locates the key parts of a book: front and back, print, illustrations, title, and author.
	R 1A.d	Student recognizes that sentences in print are made of separate words.
	R 1A.e	Student distinguishes between letters, words, and sentences.
	R1A.e1	Student identifies dialogue in text.
	R1A.e2	Student distinguishes dialogue from text.
	R 1A.f	Student reads high frequency words (e.g., familiar names, personal interests).
	Cluster 1B. Phonological Awareness	
	R1B.a	Student matches letters and sounds.
	R1B.b	Student uses letter-sound relationships to blend phonemes to make words.
	R1B.c	Student recognizes pairs of rhyming words.
	R1B.d	Student recognizes the number of syllables in one- and two-syllable words.
	Cluster 1C. Word Identification, Vocabulary, and Decoding Strategies	
	R1C.a	Student demonstrates comprehension of safety words, symbols, or pictures.
	R1C.b	Student demonstrates an understanding of positional words.
	R1C.c	Student uses pictures for context clues.
	R1C.d	Student demonstrates comprehension of words that depict emotions.
	R1C.e	Student identifies roots and affixes (choose 2: un-, re-, -less, -ful).
	R1C.f	Student uses roots and affixes to decode and understand words (choose 2: un-, re-, -less, -ful).
	R1C.g	Student classifies words as nouns or verbs.
	R1C.h	Student reads simple sentences fluently.
	R1C.i	Student recognizes words that are synonyms and antonyms.
	R1C.j	Student matches print words to objects.
	R1C.k	Student recognizes and reads basic sight words from a recommended word list.
R1C.l	Student identifies when a word does not make sense in the context used.	
R1C.m	Student determines the correct meaning of a multiple meaning word in a given context.	

MAAECF ELA – Grades 3 – 5

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
2. Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.	Cluster 2A. Using Text Features and Text Structures	
	R2A.a	Student locates or names text features in different texts (e.g., caption, illustrations, key on map, bold text, diagram, glossary).
	R2A.b	Student makes basic inferences from a text using text features (e.g., pictures, illustrations, captions, bar graph).
	R2A.c	Student uses the information found in the text features to answer questions (e.g., caption, illustrations, key on map, bold text, diagram).
	R2A.d	Student identifies correct sequence within a given text (story/narrative text and procedural texts, such as directions).
	R2A.e	Student matches cause with effect from a text, when cause or effect is given.
	Cluster 2B. Reading Comprehension	
	R2B.a	Student matches words or symbols to show understanding of common school and community places or events.
	R2B.b	Student describes or retells story events when presented with a prompt.
	R2B.c	Student composes simple statements on a topic learned about by reading or listening to text read aloud.
	R2B.d	Student identifies main idea from what he/she reads or hears read aloud.
	R2B.e	Student answers who, what, and where questions about a text read or heard read aloud.
	R2B.f	Student identifies literary elements (character, setting, problem, solution) after reading a story or hearing it read aloud.
	R2B.g	Student classifies information from an informational text as fact or opinion.
	R2B.h	Student paraphrases a message read or from text read aloud.
R2B.i1	Student reads a variety of texts and identifies author's purpose (e.g., inform, entertain, persuade).	

MAAECF ELA – Grades 3 – 5

Writing Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
3. Express, communicate, evaluate, or exchange ideas effectively.	Cluster 3A. The Writing Process	
	W3A.a	Student produces purposeful drawing.
	W3A.b	Student completes a graphic organizer to plan and write on a topic.
	W3A.c	Student completes a graphic organizer to plan and write a story.
	W3A.d	Student generates words, simple sentences, pictures, signs, or objects to convey a message or idea.
	Cluster 3B. Audience and Purpose	
	W3B.a	Student describes a personal object or retells a personal event when presented with a prompt.
	W3B.b	Student writes notes to peers, parents, and others for a variety of purposes.
	W3B.c	Student selects appropriate words or phrases to add details to a report or story.
	W3B.d	Student identifies appropriate word choices for particular audiences.
W3B.e	Student identifies possible purpose for reading or writing.	
4. Apply Standard English to communicate.	Cluster 4A. Writing Mechanics	
	W4A.a	Student demonstrates understanding of capital letters by matching upper and lower case letters.
	W4A.b	Student composes simple complete sentences.
	W4A.c	Student differentiates punctuation marks (period, question mark, exclamation point) from other letters and symbols.
	W4A.d	Student uses common spelling patterns to make and spell new words (-at, cat, bat).
	W4A.e	Student accurately spells words from a recommended word list.
	W4A.f	Student uses capital letters correctly for people’s names and at the beginning of sentences, days, and months.
	W4A.g	Student recognizes punctuation marks by name (period, question mark, exclamation point); and correctly matches punctuation marks with their meaning/use.
W4A.h	Student correctly uses punctuation marks (period, question mark, exclamation).	

MATHEMATICS

EXTENDED CURRICULUM FRAMEWORKS

Number and Operations Strand: Students recognize, represent, understand, and apply mathematical concepts and processes to situations within and outside of school. The definition of Number and Operations includes a range of skills including: rote counting; using pictures, objects, and symbols to denote meaning from numbers and quantities; and demonstrating an understanding of numbers as quantities that can be added, subtracted, multiplied, and divided.

Competency 1: Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.

Cluster 1A. Counting and Numbers

Cluster 1B. Basic Facts

Cluster 1C. Money

Algebra Strand: Students will use symbolic forms to represent, model, and demonstrate understanding of mathematical situations and apply mathematical concepts and processes to situations within and outside of school. Patterns, Functions, and Algebra include such skills as discrimination, sorting, matching, and sequencing.

Competency 2: Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.

Cluster 2A. Pattern Recognition

Geometry Strand: Students will use representation, visualization, spatial reasoning, and symmetry to solve problems. Geometry and Spatial Relations includes demonstrated understanding of size, shape, and location, applied for a variety of purposes and to a variety of situations.

Competency 3: Recognize, describe, and compare basic shapes and other geometric and spatial details.

Cluster 3A. Shape Recognition

Cluster 3B. Relational Concepts

Cluster 4C. Understanding Lines and Angles

Measurement Strand: Students use a variety of tools and techniques of measurement to problem solve. Measurement includes a demonstrated understanding of such concepts as time, distance, area and volume, applied for a variety of purposes and to a variety of situations. At a lower level, measurement is being broadly defined to include the concept of more than, less than, and other comparatives.

Competency 4: Understand and use different forms and units of measurement in a variety of contexts.

Cluster 4A. Calendar and Time

Cluster 4B. Weight and Length

Data Analysis and Probability Strand: Students will interpret data and make predictions using methods of exploratory data analysis and basic notions of probability. Data Analysis and Probability includes categorization, making choices, and logical reasoning about events or situations.

Competency 5: Collect and report data. Read and understand basic charts, graphs, and tables.

Cluster 5A. Collecting and Reporting Data

MAAECF Mathematics – Grades 3 – 5

Numbers and Operations Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.	Cluster 1A. Counting and Numbers	
	MN1A.a	Student rote counts from memory (at minimum) from 0 to 10.
	MN1A.b	Student identifies numerals (at minimum) 0 to 10.
	MN1A.c	Student lists three whole numbers in proper numerical order.
	MN1A.d	Student determines the number of objects in a set.
	MN1A.e	Student demonstrates 1-to-1 correspondence in a variety of contexts.
	MN1A.f	Student determines “first” through “tenth” (ordinal numbers), “next” and “last” positions.
	MN1A.g	Student recognizes place value of ones, tens, and hundreds places.
	MN1A.g1	Student identifies place value of ones and tens.
	MN1A.h	Student composes and decomposes 2- and 3-digit whole numbers using standard expanded form, words, or models.
	MN1A.i	Student rounds two- and three-digit whole numbers to the nearest hundred.
	MN1A.j	Student compares whole numbers using terms and symbols (>, <, =).
	Cluster 1B. Basic Facts	
	MN1B.a	Student adds single-digit numbers.
	MN1B.a1	Student matches sets of 2–4 objects and/or pictures to sets of objects with the equivalent number.
	MN1B.a2	Student will create a fact family with sums equal to or less than 10 using numbers, objects, and/or pictures.
	MN1B.b	Student subtracts single-digit numbers.
	MN1B.b1	Student subtracts single-digit numbers from double-digit numbers using a calculator.
	MN1B.b2	Student subtracts single-digit numbers from double-digit numbers without the use of a calculator.
	MN1B.c	Student adds double-digit numbers.
	MN1B.c1	Student adds double-digit numbers using a calculator.
	MN1B.c2	Student adds three or more numbers using a calculator.
	MN1B.d	Student subtracts double-digit numbers and justifies answer.
	MN1B.e	Student estimates sums and differences of whole numbers.
	MN1B.e1	Student determines whether addition or subtraction has taken place by indicating when an object has been added to or removed from a set of 2–5 objects.
	MN1B.f	Student identifies that 0.50 is equivalent to $\frac{1}{2}$.

MAAECF Mathematics – Grades 3 – 5

Numbers and Operations Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates. (Continued)	MN1B.f1	Student distinguishes between whole objects and their parts using models or pictures.
	MN1B.f2	Student identifies or demonstrates that two-halves, three-thirds, and four-fourths equal one whole.
	MN1B.g	Student identifies and models representations of fractions with denominators of 2, 3, 4, 5, 6, 8, and 10.
	MN1B.h	Student models multiplication using arrays, equal-sized groups, area models, or equal-sized moves on the number line, etc.
	MN1B.h1	Student multiplies single- and double-digit numbers using a calculator.
	MN1B.i	Student uses symbols (+, =) and vocabulary (add, plus, sum, total) of addition and symbols (–, =) and vocabulary (subtract, minus, difference) of subtraction.
	MN1B.i1	Student locates and uses the following symbols accurately on a calculator: +, –, X, and =.
	Cluster 1C. Money	
	MN1C.a	Student identifies different coins and currency by name.
	MN1C.b	Student identifies value of coins and currency.
	MN1C.c	Student adds money amounts up to \$5.00.
	MN1C.c1	Student adds the value of 2 or more coins up to \$1.
Algebra Strand		
2. Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.	Cluster 2A. Pattern Recognition	
	MA2A.a	Student matches a pattern of objects or pictures.
	MA2A.b	Student sorts objects into categories and identifies the rule for sorting (e.g., same color, same shape).
	MA2A.c	Student creates a variety of repeating patterns (e.g., auditory: tap, clap; tactile or visual: XOXO; AABBAABB; numeric: 1, 2, 1, 2).
	MA2A.d	Student uses number patterns to skip count by 2's, 3's, 5's, and 10's.
	MA2A.e	Student models, identifies, and demonstrates inverse relationships between addition and subtraction.
	MA2A.f	Student extends patterns of numbers or symbols and states the rule.

MAAECF Mathematics – Grades 3 – 5

Geometry Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
3. Recognize, describe, and compare basic shapes and other geometric and spatial details.	Cluster 3A. Shape Recognition	
	MG3A.a	Student identifies basic 2-dimensional shapes (square, triangle, rectangle, and circle).
	MG3A.a1	Student matches 3-dimensional figures to 2-dimensional shapes or common objects.
	MG3A.b	Student sorts basic 2-dimensional shapes into groups (circle, triangle, square, rectangle, rhombus, and trapezoid) by number of sides.
	MG3A.c	Student sorts 2-dimensional shapes into groups and describes the characteristics.
	Cluster 3B. Relational Concepts	
	MG3B.a	Student uses positional words (in, above, below, over, under, and beside) to describe the location of an object.
	MG3B.b	Student uses positional words (in, above, below, over, under, beside, left, and right) to describe the location of an object on a simple map.
	Cluster 3C. Understanding Lines and Angles	
	MG3C.a	Student identifies parallel and intersecting lines and perpendicular lines.
	MG3C.b	Student identifies a right angle, acute angle, and obtuse angle.
Measurement Strand		
4. Understand and use different forms and units of measurement in a variety of contexts.	Cluster 4A. Calendar and Time	
	MM4A.a	Student understands basic calendar use.
	MM4A.b	Student tells time to the hour and ½ hour.
	MM4A.c	Student tells time to the ¼ hour and 5 minute intervals.
	Cluster 4B. Weight and Length	
	MM4B.a	Student distinguishes between concepts of more or less in an appropriate context.
	MM4B.b	Student sorts and classifies objects based on size, length, or weight.
	MM4B.c	Student selects appropriate tools and units to accurately measure in a given situation.
	MM4B.c1	Student uses nonstandard units (e.g., paper clips, unifix cubes, paper cutouts, etc.) and standard units (e.g., inches, centimeters) to measure length.
	MM4B.c2	Student compares weight and/or mass of objects using a balance scale with and without nonstandard units.
MM4B.d	Student measures with a ruler, tape measure, or yardstick.	
5. Collect and report data. Read and understand basic charts, graphs, and tables.	Cluster 5A. Collecting and Reporting Data	
	MD5A.a	Student creates a table, tally, chart, pictograph, or bar graph to report findings.
	MD5A.a1	Student identifies the title and the labels on a given graph and a table/chart.
	MD5A.b	Student interprets and compares data represented in a graph, table or chart.
	MD5A.c	Student makes a prediction, answers a question, or solves a problem using data from a table, tally, chart, pictograph, line graph, or bar graph.

SCIENCE

EXTENDED CURRICULUM FRAMEWORKS

Inquiry Strand

Competency 1: Use tools and instruments to plan, conduct, and evaluate simple science experiments.

Cluster 1A. Conducts Experiment

Cluster 1B. Interprets Data

Cluster 1C. Communicates Findings

Earth and Space Systems Strand

Competency 2: Identify and describe features of the Earth and other objects in space.

Cluster 2A. Planets

Cluster 2B. Earth's Structure

Competency 3: Identify and describe weather and weather patterns.

Cluster 3A. Weather

Life Science Strand

Competency 4: Identify and describe animals and plants and their environments.

Cluster 4A. Plants and Animals

Cluster 4B. Environmental Factors

Competency 5: Identify and describe structures of living systems and their functions.

Cluster 5A. Structures of Living Systems

Physical Sciences Strand

Competency 6: Demonstrate an understanding of basic concepts regarding matter, energy, motion.

Cluster 6A. Matter and Changes

Cluster 6B. Force and Motion

Cluster 6C. Forms of Energy

MAAECF Science – Grades 3 – 5

Inquiry Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use tools and instruments to plan, conduct, and evaluate simple science experiments.	Cluster 1A. Conducts Experiment	
	SI1A.a	Student recognizes safety rules for science experiment and/or laboratory (e.g., wear goggles, wash hands after handling materials, do not taste unknown materials).
	SI1A.b	Student follows a set of simple procedures to answer a testable question (e.g., which car will go faster?).
	SI1A.c	Student collects and records data as part of an experiment (e.g., tally, draw/select and label, measure length, weigh mass, calculate density).
	Cluster 1B. Interprets Data	
	SI1B.a	Student identifies observable features or traits (e.g., shape, texture, size, color, number) of objects and organisms.
	SI1B.b	Student predicts outcomes based on observations or previous experience.
	SI1B.c	Student interprets data collected as part of an experiment (e.g., makes an accurate statement based on data; identifies a trend or result).
	Cluster 1C. Communicates Findings	
	SI1C.a	Student communicates understanding of concepts or results by choosing correct or appropriate outcome/summary.
	SI1C.b	Student develops a graph, chart, or other visual representation (e.g., labeled drawing, diagram, model) to communicate the results on an investigation.
	SI1C.c	Student uses multiple sources of information (print and/or other media) to answer science-related questions.
	SI1C.d	Student uses science vocabulary from instruction to ask questions, connect predictions to explanations, and communicate ideas.

Earth & Space Science Strand

2. Identify and describe features of the Earth and other objects in space.	Cluster 2A. Planets	
	SE2A.a	Student identifies the sun as a star and Earth as a planet.
	SE2A.b	Student observes and identifies objects in the sky (e.g., clouds, stars, sun, planets, moon).
	SE2A.c	Student classifies heavenly objects seen in the day and nighttime skies.
	SE2A.d	Student identifies planets other than Earth.
	SE2A.e	Student uses a model to show Earth's rotation on its axis and to show day and night.
	SE2A.f	Student uses a model to show Earth's revolution around the sun and to show to show a year.
	SE2A.g	Student distinguishes between heavenly bodies that radiate light (sun, stars) and those that reflect light (moon, planets).

MAAECF Science – Grades 3 – 5

Earth & Space Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
2. Identify and describe features of the Earth and other objects in space. (Continued)	Cluster 2B. Earth's Structure	
	SE2B.a	Student identifies the three major layers of the Earth (crust, mantle, core) using a model or diagram.
	SE2B.b	Student sorts and classifies rocks and minerals by physical features.
	SE2B.c	Student identifies and compares various land forms (mountain, delta, valley, plateau, plains).
	SE2B.d	Student identifies and compares various bodies of water (lake, river, stream, ocean, fresh and salt water).
3. Identify and describe weather and weather patterns.	Cluster 3A. Weather	
	SE3A.a	Student compares and contrasts the seasons.
	SE3A.b	Student distinguishes between and among different forms of precipitation (e.g., rain, snow, sleet, hail).
	SE3A.c	Student makes weather instruments in order to observe and describe how they work (e.g., barometer, wind vane, thermometer, rain gauge).
	SE3A.d	Student identifies different instruments used to collect weather data (thermometer, wind vane, and rain gauge) and uses them to record weather conditions over time.
	SE3A.e	Student uses a variety of media to locate weather information and weather patterns.
SE3A.f	Student compares Mississippi weather with weather of other regions of the country.	
Life Science Strand		
4. Identify and describe animals and plants and their environments.	Cluster 4A. Plants and Animals	
	SL4A.a	Student classifies living and non-living entities.
	SL4A.b	Student recognizes that the Sun is the major source of the Earth's energy.
	SL4A.c	Student identifies the parts of a plant (i.e., stem, root, leaves, seeds, flowers).
	SL4A.d	Student groups plants by common observable features (e.g., color, size, habitat).
	SL4A.e	Student groups animals by common observable features (e.g., color, size, habitat).
	SL4A.f	Student classifies plants using given scientific criteria (e.g., with and without seeds; flowering and non-flowering, coniferous and deciduous trees; compound/simple leaves).
	SL4A.g	Student classifies animals using given scientific criteria (e.g., vertebrates – invertebrates; fish/bird/amphibian, reptile, mammal).
	SL4A.h	Student sequences life stages of plants or animals and compares the life stages of different organisms.
	SL4A.i	Student identifies basic needs of plants and animals (i.e., water, food, air, and shelter).
	SL4A.j	Student develops a food chain using pictures or other media.
SL4A.k	Student uses a food chain model to identify organisms and their roles (producers make food, consumers eat food, and decomposers break down matter).	

MAAECF Science – Grades 3 – 5

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
4. Identify and describe animals and plants and their environments. (Continued)	Cluster 4B. Environmental Factors	
	SL4B.a	Student identifies ways the environment is affected by natural events (i.e., floods, fires, drought, hurricanes).
	SL4B.b	Student explains why recycling is important.
	SL4B.c	Student classifies objects as recyclables or trash.
	SL4B.d	Student identifies reasons that animals or plants might become endangered (e.g., loss of habitat, over hunting or fishing, pollution, climate change, over populating).
5. Identify and describe structures of living systems and their functions.	Cluster 5A. Structures of Living Systems	
	SL5A.a	Student identifies the 5 senses.
	SL5A.b	Student matches the body systems (skeletal, respiratory, digestive, circulatory, and excretory) with various functions within the body.
	SL5A.c	Student identifies or matches organs (e.g., heart, lungs, bones/skull, tongue, stomach, intestines, kidneys) with appropriate body system.
	SL5A.c1	Student identifies body organs (e.g., heart, lungs, stomach, eyes, ears, mouth, tongue, esophagus, intestines, kidneys, bones).
SL5A.c2	Student identifies the functions of organs (e.g., heart, lungs, stomach, eyes, ears, mouth, tongue, esophagus, intestines, kidneys, bones).	
Physical Science Strand		
6. Demonstrate an understanding of basic concepts regarding matter, motion, and energy.	Cluster 6A. Matter and Changes	
	SP6A.a	Students predict and test predictions about whether objects will sink or float in water.
	SP6A.b	Students recognize that all things are made up of matter.
	SP6A.c	Students classify objects and materials as gases, solids, or liquids.
	SP6A.d	Student identifies activities that involve physical or chemical changes in substances (e.g., physical: squashing, cutting, sharpening, stretching, evaporating; chemical: baking, cooking, burning, rusting).

MAAECF Science – Grades 3 – 5

Physical Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
6. Demonstrate an understanding of basic concepts regarding matter, motion, and energy. (Continued)	Cluster 6B. Force and Motion	
	SP6B.a	Student identifies activities using force to push or pull objects (e.g., push swing or door, pull door or shade down).
	SP6B.b	Student identifies simple machines in their environment (e.g., lever, pulley, wheel and axle).
	SP6B.c	Student explores, measures, and records the motion of an object.
	Cluster 6C. Forms of Energy	
	SP6C.a	Student identifies and groups objects that will be attracted/not attracted by a magnet.
	SP6C.b	Student identifies uses of electricity/electrical energy in their environment.
	SP6C.c	Student identifies different forms of energy (e.g., sound coming from musical instrument, light from flashlight or sun, heat from hairdryer or sun, electricity).
	SP6C.d	Student identifies examples of kinetic and potential forms of energy.
	SP6C.e	Student creates a simple circuit (using battery, insulated wire, and light or bell) to light a light or ring a bell.

References

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McDonnell, L. M, McLaughlin, M. J., & Morison, P. (Eds.). (1997). *Educating one and all: Students with disabilities and standards-based reform*. Washington, DC: National Academy Press.

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Webb, N. L. (1997). *Criteria for alignment of expectations and assessments in mathematics and science education* (NISE Research Monograph No. 6). Madison: University of Wisconsin-Madison, National Institute for Science Education.

Additional Resources for Alternate Assessments & Making Materials More Accessible

DC CAS Alt/District of Columbia Alternate Assessment. [Online] Available: <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/> or <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/teacherResources/Default.asp> (*online alternate assessment resources for teachers and parents*)

Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing, and Presenting. Human Development Institute. University of Kentucky. [Online] Available: <http://www.ihdi.uky.edu/IEI/Files/Pathways%20to%20learning%20document.pdf> (*ideas for expressive and receptive adaptations to accommodate diverse learning styles*)

Fichleay, K. and Dubuske, S. (2003). Adapting Books Assistive Technology Continuum. Boston Public Schools Access Technology Center. [Online] Available: <http://www.boston.k12.ma.us/teach/technology/emmanuel/ATAdaptBks.pdf> (*ideas for adapting text to accommodate diverse learning styles*)

GA Alternate Assessment. [Online] Available: <http://www.georgiastandards.org/impairment.aspx> - (*Teacher Resource Guide, sample modified texts for ELA, sample assessment activities for mathematics, ELA, science, and social studies*)

Hess, K. (2008). "Tools & Strategies for Developing and Using Learning Progressions." Presentation at the FAST-SCASS meeting, Atlanta, GA 2/6/08 [online] PowerPoint and article available: www.nciea.org

- Hess, K. (2008). "Teaching and Assessing Understanding of Text Structures across Grades." [online] available: www.nciea.org
- MA Alternate Assessment Teacher Resource Guide. [Online] Available: <http://www.doe.mass.edu/mcas/alt/resources.html> (*online alternate assessment resources for teachers*)
- NJ Alternate Assessment/APA. [Online] Available: <http://pem.ncspearson.com/nj/apa> (*online alternate assessment resources for teachers*)
- Pro Teacher website for Hands-on Science Activities. [Online] Available: <http://www.proteacher.com/cgi-bin/outside.cgi?id=274&external=http://www.energyquest.ca.gov/projects/index.html&original=http://www.proteacher.com/110053.shtml&title=Energy%20Science%20Projects> (*online resources for teaching science*)
- Science Saurus: A Student Handbook* – teacher or student resource for looking up science concepts, examples, and diagrams. Great Source Education Group, Houghton Mifflin Company ISBN# 0-669-48192-0 6/8
- The Internet Picture Dictionary. (2003). [Online] Available: www.pdictionary.com (*picture dictionary available in several languages which can be used to make worksheets, games, etc.*)
- Texas School for the Blind. (undated). Functional Academics and Functional Skills Department. [Online] Available: <http://www.tsbvi.edu> (*ideas and materials for adapting academic content for students with visual impairments*)
- Utah State University. (2003). National Library of Virtual Manipulatives [Online] Available: http://www.matti.usu.edu/nlvm/nav/topic_t_2.html (*virtual manipulatives that can be arranged online to solve or illustrate math problems – includes measurement, geometry, and algebra*)

What do we mean by “reading” for the MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “reading” may be defined as follows:

Student listens <i>and follows</i> along with text	Romeo and Juliet fell in love.	http://bookbuilder.cast.org/
Student listens <i>and follows</i> along with pictures	 Romeo and Juliet danced and talked.	http://www.ric.edu/sherlockcenter/dsi/romeo.pdf
Student listens <i>and follows</i> along with objects	Romeo and Juliet fell in love. 	Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing and Presenting. Interdisciplinary Human Development Institute, University of Kentucky. [Online] Available: http://www.ihdi.uky.edu/IEI/
Student listens <i>and follows</i> along with tactile cues	 Romeo and Juliet fell in love.	http://www.tsbvi.edu/Education/vmi/images/love.jpg

The grade-appropriate texts may be adapted by:

- Condensing information
- Shortening the text
- Presenting a synopsis of the text
- Highlighting important information
- Pairing text with pictures, objects, or tactile cues
 - When pairing text with pictures it may be a one-to-one correspondence (one picture for each word) or it may be one picture that summarizes the text
- Translating the text to Braille
- Chunking relevant information
- Creating a story bag that corresponds to the text (using representative objects for main characters/ideas from the text)
- Rewriting using different vocabulary

What do we mean by “writing” for MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “writing” may be defined as the ordering of information and representing a complete thought. For some students, representing a complete thought is done on a word-by-word basis; for other students, it may be represented more holistically by an object or picture. Students may write by:

- Using stamps
- Using pictures
- Using objects
- Using written words
- Using Braille
- Using tactile cues
- Using a voice output device or other augmentative communication devices (e.g., to complete a cloze sentence, choose main ideas and/or supporting details to write a text)
- Ordering sentences (words, objects, pictures, tactile cues) into an essay
- Completing cloze sentences
- Using a computer with writing software (speech to text, picture writing, etc.)
- Using a pen, pencil, or other writing utensil



Mississippi Extended Curriculum Frameworks

Middle School Version

Language Arts, Mathematics, & Science
for
Students with Significant Cognitive Disabilities

The Mississippi Department of Education does not discriminate on the basis of sex, race, religion, age, national origin, ancestry, creed, pregnancy, marital or premarital status, sexual orientation, or physical, mental, emotional, or learning disability.

*Revised August 2012 by Mississippi Educators in collaboration with the Office of Student Assessment and Measured Progress

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Introduction

The Mississippi Extended Curriculum Frameworks (MECF) Middle School Version includes curriculum content that students with significant cognitive disabilities in grades 6 through 8 are expected to access and learn during the course of their instructional programs. The primary purpose of this document is to share the prioritized academic content with teachers, family members, and other educational stakeholders, and to guide the development of high-quality alternate assessments that assess the knowledge and skills representative of these extended standards.

Teachers should use this document to plan instruction and collect student work samples (e.g., documented teacher observations, student work products, recorded media) that can be used to establish a baseline about what students know and can do at the beginning of the school year and to measure progress on the same skills and concepts on the final assessment later in the school year. These student work samples can then be used as part of the submission for the Mississippi Alternate Assessment of Extended Curriculum Frameworks (MAAECF).

Designed specifically for students with significant cognitive disabilities, the MAAECF is a portfolio assessment that is aligned with the Mississippi Extended Curriculum Frameworks for Language Arts (Reading and Writing), Mathematics, and Science. The assessment measures student performance based on alternate achievement standards.

The MAAECF portfolio is a collection of student work from throughout the school year. Teachers select appropriate objectives for assessing students. Students are initially assessed on these objectives through baseline activities developed by the teacher. The teacher then provides instruction on the selected objectives throughout the school year. The teacher assesses these same objectives through final activities that he or she has developed. Student work samples from both the baseline and final activities are submitted in the student's portfolio. This student work is utilized to determine the student's performance level and the level of complexity at which the student is working.

This document provides the curriculum frameworks that bring the prioritized grade-level content standards to life for language arts, mathematics, and science instruction. It is expected that teachers working with students with significant cognitive disabilities will incorporate instruction of all identified competencies at every grade level in the grade span. The alternate assessment tasks will be drawn from clusters and objectives most appropriate for specific individual students and their learning strengths and needs based upon the Data Collection Requirements document that outlines the allowable assessment objectives at each grade level. The learning objectives within each cluster were developed to provide a range of breadth and complexity, so that all students can access and demonstrate learning of each grade-level competency.

There is an overview of the competencies and clusters for each content area at the beginning of each section of this document:

- Language Arts (pages 4-7),
- Mathematics (pages 8-12), and
- Science (pages 13-16).

LANGUAGE ARTS EXTENDED CURRICULUM FRAMEWORKS

Reading Strand: Students use reading skills and strategies to decode and interpret symbols, words, and larger blocks of text. Students demonstrate the ability to use reading to acquire new information, refine perspectives, respond to the needs and demands of society and the workplace, and provide for personal fulfillment.

Competency 1: Use word recognition and vocabulary (word meaning) skills and strategies to communicate.

Cluster 1A. Concepts of Print

Cluster 1B. Phonological Awareness

Cluster 1C. Word Identification, Vocabulary, and Decoding Strategies

Competency 2: Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.

Cluster 2A. Using Text Features and Text Structures

Cluster 2B. Reading Comprehension

Writing Strand: Students develop a working knowledge of language as well as grammatical structures, diction and usage, punctuation, spelling, layout, and presentation. Students develop the ability to express personal ideas, understandings, desires, and needs in writing.

Competency 3: Express, communicate, evaluate, or exchange ideas effectively.

Cluster 3A. The Writing Process

Cluster 3B. Audience and Purpose

Competency 4: Apply Standard English to communicate.

Cluster 4A. Writing Mechanics

MAAECF ELA – Grades 6 - 8

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use word recognition and vocabulary (word meaning) skills and strategies to communicate.	Cluster 1A. Concepts of Print	
	R1A.a	Student locates print and interprets the message/meaning (common symbols and signage, environmental print).
	R1A.b1	Student identifies or locates where to begin reading a variety of texts (e.g., books, stories, articles, letters).
	Cluster 1B. Phonological Awareness	
	R1B.a	Student uses letter-sound relationships to blend phonemes to make words.
	R1B.b	Student deletes phonemes in one-syllable words (e.g., Say crust. Say crust without the c.).
	R1B.c1	Student identifies the number of syllables in words with more than two syllables.
	Cluster 1C. Word Identification, Vocabulary, and Decoding Strategies	
	R1C.a	Student identifies when a word does not make sense in the context used.
	R1C.b	Student uses pictures for context clues.
	R1C.c	Student recognizes and uses affixes, base words, and roots to determine the meaning of words (choose from under-, sub-, ex-, -or/-er, -ist, -ance).
	R1C.c1	Student recognizes regular plural endings (-s, -es, -ies) and applies them to make words.
	R1C.c2	Student recognizes regular past tense endings (-d, -ed) and applies them to make past tense words.
	R1C.d	Student identifies and uses synonyms and antonyms appropriately.
	R1C.e	Student recognizes and reads basic sight words and simple sentences.
	R1C.f	Student uses grade-appropriate content vocabulary to sort words by categories, observable features, or function.
R1C.g	Student identifies homonyms (e.g., to, two, too; no, know) and their correct uses.	
R1C.h	Student interprets intended meanings of new words using semantic context cues, such as restatement, example, or contrast.	
R1C.i	Student interprets and organizes words having shades of meaning.	
2. Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.	Cluster 2A. Using Text Features and Text Structures	
	R2A.a	Student uses text features for identifying key ideas in text or general meaning (e.g., uses illustrations, titles, subheadings, key word searches, bold print).
	R2A.b	Student uses text features to answer questions after reading informational texts (e.g., schedules, charts, maps, magazine article, news story).
	R2A.c	Student reads a variety of texts and identifies author's purpose.
	R2A.d	Student identifies the conflict and solution in a literary text.
	R2A.e	Student sequences main parts of a story using transition cues and key words.
	R2A.f	Student matches cause with effect from literary and informational texts.

MAAECF ELA – Grades 6 - 8

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
2. Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts. (Continued)	Cluster 2B. Reading Comprehension	
	R2B.a	Student answers appropriately to comprehension questions from both literary and informational text.
	R2B.b	Student predicts logical events from what he/she read or has heard and confirms predictions after reading or listening.
	R2B.c	Student identifies character, plot, and setting of a story.
	R2B.d	Student describes the emotions and motivation of characters in a text.
	R2B.e	Student makes basic inferences from literary and informational text.
	R2B.f	Student identifies the main idea and supporting details within a text.
	R2B.g	Student classifies information from an informational text as fact or opinion.
	R2B.h	Student identifies the figurative and literal meaning of idioms.
	R2B.i	Student interprets print and non-print media to determine the type of propaganda technique being used.

MAAECF ELA – Grades 6 - 8

Writing Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
3. Express, communicate, evaluate, or exchange ideas effectively.	Cluster 3A. The Writing Process	
	W3A.a	Student uses grade-appropriate reference materials to use new words in their writing (e.g., thesaurus, glossary – dictionary).
	W3A.b	Student uses words, pictures, signs, objects, or sentences to create a text.
	W3A.c	Student composes a friendly letter.
	W3A.d	Student develops a message or focused text which incorporates a clear beginning, middle, and end and important details.
	W3A.e	Student outlines ideas for composing a text.
	W3A.f	Student revises text using a writer’s checklist.
	Cluster 3B. Audience and Purpose	
	W3B.a	Student uses formal and informal language based on audience and purpose.
	W3B.b	Student gathers and organizes relevant information on a topic to answer specific questions of interest.
	W3B.c	Student presents information using pictures, texts, or other media on a researched topic.
W3B.d	Student communicates for a variety of purposes: inform, request information, entertain, persuade.	
W3B.e	Student shares personal interest or knowledge including supporting details.	
4. Apply Standard English to communicate.	Cluster 4A. Writing Mechanics	
	W4A.a	Student accurately spells grade-appropriate high-frequency words.
	W4A.b	Student applies rule and edits for capitalizations for proper nouns and initial words of a sentence.
	W4A.c	Student recognizes contractions in isolation and in connected text.
	W4A.d	Student correctly uses and edits for basic punctuation marks: end marks, quotations, abbreviations.
	W4A.e	Student understands and uses contractions.
	W4A.f	Student composes a variety of simple and compound sentences on a given topic by combining words and phrases.
W4A.g	Student edits a variety of simple and compound sentences on a given topic applying basic capitalization, punctuation, grammar, or spelling rules.	

MATHEMATICS

EXTENDED CURRICULUM FRAMEWORKS

Number and Operations Strand: Students recognize, represent, understand, and apply mathematical concepts and processes to situations within and outside of school. The definition of Number and Operations includes a range of skills including: rote counting; using pictures, objects, and symbols to denote meaning from numbers and quantities; and demonstrating an understanding of numbers as quantities that can be added, subtracted, multiplied, and divided.

Competency 1: Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.

Cluster 1A. Counting and Numbers

Cluster 1B. Basic Operations

Cluster 1C. Fractions, Decimals, and Percentages

Algebra Strand: Students will use symbolic forms to represent, model, and demonstrate understanding of mathematical situations and apply mathematical concepts and processes to situations within and outside of school. Patterns, Functions, and Algebra include such skills as discrimination, sorting, matching, and sequencing.

Competency 2: Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.

Cluster 2A. Pattern Analysis

Cluster 2B. Functions and Relationships

Geometry Strand: Students will use representation, visualization, spatial reasoning, and symmetry to solve problems. Geometry and Spatial Relations includes demonstrated understanding of size, shape, and location, applied for a variety of purposes and to a variety of situations.

Competency 3: Recognize, describe, and compare basic shapes and other geometric and spatial details.

Cluster 3A. Shape Recognition

Cluster 3B. Relational Concepts

Cluster 3C. Understanding Lines and Angles

Measurement Strand: Students use a variety of tools and techniques of measurement to problem solve. Measurement includes a demonstrated understanding of such concepts as time, distance, area and volume, applied for a variety of purposes and to a variety of situations. At a lower level, measurement is being broadly defined to include the concept of more than, less than, and other comparatives.

Competency 4: Understand and use different forms and units of measurement in a variety of contexts.

Cluster 4A. Time

Cluster 4B. Measuring Objects and Using Information

Data Analysis and Probability Strand: Students will interpret data and make predictions using methods of exploratory data analysis and basic notions of probability. Data Analysis and Probability includes categorization, making choices, and logical reasoning about events or situations.

Competency 5: Collect and report data. Read and understand basic charts, graphs, and tables.

Cluster 5A. Collecting and Reporting Data

MAAECF Mathematics – Grades 6 – 8

Numbers and Operations Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.	Cluster 1A. Counting and Numbers	
	MN1A.a	Student identifies place value of ones, tens, and hundreds.
	MN1A.b	Student identifies place value of decimals to the hundredths.
	MN1A.c	Student lists three rational numbers in proper numerical order.
	MN1A.d	Student compares and orders rational numbers using symbols ($>$, $<$, $=$).
	Cluster 1B. Basic Operations	
	MN1B.a	Student adds double-digit numbers with or without regrouping.
	MN1B.a1	Student uses a calculator to solve addition problems involving two or three double-digit numbers and regrouping.
	MN1B.b	Student subtracts double-digit numbers with or without regrouping.
	MN1B.b1	Student uses a calculator to subtract double-digit numbers with or without regrouping.
	MN1B.b2	Student uses a calculator to subtract double- and triple-digit numbers and uses a calculator to justify the answer.
	MN1B.c	Student applies the basic operations of addition and subtraction in problem solving (e.g., word problems; authentic tasks).
	MN1B.d	Student solves problems involving multiplication or division.
	MN1B.d1	Student solves multiplication and division word problems using a calculator.
	MN1B.d2	Student describes or models (using objects or pictures) the multiplication/division inverse relationship.
	MN1B.e	Student completes problem-solving activities in real-life situations using (+, -) or (\times , \div).
	Cluster 1C. Fractions, Decimals, and Percentages	
	MN1C.a	Student identifies and models improper and mixed fractions.
	MN1C.a1	Student compares fractions with denominators 2–10 using models, pictures, or fraction numerals.
	MN1C.a2	Student orders fractions with denominators 2–10 using models, pictures, or fraction numerals.
	MN1C.b	Student identifies and models percents appropriately.
MN1C.c	Student identifies equivalent fractions and percents.	
MN1C.d	Student uses money appropriately in real-life activities (making change, determining sales tax, determining unit price).	

MAAECF Mathematics – Grades 6 – 8

Algebra Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
2. Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.	Cluster 2A. Pattern Analysis	
	MA2A.a	Student creates, describes, and extends a growing pattern.
	MA2A.b	Student identifies and extends numeric patterns when presented with a task.
	MA2A.c	Student completes input/output function table when given the rule.
	Cluster 2B. Functions and Relationships	
	MA2B.a	Student completes and creates number sentences to demonstrate understanding of multiplication.
	MA2B.b	Student completes and creates number sentences to demonstrate understanding of division.
	MA2B.c	Student applies the commutative and associative properties of addition and multiplication to solve problems.
	MA2B.c1	Student describes or models the commutative property of addition using objects, pictures, numbers, or letters.
	MA2B.c2	Student describes or models the associative property of addition using objects, pictures, numbers, or letters.
	MA2B.c3	Student applies the commutative and associative properties of addition to solve problems.
	MA2B.c4	Student describes or models the commutative property of multiplication using objects, pictures, numbers, or letters.
	MA2B.c5	Student describes or models the associative property of multiplication using objects, pictures, numbers, or letters.
MA2B.c6	Student applies the commutative and associative properties of multiplication to solve problems.	
Geometry Strand		
3. Recognize, describe, and compare basic shapes and other geometric and spatial details.	Cluster 3A. Shape Recognition	
	MG3A.a	Student identifies 2-dimensional and 3-dimensional objects/shapes.
	MG3A.a1	Student uses manipulatives or pictures to compose 2-dimensional or 3-dimensional shapes.
	MG3A.a2	Student recognizes and identifies at least 5 of the following polygons (rhombus, square, triangle, trapezoid, rectangle, pentagon, hexagon, and/or octagon) according to number of sides and/or number of angles.
	MG3A.b	Student identifies and explains how shapes are congruent or symmetrical.
	Cluster 3B. Relational Concepts	
	MG3B.a	Student identifies and locates elements of a coordinate plane.
	MG3B.b	Student identifies circumference, diameter, and radius of a circle.
	Cluster 3C. Understanding Lines and Angles	
	MG3C.a	Student identifies angles (right, acute, and obtuse) in everyday objects.
	MG3C.a1	Student uses a protractor to measure angles from 0 to 180 degrees.
	MG3C.b	Student identifies perpendicular, parallel and intersecting lines in everyday objects (e.g., maps, patterns in clothing, furniture).

MAAECF Mathematics – Grades 6 – 8

Measurement Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
4. Understand and use different forms and units of measurement in a variety of contexts.	Cluster 4A. Time	
	MM4A.a	Student applies time-related terms and concepts (responds to questions, estimates) in relation to real-life situations and problem solving.
	Cluster 4B. Measuring Objects and Using Information	
	MM4B.a	Student measures an object to the nearest inch, foot, yard, or centimeter using the appropriate tool.
	MM4B.b	Student reads a thermometer and uses the information to make practical decisions.
	MM4B.c	Student uses appropriate tools to compare lengths, weights, or temperature, of common objects and materials.
	MM4B.d	Student identifies basic units of measurement in customary and metric systems.
	MM4B.e	Student measures fluids using customary and metric system units of measure.
	MM4B.e1	Student compares the capacity of various containers in standard units (e.g., ounce, cup, pint, quart, gallon, and/or liter, etc.).
MM4B.e2	Student sorts and classifies containers based on capacity.	
Data Analysis and Probability Strand		
5. Collect and report data. Read and understand basic charts, graphs, and tables.	Cluster 5A. Collecting and Reporting Data	
	MD5A.a	Student constructs and labels a pie graph from data on a table and chart.
	MD5A.b	Student identifies the mean, median, mode, and range of a set of data.
	MD5A.c	Student predicts and models the number of different combinations of 2 or more objects.
	MD5A.d	Student constructs, interprets, and explains data using a graph, table, or chart.
	MD5A.e	Student uses basic probability concepts to make predictions about an event.
	MD5A.e1	Student identifies whether an outcome of an event is “more likely” or “less likely” to occur.

SCIENCE

EXTENDED CURRICULUM FRAMEWORKS

Inquiry Strand

Competency 1: Use tools and instruments to plan, conduct, and evaluate simple science experiments.

Cluster 1A. Conducts Experiment

Cluster 1B. Interprets Data

Cluster 1C. Communicates Findings

Earth and Space Systems Strand

Competency 2: Identify and describe features of the Earth, the Earth's structure, and other objects in space.

Cluster 2A. Planets and the Solar System

Cluster 2B. Earth's Structure

Competency 3: Identify and describe living and nonliving factors that affect the environment.

Cluster 3A. Factors Affecting the Environment

Life Science Strand

Competency 4: Identify and describe animals and plants and their environments.

Cluster 4A. Plants and Animals

Competency 5: Identify and describe structures of living systems and their functions.

Cluster 5A. Structures of Living Systems

Physical Sciences Strand

Competency 6: Demonstrate an understanding of basic concepts regarding matter, energy, motion.

Cluster 6A. Matter and Changes

Cluster 6B. Force and Motion

Cluster 6C. Forms of Energy

MAAECF Science – Grades 6 - 8

Inquiry Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use tools and instruments to plan, conduct, and evaluate simple science experiments.	Cluster 1A. Conducts Experiment	
	SI1A.a	Student recognizes safety rules for science experiment and/or laboratory (e.g., wear goggles, wash hands after handling materials, do not taste unknown materials).
	SI1A.b	Student chooses appropriate tools for completing a task (e.g., simple measuring devices metric and standard units, balance scale, spring scale, dissecting microscope, telescope).
	SI1A.c	Given a testable question, student chooses a plan or plans steps to investigate the question.
	SI1A.d	Student conducts a simple experiment to address a question or problem.
	Cluster 1B. Interprets Data	
	SI1B.a	Student identifies observable features or traits (e.g., shape, texture, size, color, number) of objects and organisms.
	SI1B.a1	Student sorts or sequences objects and organisms based on given criteria.
	SI1B.b	Student predicts outcomes based on observations and previous experience.
	SI1B.c	Student interprets data collected as part of an experiment (e.g., makes an accurate statement based on data; identifies a trend or result).
	Cluster 1C. Communicates Findings	
	SI1C.a	Student communicates understanding of concepts or results by choosing correct or appropriate outcome/summary.
	SI1C.b	Student develops graphs, charts, or other visual representations to communicate the results on an investigation.
	Earth & Space Science Strand	
2. Identify and describe features of the Earth and other objects in space.	Cluster 2A. Planets and the Solar System	
	SE2A.a	Student identifies features of the solar system, including the Earth, sun, other planets, and asteroid belt.
	SE2A.b	Student demonstrates Earth's orbit around the Sun and the Moon's orbit around the Earth.
	SE2A.c	Student distinguishes between heavenly bodies that radiate light (sun, stars) and those that reflect light (moon, planets).
	SE2A.d	Student identifies objects seen in the day and nighttime skies, including different phases of the moon.
	Cluster 2B. Earth's Structure	
	SE2B.a	Student classifies rocks, gems, and minerals according to their characteristics (color, luster, cleavage, streak, hardness).
	SE2B.b	Student identifies and describes how erosion affects the earth.
	SE2B.c	Student identifies the three major layers of the earth (crust, mantle, core) and the atmosphere using a model or diagram.
	SE2B.d	Student examines fossils and identifies whether they are from plants or animals.
	SE2B.e	Student observes and describes teacher demonstration of how rock types are formed (e.g., heat, pressure, or both heat and pressure to form new rocks).
	SE2B.f	Student classifies resources as renewable or non-renewable, including energy sources.

MAAECF Science – Grades 6 - 8

Earth & Space Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
3. Identify and describe living and nonliving factors that affect the environment.	Cluster 3A. Factors that Affect the Environment	
	SE3A.a	Student uses visuals to identify tornados and hurricanes and describe their effects.
	SE3A.b	Student observes teacher designed water cycle activity and describes or orders pictures showing what happened.
	SE3A.c	Student identifies ways in which humans affect living and nonliving things in the environment.
	SE3A.d	Student identifies reasons that animals or plants might become threatened, endangered, or extinct (e.g., loss of habitat, over hunting or fishing, pollution, climate change, over populating).
Life Science Strand		
4. Identify and describe animals and plants and their environments.	Cluster 4A. Plants and Animals: Living Organisms and Adaptation	
	SL4A.a	Student recognizes that the Sun is the major source of the Earth's energy.
	SL4A.b	Student recognizes that all living things are made up of cells.
	SL4A.c	Student identifies the parts of a plant (stem, root, leaves, seeds, flowers) and describes their functions.
	SL4A.d	Student compares and contrasts characteristics of living organisms (e.g., compare parts of plant cells and animal cells).
	SL4A.e	Student explains adaptations (changes that resulted over time) of animals and plants that allow them to survive in their habitats.
	SL4A.f	Student identifies how plants and animals meet their basic needs for water, food, air, and shelter.
	SL4A.g	Student describes characteristics of different aquatic and land ecosystems.
	SL4A.h	Student identifies what plants need in order to make their own food (photosynthesis).
	SL4A.i	Student develops a food web using pictures or other media.
	SL4A.j	Student uses a food web model to identify organisms and their roles (producers make food and consumers eat food, and decomposers break down matter).
	SL4A.k	Student recognizes what carnivores, herbivores, and omnivores eat.
SL4A.l	Student classifies animals using given criteria (e.g., carnivores, herbivores, and omnivores; cold- or warm-blooded; vertebrate-invertebrate).	
5. Identify and describe structures of living systems and their functions.	Cluster 5A. Structures of Living Systems	
	SL5A.a	Student matches the body systems (skeletal, respiratory, circulatory, muscular, nervous, and skin) with various functions within the body.
	SL5A.a1	Student identifies body systems that work together or describes the process for how body systems work together to perform a given action.
	SL5A.b	Student identifies or matches organs (e.g., heart, lungs, brain, spinal cord, skin) with appropriate body system.
	SL5A.c	Student identifies habits that promote good health (e.g., eating healthy foods, exercise, non use of tobacco, drugs, or alcohol).
SL5A.d	Student recognizes different diseases or illnesses associated with various body systems (e.g., heart disease, lung cancer, asthma, diabetes).	

MAAECF Science – Grades 6 - 8

Physical Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
6. Demonstrate an understanding of basic concepts regarding matter, motion, and energy.	Cluster 6A. Matter and Changes	
	SP6A.a	Student classifies objects and materials as gases, solids, or liquids.
	SP6A.b	Student identifies activities that involve physical or chemical changes in substances (e.g., physical: squashing, cutting, sharpening, stretching, evaporating; chemical: baking, cooking, burning, rusting).
	SP6A.b1	Student recognizes that the total mass does not change during physical and/or chemical changes.
	SP6A.c	Students identifies the effects of stirring, shaking, or warming up objects in order to dissolve them in water (e.g., will it dissolve faster if I shake it?).
	Cluster 6B. Force and Motion	
	SP6B.a	Student follows simple directions to make and use a simple machine (e.g., pulley, lever, wedge, inclined plane).
	SP6B.b	Student explores, measures, and records the motion of an object (e.g., how amount of force can affect distance or speed of object).
	SP6B.c	Student explores and identifies how different forces affect objects (e.g., equal and opposite forces cause no change in motion; unbalanced forces cause change).
	SP6B.d	Student describes the effect of friction or resistance on an object's motion.
	Cluster 6C. Forms of Energy	
	SP6C.a	Student identifies objects that will be attracted by a magnet, including electromagnets.
	SP6C.b	Student investigates different forms of energy (heat, sound, light, electricity) and describes what happened.
	SP6C.b1	Student identifies properties of light (i.e., reflection, refraction, and absorption).

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McDonnell, L. M, McLaughlin, M. J., & Morison, P. (Eds.). (1997). *Educating one and all: Students with disabilities and standards-based reform*. Washington, DC: National Academy Press.

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Thompson, S.J., Johnstone, C.J., & Thurlow, M.L. (2002). *Universal design applied to large-scale assessments (Synthesis Report 44)*. Minneapolis, MN: University of Minnesota, National Center for Educational Outcomes.

Webb, N. L. (1997). *Criteria for alignment of expectations and assessments in mathematics and science education* (NISE Research Monograph No. 6). Madison: University of Wisconsin-Madison, National Institute for Science Education.

Additional Resources for Alternate Assessments & Making Materials More Accessible

DC CAS Alt/District of Columbia Alternate Assessment. [Online] Available: <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/> or <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/teacherResources/Default.asp> (*online alternate assessment resources for teachers and parents*)

Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing, and Presenting. Human Development Institute. University of Kentucky. [Online] Available: <http://www.ihdi.uky.edu/IEI/Files/Pathways%20to%20learning%20document.pdf> (*ideas for expressive and receptive adaptations to accommodate diverse learning styles*)

Fichleay, K. and Dubuske, S. (2003). Adapting Books Assistive Technology Continuum. Boston Public Schools Access Technology Center. [Online] Available: <http://www.boston.k12.ma.us/teach/technology/emmanuel/ATAdaptBks.pdf> (*ideas for adapting text to accommodate diverse learning styles*)

GA Alternate Assessment. [Online] Available: <http://www.georgiastandards.org/impairment.aspx> - (*Teacher Resource Guide, sample modified texts for ELA, sample assessment activities for mathematics, ELA, science, and social studies*)

Hess, K. (2008). "Tools & Strategies for Developing and Using Learning Progressions." Presentation at the FAST-SCASS meeting, Atlanta, GA 2/6/08 [online] PowerPoint and article available: www.nciea.org

Hess, K. (2008). "Teaching and Assessing Understanding of Text Structures across Grades." [online] available: www.nciea.org

MA Alternate Assessment Teacher Resource Guide. [Online] Available: <http://www.doe.mass.edu/mcas/alt/resources.html> (*online alternate assessment resources for teachers*)

NJ Alternate Assessment/APA. [Online] Available: <http://pem.ncspearson.com/nj/apa> (*online alternate assessment resources for teachers*)

Pro Teacher website for Hands-on Science Activities. [Online] Available: <http://www.proteacher.com/cgi-bin/outside.cgi?id=274&external=http://www.energyquest.ca.gov/projects/index.html&original=http://www.proteacher.com/110053.shtml&title=Energy%20Science%20Projects> (*online resources for teaching science*)

Science Saurus: A Student Handbook – teacher or student resource for looking up science concepts, examples, and diagrams. Great Source Education Group, Houghton Mifflin Company ISBN# 0-669-48192-0 6/8

The Internet Picture Dictionary. (2003). [Online] Available: www.pdictionary.com (*picture dictionary available in several languages which can be used to make worksheets, games, etc.*)

Texas School for the Blind. (undated). Functional Academics and Functional Skills Department. [Online] Available: <http://www.tsbvi.edu> (*ideas and materials for adapting academic content for students with visual impairments*)

Utah State University. (2003). National Library of Virtual Manipulatives [Online] Available: http://www.matti.usu.edu/nlvm/nav/topic_t_2.html (*virtual manipulatives that can be arranged online to solve or illustrate math problems – includes measurement, geometry, and algebra*)

What do we mean by “reading” for the MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “reading” may be defined as follows:

Student listens <i>and follows</i> along with text	Romeo and Juliet fell in love.	http://bookbuilder.cast.org/
Student listens <i>and follows</i> along with pictures	 Romeo and Juliet danced and talked.	http://www.ric.edu/sherlockcenter/dsi/romeo.pdf
Student listens <i>and follows</i> along with objects	Romeo and Juliet fell in love. 	Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing and Presenting. Interdisciplinary Human Development Institute, University of Kentucky. [Online] Available: http://www.ihdi.uky.edu/IEI/
Student listens <i>and follows</i> along with tactile cues	 Romeo and Juliet fell in love.	http://www.tsbvi.edu/Education/vmi/images/love.jpg

The grade-appropriate texts may be adapted by:

- Condensing information
- Shortening the text
- Presenting a synopsis of the text
- Highlighting important information
- Pairing text with pictures, objects, or tactile cues
 - When pairing text with pictures it may be a one-to-one correspondence (one picture for each word) or it may be one picture that summarizes the text
- Translating the text to Braille
- Chunking relevant information
- Creating a story bag that corresponds to the text (using representative objects for main characters/ideas from the text)
- Rewriting using different vocabulary

What do we mean by “writing” for MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “writing” may be defined as the ordering of information and representing a complete thought. For some students, representing a complete thought is done on a word-by-word basis; for other students, it may be represented more holistically by an object or picture. Students may write by:

- Using stamps
- Using pictures
- Using objects
- Using written words
- Using Braille
- Using tactile cues
- Using a voice output device or other augmentative communication devices (e.g., to complete a cloze sentence, choose main ideas and/or supporting details to write a text)
- Ordering sentences (words, objects, pictures, tactile cues) into an essay
- Completing cloze sentences
- Using a computer with writing software (speech to text, picture writing, etc.)
- Using a pen, pencil, or other writing utensil



Mississippi Extended Curriculum Frameworks

High School Version

Language Arts, Mathematics, & Science
for
Students with Significant Cognitive Disabilities

The Mississippi Department of Education does not discriminate on the basis of sex, race, religion, age, national origin, ancestry, creed, pregnancy, marital or premarital status, sexual orientation, or physical, mental, emotional, or learning disability.

*Revised August 2012 by Mississippi Educators in collaboration with the Office of Student Assessment and Measured Progress

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Introduction

The Mississippi Extended Curriculum Frameworks (MECF) High School Version includes curriculum content that students with significant cognitive disabilities in high school are expected to access and learn during the course of their instructional programs. The primary purpose of this document is to share the prioritized academic content with teachers, family members, and other educational stakeholders, and to guide the development of high-quality alternate assessments that assess the knowledge and skills representative of these extended standards.

Teachers should use this document to plan instruction and collect student work samples (e.g., documented teacher observations, student work products, recorded media) that can be used to establish a baseline about what students know and can do at the beginning of the school year and to measure progress on the same skills and concepts on the final assessment later in the school year. These student work samples can then be used as part of the submission for the Mississippi Alternate Assessment of Extended Curriculum Frameworks (MAAECF).

Designed specifically for students with significant cognitive disabilities, the MAAECF is a portfolio assessment that is aligned with the Mississippi Extended Curriculum Frameworks for Language Arts (Reading and Writing), Mathematics, and Science. The assessment measures student performance based on alternate achievement standards.

The MAAECF portfolio is a collection of student work from throughout the school year. Teachers select appropriate objectives for assessing students. Students are initially assessed on these objectives through baseline activities developed by the teacher. The teacher then provides instruction on the selected objectives throughout the school year. The teacher assesses these same objectives through final activities that he or she has developed. Student work samples from both the baseline and final activities are submitted in the student's portfolio. This student work is utilized to determine the student's performance level and the level of complexity at which the student is working.

This document provides the curriculum frameworks that bring the prioritized grade-level content standards to life for language arts, mathematics, and science instruction. It is expected that teachers working with students with significant cognitive disabilities will incorporate instruction of all identified competencies at every grade level in the grade span. The alternate assessment tasks will be drawn from clusters and objectives most appropriate for specific individual students and their learning strengths and needs based upon the Data Collection Requirements document that outlines the allowable assessment objectives at each grade level. The learning objectives within each cluster were developed to provide a range of breadth and complexity, so that all students can access and demonstrate learning of each grade-level competency.

There is an overview of the competencies and clusters for each content area at the beginning of each section of this document:

- Language Arts (pages 4-6),
- Mathematics (pages 7-9), and
- Science (pages 10-12).

LANGUAGE ARTS EXTENDED CURRICULUM FRAMEWORKS

Reading Strand: Students use reading skills and strategies to decode and interpret symbols, words, and larger blocks of text. Students demonstrate the ability to use reading to acquire new information, refine perspectives, respond to the needs and demands of society and the workplace, and provide for personal fulfillment.

Competency 1: Use word recognition and vocabulary (word meaning) skills and strategies to communicate.

Cluster 1C. Word Identification, Vocabulary, and Decoding Strategies

Competency 2: Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.

Cluster 2A. Using Text Features and Text Structures

Cluster 2B. Reading Comprehension

Writing Strand: Students develop a working knowledge of language as well as grammatical structures, diction and usage, punctuation, spelling, layout, and presentation. Students develop the ability to express personal ideas, understandings, desires, and needs in writing.

Competency 3: Express, communicate, evaluate, or exchange ideas effectively.

Cluster 3A. The Writing Process

Cluster 3B. Audience and Purpose

Cluster 3C. Revising and Using Tools

Competency 4: Apply Standard English to communicate.

Cluster 4A. Writing Mechanics

MAAECF ELA – High School

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use word recognition and vocabulary (word meaning) skills and strategies to communicate.	Cluster 1C. Word Identification and Decoding Strategies	
	R1C.a	Student recognizes basic content-related words (e.g., bias, habitat, data, probability, percent, election).
	R1C.b	Student completes simple analogies.
	R1C.c	Student applies knowledge of affixes, base words, and roots (e.g., “spec” – inspect, spectator) to determine meaning of words (mis-, -or, -tion, -ist).
	R1C.d	Student interprets and organizes words having shades of meaning.
	R1C.e	Student reads and understands grade-appropriate content vocabulary.
2. Apply strategies and skills to comprehend, respond to, interpret, and evaluate texts.	Cluster 2A. Using Text Features and Text Structures	
	R2A.a	Student uses text features (e.g., photo, caption, illustration, charts, maps, map keys, diagrams, graphs) to obtain information.
	R2A.b	Student recognizes signal words/phrases for order (e.g., first, next, last, later) and sequences major events or steps in a process.
	R2A.c	Student recognizes signal words/phrases in texts read or heard orally and identifies cause-effect (e.g., because, this led to); descriptions (e.g., adjectives, definitions, examples); and compares-contrasts ideas or things (e.g., alike/not alike, same/different).
	R2A.d	Student makes inferences from text based on pictures and symbols.
	R2A.e	Student identifies literary and informational text genres and some features of each (e.g., poetry, play, news article).
	Cluster 2B. Reading Comprehension	
	R2B.a	Student reads to compare two people or to compare a location/place at different times in history.
	R2B.b	Student identifies simple stylistic devices (e.g., alliteration, assonance, onomatopoeia, rhyme, rhythm, repetition) in poetry or song lyrics.
	R2B.c	Student uses literary text to identify character traits and character motivation.
	R2B.d	Student compares characters, plots, or setting between two literary texts.
	R2B.e	Student identifies main idea, topic sentence, and supporting details.
	R2B.f	Student identifies and uses figurative language (e.g., metaphor, simile, hyperbole, personifications, oxymoron, imagery).
	R2B.g	Student uses graphic organizer to link text information to a personal experience.
	R2B.h	Student distinguishes between fact and opinion using a variety of media sources.
R2B.i	Student summarizes an informational text using key ideas and supporting details.	
R2B.j1	Student reads a variety of texts and analyzes author’s purpose (e.g., inform, entertain, persuade).	

MAAECF ELA – High School

Writing Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
3. Express, communicate, evaluate, or exchange ideas effectively.	Cluster 3A. The Writing Process	
	W3A.a	Student writes a friendly letter to peers, parents, and others to communicate a message or idea.
	W3A.b	Student develops a business letter that incorporates a clear and focused idea.
	W3A.c	Student identifies a topic of interest and gathers information about it using a variety of resources.
	W3A.d	Student organizes information by topic sentence and supporting details to create a summary, outline, or report.
	W3A.e	Student creates a basic resume.
	W3A.f	Student presents information on a researched topic through Power Point, report, essay, poster, or oral presentation.
	W3A.g	Student conducts a short interview to obtain information on a topic of interest and summarizes information gathered.
	Cluster 3B. Audience and Purpose	
	W3B.a	Student changes formal to informal language or informal to formal language.
	W3B.b	Student uses written communication to inform.
	W3B.c	Student uses written communication to entertain.
	W3B.d	Student uses written communication to persuade.
	W3B.e	Student classifies writing based on its purpose (i.e., informative, entertainment, persuasive, narrative).
	W3B.f	Student identifies bias in different media.
	Cluster 3C. Revising and Using Tools	
	W3C.a	Student edits work to improve subject-verb agreement.
	W3C.b	Student revises work for clarity, coherence, tone, and transitions.
	W3C.c	Student uses a computer or other electronic media to gather information about a topic.
	4. Apply Standard English to communicate.	Cluster 4A. Writing Mechanics
W4A.a		Student sorts sentences as simple, compound, or complex sentences.
W4A.b		Student recognizes nouns, verbs, and adjectives.
W4A.c		Student matches adjectives with nouns and adverbs with verbs when composing sentences or phrases.
W4A.d		Student uses adjectives and adverbs correctly in a variety of sentences.
W4A.e		Student matches capital letters correctly. This objective has been omitted, as it was not intended to be a HS writing objective.
W4A.f		Student understands and uses contractions.
W4A.g		Student correctly uses commas, semi colons, or colons.
W4A.h	Student creates simple, compound, and complex sentences.	

MATHEMATICS

EXTENDED CURRICULUM FRAMEWORKS

Number and Operations Strand: Students recognize, represent, understand, and apply mathematical concepts and processes to situations within and outside of school. The definition of Number and Operations includes a range of skills including: rote counting; using pictures, objects, and symbols to denote meaning from numbers and quantities; and demonstrating an understanding of numbers as quantities that can be added, subtracted, multiplied, and divided.

Competency 1: Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.

Cluster 1B. Operations

Cluster 1C. Fractions, Decimals, and Percentages

Algebra Strand: Students will use symbolic forms to represent, model, and demonstrate understanding of mathematical situations and apply mathematical concepts and processes to situations within and outside of school. Patterns, Functions, and Algebra include such skills as discrimination, sorting, matching, and sequencing.

Competency 2: Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.

Cluster 2A. Pattern Analysis

Cluster 2B. Functions and Relationships

Cluster 2C. Algebraic Procedures

Measurement Strand: Students use a variety of tools and techniques of measurement to problem solve. Measurement includes a demonstrated understanding of such concepts as time, distance, area and volume, applied for a variety of purposes and to a variety of situations. At a lower level, measurement is being broadly defined to include the concept of more than, less than, and other comparatives.

Competency 4: Understand and use different forms and units of measurement in a variety of contexts.

Cluster 4B. Measuring Objects and Using Information

Data Analysis and Probability Strand: Students will interpret data and make predictions using methods of exploratory data analysis and basic notions of probability. Data Analysis and Probability includes categorization, making choices, and logical reasoning about events or situations.

Competency 5: Collect and report data. Read and understand basic charts, graphs, and tables.

Cluster 5A. Collecting and Reporting Data

Cluster 5B. Probability

MAAECF Mathematics – High School

Numbers and Operations Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Understand relationships among numbers and basic operations. Compute fluently and make reasonable estimates.	Cluster 1B. Operations	
	MN1B.a	Student demonstrates the commutative and associative properties of addition and multiplication.
	MN1B.a1	Student solves real-world problems (or word problems) using the commutative and associative properties of addition and multiplication.
	MN1B.b	Student simplifies an expression using order of operations (e.g. $(5-3)3$ $2 \times 3 + 6$). $(2)3$ $6+6$ 6 12
	MN1B.c	Student adds whole number matrices.
	MN1B.d1	Student locates and uses the following symbols accurately on a calculator: +, −, ×, ÷, π, and =.
	Cluster 1C. Fractions, Decimals, and Percentages	
	MN1C.a	Student computes total cost, including the tip and/or sales tax on a given item.
	MN1C.a1	Student calculates total cost, including the tip and sales tax, using a calculator.
	MN1C.b	Student identifies the components of a specified formula (e.g., interest formula: principle, rate, time).
Algebra Strand		
2. Explain, analyze, and generate patterns, relationships, and functions using numerals, symbols, words, and/or manipulatives.	Cluster 2A. Pattern Analysis	
	MA2A.a	Student identifies and extends patterns of numbers using an x/y chart.
	MA2A.b	Student matches a generalized rule or description to numerical and geometric patterns.
	Cluster 2B. Functions and Relationships	
	MA2B.a	Student locates points on maps and grids.
	MA2B.b	Student identifies where a line crosses the x axis (x -intercept) and the y axis (y -intercept) given the graph.
	MA2B.c	Student identifies parallel and intersecting lines by comparing slopes of equations already in slope intercept form ($y=mx+b$, m represents slope).
	MA2B.d	Given a simple linear equation and a completed T-chart, student graphs the results.
	Cluster 2C. Algebraic Procedures	
	MA2C.a	Student simplifies an algebraic expression, including like terms (e.g., $2x + x + 3$, $3x + 3$).
MA2C.b	Student evaluates simple algebraic expressions using whole number values (e.g., $2x + 3$, when $x = 5$ $2(5) + 3$ $10 + 3$ 13).	
MA2C.c	Student solves simple linear equations with variable on one side of an equation (e.g., $4n = 12$), using whole numbers, fractions, and decimals.	

MAAECF Mathematics – High School

Measurement Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
4. Understand and use different forms and units of measurement in a variety of contexts.	Cluster 4B. Measuring Objects and Using Information	
	MM4B.a	Student distinguishes between concepts of more than or less than as it relates to graphing an inequality.
	MM4B.b	Student recognizes or identifies the circumference, diameter, and radius of a circle.
	MM4B.b1	Student calculates the circumference of circles given the formula with either the radius or the diameter of a circle.
	MM4B.b2	Student calculates the circumference of circles given the formula with either the radius or the diameter of a circle, using a calculator.
	MM4B.c	Student computes perimeter and area of polygons and circles using a formula or rule.
	MM4B.d	Student computes surface area of 3-D figures.
MM4B.e	Student determines volume of a rectangular prism.	
Data Analysis and Probability Strand		
5. Collect and report data. Read and understand basic charts, graphs, and tables.	Cluster 5A. Collecting and Reporting Data	
	MD5A.a	Student interprets a scatter plot in relation to the correlation shown.
	MD5A.b	Student creates a scatter plot graph from given data.
	Cluster 5B. Probability	
	MD5B.a	Student uses basic probability concepts to make predictions about an event.
	MD5B.b	Student explains terms <i>always</i> , <i>sometimes</i> , and <i>never</i> as it relates to a probability event.
MD5B.c	Student conducts an investigation of probability and records the results.	

SCIENCE

EXTENDED CURRICULUM FRAMEWORKS

Inquiry Strand

Competency 1: Use tools and instruments to plan, conduct, and evaluate simple science experiments.

Cluster 1A. Conducts Experiment

Cluster 1B. Interprets Data

Cluster 1C. Communicates Findings

Life Science Strand

Competency 4: Identify and describe animals and plants and their environments.

Cluster 4A. Plants and Animals: Living Organisms and Adaptation

Cluster 4C. Interdependence and Interactions

Competency 5: Identify and describe structures of living systems and their functions.

Cluster 5A. Structures of Living Systems: Cells

Cluster 5B. Structures of Living Systems: Heredity

MAAECF Science – High School

Inquiry Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
1. Use tools and instruments to plan, conduct, and evaluate simple science experiments.	Cluster 1A. Conducts Experiment	
	SI1A.a	Student observes and practices safe procedures in the classroom and the laboratory.
	SI1A.b	Student demonstrates proper use and care of equipment in the laboratory and classrooms (e.g., microscope, balance scale, beaker).
	SI1A.c	Student conducts a simple experiment to address a question or problem.
	SI1A.c1	Student distinguishes independent variables from dependent variables in scientific experiments.
	SI1A.c2	Student distinguishes control groups from experimental groups in scientific experiments.
	SI1A.d	Given a testable question, student uses the scientific method to answer the question (make prediction/hypothesis, choose or plan steps to investigate, collect data, and report data).
	Cluster 1B. Interprets Data	
	SI1B.a	Student uses observations and prior experiences to make predictions or state a hypothesis.
	SI1B.b	Student organizes data collected in order to communicate findings (e.g., labels a drawing or diagram, organizes data in a T-chart so it can be graphed).
	Cluster 1C. Communicates Findings	
	SI1C.a	Student communicates the results of an investigation using appropriate science vocabulary.
	SI1C.b	Student develops a graph, chart, or other visual representation to communicate the results of a science investigation.
	SI1C.c	Student uses results of an experiment to draw conclusions that prove or disprove a prediction/hypothesis.
Life Science Strand		
4. Identify and describe animals and plants and their environments.	Cluster 4A. Plants and Animals: Living Organisms and Adaptation	
	SL4A.a	Student compares adaptations (e.g., protective coloration; beak types in birds) of animals in land-based and water-based ecosystems.
	SL4A.b	Student explains why animals belong to different classification groups or subgroups using similarities and differences (e.g., warm-blooded/cold-blooded; bird/fish/mammal/reptile/amphibian).
	SL4A.c	Student explains why plants belong to different classification groups or subgroups using similarities and differences (e.g., seed/seedless; vascular/nonvascular; gymnosperm/angiosperm).
	SL4A.d	Student compares adaptations (e.g., how seeds travel; storing water; root types) of plants in land-based and water-based ecosystems.
	SL4A.e	Students describe the basic process used by plants to make their own food (photosynthesis: energy comes from the sun; raw materials are carbon dioxide and water; products are food/sugar and oxygen).
	SL4A.f	Students describe how organisms release energy from food (raw materials are food and oxygen; products released are carbon dioxide and water).

MAAECF Science – High School

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items
4. Identify and describe animals and plants and their environments. (continued)	Cluster 4C. Interdependence and Interactions	
	SL4C.a	Student uses a food chain or food web to explain the flow of energy.
	SL4C.b	Students use a food web or food chain to describe relationships in different aquatic and land-based ecosystems (consumer/producer/ decomposer; predator/prey).
	SL4C.c	Student uses a teacher demonstration, model, or diagram to create a diagram showing the carbon-oxygen cycle in an ecosystem.
5. Identify and describe structures of living systems and their functions.	Cluster 5A. Structures of Living Systems: Cells	
	SL5A.a	Student identifies the cell as the “basic unit of structure and function in living things.”
	SL5A.b	Student identifies parts of animal and plant cells.
	SL5A.c	Student compares parts of animal and plant cells and explains differences and similarities.
	SL5A.d	Students use tools (e.g., microscope, viewer) or visuals to examine and identify unicellular and multi-cellular organisms.
	Cluster 5B. Structures of Living Systems: Heredity	
	SL5B.a	Student recognizes that traits are passed from parent to offspring and shared by members of a family (e.g., eye color, skin color, earlobes, rolled tongue).
	SL5B.a1	Student distinguishes between asexual and sexual reproduction.
SL5B.b	Student distinguishes between traits passed on from parents and behaviors that are learned.	
SL5B.c	Use models (e.g., punnet square) to predict possible offspring traits given the genetic makeup of parents.	

References

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Additional Resources for Alternate Assessments & Making Materials More Accessible

- DC CAS Alt/District of Columbia Alternate Assessment. [Online] Available: <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/> or <http://www.ihdi.uky.edu/ilssa/dc-cas-alt/teacherResources/Default.asp> (*online alternate assessment resources for teachers and parents*)
- Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing, and Presenting. Human Development Institute. University of Kentucky. [Online] Available: <http://www.ihdi.uky.edu/IEI/Files/Pathways%20to%20learning%20document.pdf> (*ideas for expressive and receptive adaptations to accommodate diverse learning styles*)
- Fichleay, K. and Dubuske, S. (2003). Adapting Books Assistive Technology Continuum. Boston Public Schools Access Technology Center. [Online] Available: <http://www.boston.k12.ma.us/teach/technology/emmanuel/ATAdaptBks.pdf> (*ideas for adapting text to accommodate diverse learning styles*)
- GA Alternate Assessment. [Online] Available: <http://www.georgiastandards.org/impairment.aspx> - (*Teacher Resource Guide, sample modified texts for ELA, sample assessment activities for mathematics, ELA, science, and social studies*)
- Hess, K. (2008). "Tools & Strategies for Developing and Using Learning Progressions." Presentation at the FAST-SCASS meeting, Atlanta, GA 2/6/08 [online] PowerPoint and article available: www.nciea.org
- Hess, K. (2008). "Teaching and Assessing Understanding of Text Structures across Grades." [online] available: www.nciea.org

MA Alternate Assessment Teacher Resource Guide. [Online] Available: <http://www.doe.mass.edu/mcas/alt/resources.html> (*online alternate assessment resources for teachers*)

NJ Alternate Assessment/APA. [Online] Available: <http://pem.ncspearson.com/nj/apa> (*online alternate assessment resources for teachers*)

Pro Teacher website for Hands-on Science Activities. [Online] Available: <http://www.proteacher.com/cgi-bin/outside.cgi?id=274&external=http://www.energyquest.ca.gov/projects/index.html&original=http://www.proteacher.com/110053.shtml&title=Energy%20Science%20Projects> (*online resources for teaching science*)

Science Saurus: A Student Handbook – teacher or student resource for looking up science concepts, examples, and diagrams. Great Source Education Group, Houghton Mifflin Company ISBN# 0-669-48192-0 6/8

The Internet Picture Dictionary. (2003). [Online] Available: www.pdictionary.com (*picture dictionary available in several languages which can be used to make worksheets, games, etc.*)

Texas School for the Blind. (undated). Functional Academics and Functional Skills Department. [Online] Available: <http://www.tsbvi.edu> (*ideas and materials for adapting academic content for students with visual impairments*)

Utah State University. (2003). National Library of Virtual Manipulatives [Online] Available: http://www.matti.usu.edu/nlvm/nav/topic_t_2.html (*virtual manipulatives that can be arranged online to solve or illustrate math problems – includes measurement, geometry, and algebra*)

What do we mean by “reading” for the MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “reading” may be defined as follows:

Student listens <i>and follows</i> along with text	Romeo and Juliet fell in love.	http://bookbuilder.cast.org/
Student listens <i>and follows</i> along with pictures	 Romeo and Juliet danced and talked.	http://www.ric.edu/sherlockcenter/dsi/romeo.pdf
Student listens <i>and follows</i> along with objects	Romeo and Juliet fell in love. 	Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing and Presenting. Interdisciplinary Human Development Institute, University of Kentucky. [Online] Available: http://www.ihdi.uky.edu/IEI/
Student listens <i>and follows</i> along with tactile cues	 Romeo and Juliet fell in love.	http://www.tsbvi.edu/Education/vmi/images/love.jpg

The grade-appropriate texts may be adapted by:

- Condensing information
- Shortening the text
- Presenting a synopsis of the text
- Highlighting important information
- Pairing text with pictures, objects, or tactile cues
 - When pairing text with pictures it may be a one-to-one correspondence (one picture for each word) or it may be one picture that summarizes the text
- Translating the text to Braille
- Chunking relevant information
- Creating a story bag that corresponds to the text (using representative objects for main characters/ideas from the text)
- Rewriting using different vocabulary

What do we mean by “writing” for MS Alternate Assessment?

Students who have significant cognitive disabilities may be accessing and responding to information in a different way than typical students. For students taking the alternate assessment, “writing” may be defined as the ordering of information and representing a complete thought. For some students, representing a complete thought is done on a word-by-word basis; for other students, it may be represented more holistically by an object or picture. Students may write by:

- Using stamps
- Using pictures
- Using objects
- Using written words
- Using Braille
- Using tactile cues
- Using a voice output device or other augmentative communication devices (e.g., to complete a cloze sentence, choose main ideas and/or supporting details to write a text)
- Ordering sentences (words, objects, pictures, tactile cues) into an essay
- Completing cloze sentences
- Using a computer with writing software (speech to text, picture writing, etc.)
- Using a pen, pencil, or other writing utensil