

Mississippi
Extended Curriculum Frameworks
High School

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



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Introduction

The Mississippi Extended Curriculum Frameworks (MECF) High School includes curriculum content that students with significant cognitive disabilities at the high school level 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. In this document, we provide: (a) a rationale for alternate assessment content standards; (b) the curriculum frameworks that bring these content standards to life for language arts, mathematics, and science instruction; and (c) some resources to support implementation in classrooms across Mississippi. This revised version of the MECF also includes additional guidance for teachers by including a number of sample “age-appropriate” classroom activities and possible support skills that can be used to plan classroom instruction that stimulates the development and use of the desired academic knowledge and skills.

Revised guidelines and protocols for collecting high quality evidence to support MAAECF ratings are still under development by the state at this time; however, teachers can begin to 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 now (at the beginning of the school year) and to measure progress on the same skills and concepts later in the school year. It is anticipated that rating scales and data collection protocols *could be* revised in the following ways:

- Currently, one rating scale is used in the Mississippi Alternate Assessment of Extended Curriculum Frameworks (MAAECF) to evaluate student performance. It combines accuracy and independence into the same scale. The revised rating scales will likely include two separate rating scales in order to assess accuracy and independence separately on each assessment task. This is an approach currently used by many states’ alternate assessments and has been found to be a much more reliable and valid way to interpret student performance and to measure student progress across the school year. Teachers should begin to document both aspects – accuracy achieved on the task and level of independence in completing the task – when collecting assessment evidence.
- Currently, the same content objectives are being taught and assessed each year within the same grade span and sometimes even across grade spans. Beginning in 2008-2009, teachers will be focusing their instruction and assessment on different content objectives each year, so that exactly the same content is not being taught year after year. In some cases, such as learning safety rules for science investigations or answering comprehension questions in reading, the same content objective might be required; however, other clusters and specific content objectives will likely be different grade to grade. This change will encourage teachers to focus more instructional time on fewer objectives across the school year and to build on learning from the prior year. Differentiation of content across grades for students with significant disabilities can mean changing depth, breadth, or complexity of content as well new content introduced at later grade levels.

- Multiple data collections during the school year will be used to establish a baseline and measure progress on the same content objectives. After a careful review of other states' data collection practices, the state will issue more specific guidelines on the number of data collections required for each content objective within a cluster. It is likely that it will be at least three data collections: one in the fall to establish a baseline for learning, and *at least* one more in the winter and the spring.

Legal and Policy Context for Extended Content Standards and Assessments

Three main federal initiatives have significantly influenced special education practices (McDonnell, McLaughlin, & Morison, 1997): the Individuals with Disabilities Education Act (IDEA) in 1997, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 (ADA). The 1997 IDEA reauthorization mandates that students with disabilities be held to the same educational standards as students without disabilities. These policies converge on two main points: (1) Students with disabilities have the right to a free and appropriate public education, and (2) students with disabilities must be held accountable to the same educational standards as students without disabilities. Educational policies, however, are not often prescriptive as to how students with disabilities are to be provided an education comparable to that of their general education counterparts. Furthermore, since one of the main philosophies of special education is to provide an individualized education program for each student, it is often unclear to what degree students with disabilities should be held to the same educational standards as general education students (McDonnell, et al. 1997).

For the majority of students with disabilities, participation in state and district assessments involves taking existing standardized tests with testing accommodations. A small percentage of students (an estimated 1%), however, have disabilities that make their participation in general state- and district-wide tests impractical—and likely to result in inaccurate measures of their academic achievement. Alternate assessments are intended for use with students who are unable to participate in general state and district assessment systems even with accommodations. As an important element of each state's assessment system, alternate assessments are required to meet the federal regulations outlined in Title I of the Elementary and Secondary Education Act. Title I mandates that “state assessment shall be aligned with the state's challenging content and student performance standards and provide coherent information about student attainment of such standards” (§1111[b][3][B]).

In 2002, the No Child Left Behind Act (NCLB) increased the federal government's emphasis on assessment and accountability systems to include requirements for annual statewide assessments of all students in Grades 3-8 and high school in reading/language arts, mathematics, and (by 2007) science. In addition, NCLB requires a disaggregated annual reporting of students' performance to insure that all groups (including students with disabilities) are making adequate progress toward the goal of having all students declared "proficient" on statewide assessments within the next 12 years. Recent interpretations of NCLB requirements by the United States Department of Education (USDOE, 2003) also allow that up to 1% of students in states and school districts may be counted as "proficient" toward federal accountability goals through participation in statewide alternate assessment.

The development and implementation of standards-based alternate assessments represents a promising strategy for increasing the inclusion and achievement of students with significant disabilities; however, it is not without challenges. The first critical challenge facing the state of Mississippi in once again redesigning its alternate assessment system was to ensure that the academic content to be included as language arts, mathematics, and science content was indeed academic and aligned to Mississippi's grade-level content standards. Academic content has been underrepresented in past instruction and research with students with significant cognitive disabilities; therefore extended curriculum frameworks in these curricular areas needed close analysis and revision. According to the National Alternate Assessment Center/NAAC, "to be inclusive of students with the most significant disabilities, states sometimes target Foundational Skills for assessment. These skills are commonly embedded in academic instruction and *are important and appropriate* to capture early academic achievement; but these skills are *not* aligned to academic content, because they are outside the general education construct (NAAC, 2007). Only a small portion of the overall extended curriculum frameworks should include foundational skills. Using the NAAC definition, Foundational Skills are skills that are *the assumed competence at all grade levels* specific to an academic context, such as orienting a book or turning a page as precursors to learning to read; or learning to follow a direction as a precursor to conducting a science investigation.

Defining What Content Alternate Assessments Should Measure

IDEA 1997 clearly states that students with disabilities should have access to the general education curriculum and academic standards. Moreover, this legislation requires that all students have opportunities and instruction allowing them to make progress in acquiring and mastering the skills and concepts included in state and district academic standards. This emphasis on attaining academic achievement represents a change from the previous focus on curriculum and inclusion practices traditionally provided to many students with significant disabilities. Although the law still maintains the right of each student with disabilities to an individually referenced curriculum, outcomes linked to the general education program have become the optimal target. It is no longer enough for students with disabilities to be present in a general education classroom. Students with significant disabilities also must have instruction, modifications, and accommodations that promote their progress toward the educational expectations of the larger student population.

A related concern has been the focus of each state’s alternate assessment processes and protocols. Specifically, test developers and policymakers must establish that assessments for students who are unable to take the general assessment: use age-appropriate contexts (e.g., modified grade-level texts or materials), provide flexibility when applying accommodations or modifications so that students with a range of disabilities can demonstrate what they have learned, and should be accessible to students who have not yet fully developed symbolic communication. If alternate assessments are intended to be part of a larger accountability system and to measure progress towards the same educational expectations as desired of the larger student population, then a state’s general education academic standards should form the foundation for the alternate assessment. This is the case in Mississippi.

Planning Instruction Using the Extended Content Standards

As previously stated, this document provides the curriculum frameworks that bring the prioritized grade-level content standards to life for language arts, mathematics, and science instruction; suggested resources to support implementation in classrooms; and additional guidance for teachers by including a number of sample “age-appropriate” classroom activities and possible support skills that can be used to plan instruction that stimulates the development and use of the desired academic knowledge and skills. 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. 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 (page 7), Mathematics (pages 16-17), and science (page 23). It is expected that teachers will include several objectives from each cluster when planning instruction and provide opportunities for students to use skills they are working on in one content area to other content areas and other learning goals. For example, students working on data collection and measurement in mathematics will benefit from applying those skills to science inquiry tasks. Students developing their reading comprehension skills and breadth of vocabulary can apply that learning to mathematics, science, and other everyday learning tasks.

LANGUAGE ARTS EXTENDED CURRICULUM FRAMEWORKS

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	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
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)	Student reads math, science, or social studies vocabulary words from a flashcard. Student matches pictures to words. Student plays “Scavenger Hunt” for words during the reading of a text. Student plays bingo with LAL content words.	Communication system One-to-one correspondence
	R1C.b	Student completes simple analogies.	Student completes synonym-antonym analogies using pictures/words/objects Student completes object-function analogies (e.g., car: drive) Student completes degree analogies (e.g., large: humongous)	Vocabulary development
	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).	Student matches cards with affixes and base words to pictures of the word Student highlights affix and uses a word bank to choose the meaning of the new word	Sight word recognition Identify and understand emotions
	R1C.d	Student interprets and organizes words having shades of meaning.	Student uses tiles with words of similar shades of meaning and places them on “ladder steps” to show changing meaning (e.g., cool-cold-freezing; talk-shout-scream).	Making choices
	R1C.e	Student reads and understands grade-appropriate content vocabulary.	Student matches words within informational text to picture/object/meaning. Student completes cloze sentences with content vocabulary. Student labels scientific, math, or social studies models with appropriate terms. Student completes sentences using content vocabulary (objects, pictures, words, etc.). Student uses augmentative communication device to give the correct vocabulary word when the teacher presents an example or definition of the word	

MAAECF ELA – High School

Reading Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
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	Student uses maps to track Western Expansion in the US as he/she reads Student answers questions about an organism based on text and magnified photos of the organism Student uses charts and text to answer comprehension questions	Communication system/device Visual discrimination
	R2A.b	Student recognizes signal words/phrases for order (e.g., first, next, last, later) and sequences major events or steps in a process	Student places an “X” on signal words and phrases for time order in text. Student uses a stamp or pictures to create a timeline of key events Student organizes pictures, words or objects into a story map Using sentence strips, student will put the major events or steps in a process in order	Sight word recognition Making choices Tracking
	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)	Student places an “X” on words and phrases in descriptive texts that create the description, such as adjectives, sensory words, examples Student matches cause with effect from a text Student paraphrases the description in a text Student highlights parts of the text that are comparing in yellow and parts that are contrasting in pink Student uses Venn diagram to list compare-contrast information Student places ideas under major headings from a text	Fine motor skills Tracing Matching Understanding emotions
	R2A.d	Student makes inferences from text based on pictures and symbols	Students will answer questions that are not directly stated in the text (“She bought a lottery ticket. After the lottery she bought a new car, house and boat. What happened?”) Student chooses the most likely missing piece of information from a given text by answering yes/no questions	Identifying personal information

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
	R2A.e	Student identifies literary and informational text genres and some features of each (e.g., poetry, play, news article)	Student lists the characteristics of different types of genre (tall tales, plays, poetry, fiction, non-fiction) Student identifies or matches characteristics of two different genres (e.g., tall tales exaggerate and are fictional even if about a real person or event; biographies include facts about real people)	
Cluster 2B Reading Comprehension				
	R2B.a	Students reads to compare two people or to compare a location/place at different times in history	Student will complete a graphic organizer comparing the first president and the current president After reading a historical text, student will use eye gaze to answer questions about the setting then and now (e.g., the Mississippi river 200 years ago and now)	Communication system
	R2B.b	Student identifies simple stylistic devices (e.g., alliteration, assonance, onomatopoeia, rhyme, rhythm, repetition) in poetry or song lyrics.	Student claps in rhythm with poetry or song lyrics to determine the type of rhyme (e.g. iambic pentameter) Student labels lines of poetry to determine the rhyme scheme (ABA, ABBA, etc.) Student identifies the sound present in an alliteration or assonance phrase	Vocabulary development Letter recognition Sound/symbol correlation
	R2B.c	Student uses literary text to identify character traits and character motivation.	Using adjectives (pictures, words, tactile cues, etc), the student will match character traits to events in the story (e.g., Billy gave money to the man. Billy is ___ (kind ☺, sad ☹, angry :0)) Given an event from the story, student will choose which character traits are present Student will choose which motivation the character had during an event	Identify sight words Identifying personal information Activating a switch
	R2B.d	Student compares characters, plots, or setting between two literary texts.	Student uses graphic organizer and choices (pictures/objects/words/tactile cues) to compare setting between two texts Student lists character traits of two different characters and circles the ones they have in common	Answering yes/no questions Motor skills Making choices Shopping

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support <u>skills</u> to integrate with academic instruction
	R2B.e	Student identifies main idea, topic sentence, and supporting details.	Given a set of sentences (using pictures, objects, or word), student will sort them by main idea, topic sentence and supporting details Student completes an outline template including main idea, topic sentence, and supporting details	
	R2B.f	Student identifies and uses figurative language (e.g., metaphor, simile, hyperbole, personifications, oxymoron, imagery).	Student will answer yes/no questions to identify types of figurative language Student will choose the appropriate metaphor to describe an event or object Student will complete sentences to create hyperbole (e.g., It took me (#) (days/weeks/months) to finish my homework) Student will activate a switch to indicate he/she has heard a simile in the description of the setting Student uses computer to highlight/point to hyperbole in text Student plays Jeopardy game with figurative language Student uses objects in the classroom to demonstrate personification (i.e. the pencil sharpener ate my pencil)	
	R2B.g	Student uses graphic organizer to link text information to a personal experience.	Student uses a thinking map Student uses a T-chart to match events in a text to events in personal experience Student uses a Venn Diagram to compare and contrast character traits to personal traits	
	R2B.h	Student distinguishes between fact and opinion using a variety of media sources.	Student attends to television commercial and answers question about whether the statements are fact or opinion Student touches facts in a print advertisement for CD. Student listens to a radio ad and repeats an opinion from it	
	R2B.i	Student summarizes an informational text using key ideas and supporting details.	Student chooses the objects that best represent the text Student writes a summary by completing sentence starters Student writes a summary by answering questions	

MAAECF ELA – High School

Writing Strand

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
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.	Student arranges sentence strips into a friendly letter Student writes a letter to a pen pal Student writes a thank you note to relative.	Job applications Communication system
	W3A.b	Student develops a business letter that incorporates a clear and focused idea.	Student arranges objects (representing parts of a business letter) Student uses picture symbols to create a business letter Student writes a cover letter for a job or internship	Identify personal information
	W3A.c	Student identifies a topic of interest and gathers information about it using a variety of resources.	Student uses the Internet to answer questions on a favorite topic. Student uses non-fiction books to answer questions on a favorite topic Student interviews an expert to answer questions on a given topic Student participates in group brainstorming session to identify topics of interest (what you like and why) Student uses non-fiction texts, hobby catalogs and magazines to create a collage on a new hobby	Turn taking Social interactions Motor skills
	W3A.d	Student organizes information by topic sentence and supporting details to create a summary, outline, or report.	Given sentences/phrases out of order, student will order them for coherence. Student completes an outline template with topic sentence and supporting details Use picture symbols/pictures to create simple and compound sentences about a topic Student chooses the objects that best represent the text Student writes a summary by completing sentence starters Student writes a summary by answering questions	Computer programs Organizing information
	W3A.e	Student creates a basic resume.	Student uses picture symbols, objects, or stamps to create a basic resume Student uses computer template to type a resume	

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
	W3A.f	Student presents information on a researched topic through Power Point, report, essay, poster, or oral presentation.	Student uses drag and drop computer device to create a Power Point on a research topic Student writes a research paper by completing cloze sentences using objects, pictures or words Student answers yes/no questions to choose the appropriate sentences for a research paper Student uses a template to write an oral presentation on a topic	
	W3A.g	Student conducts a short interview to obtain information on a topic of interest and summarizes information gathered.	Student uses VOD to ask interview questions and a recorder to record the answers. Teacher then provides student with ideas from the answers and student uses VOD to answer yes/no questions about which ideas are the most important Student takes notes on an interview by placing sticky notes that have respondent's answers on them after questions asked. Student summarizes information from the interview by highlighting the main idea of each question. Student then arranges sentence strips with main ideas written on them to create a summary	
3. Express, communicate, evaluate, or exchange ideas effectively (continued)	Cluster 3B Audience and Purpose			
	W3B.a	Student changes formal to informal language or informal to formal language.	Student will change contractions (informal) into the complete phrases (formal) Student will exchange a slang word with a more appropriate vocabulary word from a word bank	Assistive technology Communication systems Motor skills Social interactions Turn taking Identifying personal information Matching Computer/stamper Use organizing strategies
	W3B.b	Student uses written communication to inform.	Student writes a report on science or social studies research Student completes a science lab report Student listens to classroom and school announcements over the PA system to write newsletters to family Student makes classroom informational board to inform the class of week's happenings	

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support <u>skills</u> to integrate with academic instruction
	W3B.c	Student uses written communication to entertain.	Student writes a scary story Student writes a funny story by completing sentence stems Student writes a poem by answer personal information questions (i.e., what is your favorite meal? What kind of sounds do you like to hear?) and completing a stem using those answers (I am from... pork ribs and mashed potatoes.)	
	W3B.d	Student uses written communication to persuade.	Student participates in a debate on a controversial topic Student chooses a position statement from a choice of three already written and then organizes supporting statements that go with that position (e.g., we should wear school uniforms) Student makes an ad (art/slogan) to persuade people (decals, bumper stickers, story boards, posters)	
	W3B.e	Student classifies writing based on its purpose (i.e., informative, entertainment, persuasive, narrative).	Using a graphic organizer, student will match a picture of a text read to a picture representing purpose Student will use a stamp to indicate the purpose of a text	
	W3B.f	Student identifies bias in different media.	Student will read letters to the editor and identify the author's argument Student will read ads and determine what they are trying to sell and the type of propaganda they are using to sell it (band wagon—everyone is doing it; shock and fear—take this medicine or you may get very sick, etc.) Student will listen to political speeches and identify main Party ideas (Democrats—help people by helping others; Republicans—help people by helping businesses)	
3. Express, communicate, evaluate, or exchange ideas effectively. (continued)	Cluster 3C Revising and Using Tools			
	W3C.a	Student edits work to improve subject-verb agreement.	Student edits work by choosing the sentence strip with the correct subject verb agreement Student highlights any verbs that are in a different tense in a text (e.g., Romeo and Juliette <u>fell</u> in love. Their parents <u>did not want/do not want</u> them to be together. They <u>have a plan/had a plan</u> to be together. The plan <u>works/did not work.</u>)	Completing an interest survey for job placement Communication system
	W3C.b	Student revises work for clarity, coherence, tone and transitions.	Student listens as someone reads the text and raises hand or hits a switch when a sentence or phrase is unclear/doesn't make sense.	Activating a switch Using a computer

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support <u>skills</u> to integrate with academic instruction
	W3C.c	Student uses a computer or other electronic media to gather information about a topic.	Student completes a web quest Student looks up information on a planet on NASA's website Student researches possible careers using the Internet	

MECF ELA Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support <u>skills</u> to integrate with academic instruction
4. Apply Standard English to Communicate.	Cluster 4A Writing Mechanics			
	4A.a	Student sorts sentences as simple, compound or complex sentences.	Student will sort sentence strips with simple, compound or complex sentences Student lists common key words for identifying compound and complex sentences (and vs. in, on, above, etc)	Sight word recognition
	4A.b	Student recognizes nouns, verbs, and adjectives.	Student touches or looks at objects representing nouns, verbs and adjectives Student circles nouns, puts a square around verbs and underline adjectives	Positional words Letter recognition
	4A.c	Student matches adjectives with nouns and adverbs with verbs when composing sentences or phrases.	Student will match an adjective to the noun it describes. Student will match an adverb to the verb it describes (using objects, pictures, or text).	
	4A.d	Student uses adjectives and adverbs correctly in a variety of sentences.	Student writes or revises sentences using adjectives and adverbs. Student chooses adjective or adverb to complete a phrase.	
	4A.e	Student matches capital letters correctly.	Given two flashcards with regions on them—one capital and one lower case, student will identify the one with the capital letter.	
	4A.f	Student understands and uses contractions.	Student writes a journal entry with contractions Student completes a sentence by filling in the proper contraction (using a word bank, picture symbol, etc.)	
	4A.g	Student correctly uses commas, semi colons, or colons.	Student places commas into a list of things, a date, or number more than 999. Student uses colons correctly when writing a business memo (to:, from:, date:, dear:) Student places semi colons (complex sentences) and commas in the correct places on a sentence strip	
	4A.h	Student creates simple, compound, and complex sentences.	Student writes a personal essay using objects to make a simple and compound sentence Student combines two sentences (using pictures, words, objects) using the word “and” to make a compound sentence Student order picture symbols to make a simple sentence Student adds a prepositional phrase to a sentence to make a complex sentence (e.g., The school dance was fun ...choose from “for the first hour,” “yesterday”, or “and very loud”)	

MATHEMATICS

EXTENDED CURRICULUM FRAMEWORKS

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 5 A. Collecting and Reporting Data

Cluster 5 B. Probability

MAAECF Mathematics – High School

Numbers and Operations Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
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.	Students will understand $3 + 2 = 2 + 3$ Student will change grouping when adding (ex: $[1+2] + 3 = 1 + [2+3]$).	Identify numbers Write numbers
	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	Given the mnemonic for order of operations (p(), e ⁿ , md x÷, as + -), the student will complete the problem by identifying and simplifying one-step at a time before moving on to the next step.	Follow directions (to follow a formula) Use a calculator
	MN1B.c	Student adds whole number matrices.	Given matrices with the corresponding numbers to be added together color coded, the student will add the color coded numbers together to evidence addition of whole number matrices (e.g., $\begin{bmatrix} 2 & 3 \\ 5 & 1 \end{bmatrix} + \begin{bmatrix} 0 & 1 \\ 2 & 6 \end{bmatrix} = \begin{bmatrix} 2 & 4 \\ 7 & 7 \end{bmatrix}$)	
	Cluster 1C. Fractions, Decimals, and Percentages			
	MN1C.a	Student computes total cost, including the tip and/or sales tax on a given item.	Given word problems, student will determine total cost an item (e.g., A shirt costs \$20.00. Find the final price if sales tax is 7%). Choose items to order from a menu, total the cost, and determine tip and tax. Make a shopping list, estimate costs of each item, total cost, and add tax.	Use a calculator Match numbers Real-world contexts
	MN1C.b	Student identifies the components of a specified formula (e.g., interest formula: principle, rate, time)	Given the formula $I = prt$ (I-interest, p-principle, r-rate, t-time) and a word problem, highlight the principle, rate, and time in the word problem and insert in the formula to solve the problem.	

MAAECF Mathematics – High School

Algebra Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction																
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.	Given a situation with 2 variables and partially completed chart, the student will extend the pattern (e.g., You want to buy a pair of jeans that cost \$40.00. If you make \$5.00 an hour, how long must you work to earn enough money for the jeans) The pattern is  \$ <table border="1" data-bbox="1157 625 1478 954"> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>5</td></tr> <tr><td>2</td><td>10</td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table> The pattern is < +5	0	0	1	5	2	10	3		4								Skip counting Basic addition Pattern recognition More/Less
	0	0																		
	1	5																		
	2	10																		
	3																			
	4																			
MA2A.b	Student matches a generalized rule or description to numerical and geometric patterns.	Given a rule (e.g., add one ● shape; double the number), student chooses the correct pattern	Skip counting Pattern recognition																	
Cluster 2 B. Functions and Relationships																				
MA2B.a	Student locates points on maps and grids.	Student locates points in all 4 quadrants of a coordinate grid by naming the ordered pairs.	Identify numbers																	
MA2B.b	Student identifies where a line crosses the x axis (x-intercept) and the y axis (y-intercept) given the graph	Student points to the location where the line crosses the x and Y axis Student draws a point on the line where it crosses the x and y axis Student writes the ordered pair for the x-intercept and y-intercept [e.g. (0, 3), (4, 0)]	Counting Follow directions																	
MA2B.c	Student identifies parallel and intersecting lines by comparing	Given two linear equations ($y=2x+3$ and $y=2x+7$; $y=1/2 x+2$ and $y=3x+2$), student will determine if	Increase content																	

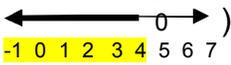
MAAECF Mathematics – High School

Algebra Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
		slopes of equations already in slope intercept form ($y=mx+b$, m represents slope).	the lines are parallel or intersecting based on whether the slope is the same (parallel) or different (intersecting).	vocabulary
	MA2B.d	Given a simple linear equation and a completed t-chart, student graphs the results.	Student creates ordered pairs from the t-chart and graphs the points on a coordinate grid	Use mode of communication
Cluster 2C. Algebraic Procedures				
	MA2C.a	Student simplifies an algebraic expression, including like terms (e.g., $2x + x + 3$ $3x + 3$)	Student will use manipulatives or drawn models to combine like terms (e.g., xx x $///$ $//$ $2x + x + 3 + 2$ xxx $////$ $3x + 5$)	Matching Counting
	MA2C.b	Student evaluates simple algebraic expressions using whole number values (e.g., $2x + 3$, when $x = 5$ $2(5) + 3$ $10 + 3$ 13)	Given a worksheet, student will evaluate the given algebraic expressions when given the value of X. Using an adapted computer program, student will press the correct number on the keyboard representing the given value of x, which will be inserted into the algebraic expression and then the student will hit enter to simplify the expression.	Follow directions Use of switch
	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.	Using an adapted computer program, student will press a number on the keyboard representing the value of x, which will be inserted into the algebraic expression and then the student will hit equals to solve the expression.	

MAAECF Mathematics – High School

Measurement Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
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.	Student graphs an inequality on a number line (e.g., $x < 5$ ) and uses the language “x is less than 5” Student selects between two graphs – one showing shading for inequality of “more” and one showing inequality of “less” when asked which shows “x is less than 5”	More/Less Increase content vocabulary Use mode of communication
	MM4B.b	Student recognizes or identifies the circumference, diameter, and radius of a circle.	Given a circle with the diameter, radius and circumference included, student will label the parts of a circle. Student will answer yes-no or point to the parts of a circle when named.	Basic counting Use a calculator
	MM4B.c	Student computes perimeter and area of polygons and circles using a formula or rule.	Given the formula, student will use a calculator to compute the perimeter of polygons. Given polygons drawn on graph paper, student will count the units to determine the perimeter of the given shapes.	
	MM4B.d	Student computes surface area of 3-D figures		
	MM4B.e	Student determines volume of a rectangular prism.	Student will fill a rectangular prism with water, rice, sand, etc. then measure the amount needed to determine volume of the rectangular prism. Given the formula, student will use a calculator to determine volume of a rectangular prism.	

MAAECF Mathematics – Grades High School

Data Analysis and Probability Strand

MECF Mathematics Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
5. Collect and report data. Read and understand basic charts, graphs, and tables.	Cluster 5 A. Collecting and Reporting Data			
	MD5A.a	Student interprets a scatter plot in relations to the correlation shown.	Student will tell whether the data graphed in a scatter plot appears to have a positive, negative, or no correlation. http://www.purplemath.com/modules/scattreg2.htm	Number recognition Basic counting
	MD5A.b	Student creates a scatter plot graph from given data	Given sets of data in the form of ordered pairs, student inputs the information in a spreadsheet and converts the information to a scatter plot. Given a set of data, student plots the points in the coordinate grid.	More/less
	Cluster 5B. Probability			
	MD5B.a	Student uses basic probability concepts to make predictions about an event.	Student estimates which outcome is more likely on a spinner. Given a bag with 3 yellow blocks and 10 blue blocks inside, student predicts which color is more likely to be selected.	Fine motor manipulation Use of communication
	MD5B.b	Student explains terms <i>always</i> , <i>sometimes</i> , and <i>never</i> as it relates to a probability event.	Given different scenarios of events, student will describe the likelihood of the event occurring using the terms always, sometimes, never.	
	MD5B.c	Student conducts an investigation of probability and records the results.	Student conducts an investigation of probability of rolling doubles when given two dice and records the results in a table or graph	

SCIENCE

EXTENDED CURRICULUM FRAMEWORKS

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	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
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	Student gestures (yes/no) when asked or shown, “is this a safe way to work with materials?” Student selects pictures that show safe or not safe practices Student demonstrates appropriate safety practices.	Embed mode of communication Following directions Apply rules
	SI1A.b	Student demonstrates proper use and care of equipment in the laboratory and classrooms (e.g., microscope, balance scale, beaker)	Teacher observation or video documents student demonstrating proper use and care of equipment. Teacher demonstrates proper and improper use and student uses communication device to identify correct uses.	Motor skills Reach, grasp, and release Cross midline
	SI1A.c	Student conducts a simple experiment to address a question or problem.	Labeled photo series of student following simple steps to measure, record, test objects, etc. Demonstrate a simple science experiment and ask him/her to repeat procedures	Basic counting Using organizing strategies
	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)	Labeled photo series of student following simple steps to measure, record, test objects, etc. Demonstrate a simple science experiment student repeats procedures Student creates or orders a comic strip to show the sequence of steps in an experiment.	Tolerate touching different textures Work with others

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
1. Use tools and instruments to plan, conduct, and evaluate simple science experiments. (continued)	Cluster 1B. Interprets Data			
	SI1B.a	Student uses observations and prior experiences to make predictions or state an hypothesis	Student selects picture of expected outcome after exploration with materials Student draws picture of predicted outcome. Student completes “if ___ then ___ “ or “what would happen if” statements.	Sorting/classifying Work with others
	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).	Student uses Boardmaker pictures with appropriate terms to organize results Student labels a drawing or diagram, or organizes data in a T-chart so it can be graphed). Students uses communication devise to indicate where to place recorded data (e.g., under which heading in T-chart; where in Venn diagram).	Visual discrimination Using organizing strategies
	Cluster 1C. Communicates Findings			
	SI1C.a	Student communicates the results of an investigation using appropriate science vocabulary.	Student uses a switch to answer yes/no or true/false to statements provided Student uses graphic organizer and objects or pictures to show results Using “Boardmaker,” create pictures to Velcro to a felt board. Use word bank, cloze, or template to fill in results.	Embed mode of communication Increase content vocabulary
	SI1C.b	Student develops a graph, chart, or other visual representation to communicate the results of a science investigation.	Student creates a bar or line graph based on data collected Student uses stamp to mark table with tally. Students uses communication devise to indicate where to place recorded data (e.g., under which heading in T-chart; where in Venn diagram).	

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
	SI1C.c	Student uses results of an experiment to draw conclusions that prove or disprove a prediction/hypothesis.	Student uses a switch to answer yes/no or true/false to statements comparing prediction/hypothesis to actual results Student compares prediction/hypothesis to results Student summarizes why prediction was/was not correct, using data	

MAAECF Science – High School

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible support skills to integrate with academic instruction
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.	Student uses library, Internet resources, or observation to locate examples to make PowerPoint (e.g., show differences in feathers or wings of land and water birds). Student uses graphic organizer to compare-contrast water and land animals.	Embed mode of communication Following directions Motor skills
	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)	Student uses a switch or touch to answer yes/no or true/false to statements provided. Student completes cloze statement. Student completes table with characteristics of each vertebrate using objects, pictures, or words (e.g., bird/fish/mammal/ reptile /amphibian) and tells/points or vocalizes why each example belongs there (e.g., snake is reptile because [a.] it lays soft-shelled eggs; [b.] and is cold blooded)	Reach, grasp, and release Cross midline Basic counting Sorting/classifying
	SL4A.c	Student explains why plants belong to different	Student uses a switch or points to answer yes/no or true/false to statements provided.	Visual

MAAECF Science – High School

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
		classification groups or subgroups using similarities and differences (e.g., seed/seedless; vascular/nonvascular; gymnosperm/angiosperm)	Student completes cloze statement. Student completes table with characteristics and tells why each plants example belongs there.	discrimination Tolerate touching different textures
	SL4A.d	Students compares adaptations (e.g., how seeds travel; storing water; root types) of plants in land-base and water-based ecosystems	Student uses library, Internet resources, or observation to locate examples to make PowerPoint (e.g., show differences in seeds that allow them to float in water, move in the air, cling to fur, etc.). Student pulls up plants from outside to show and label differences between tap roots (long, thick, go deep, few root hairs) and fibrous roots (thin, many small roots and root hairs, do not go deep). Student collects and sorts seeds using words from word bank.	
	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).	Student uses a simple completed diagram to explain parts of photosynthesis: sunlight comes into leaf, water and carbon dioxide/air combine with sun's energy to make food (sugar) + oxygen. Student arranges pictures in correct order.	
	SL4A.f	Students describe how organisms release energy from food (raw materials are food and oxygen; products released are carbon dioxide and water)	Student uses pictures or objects to complete a table showing specific organisms and how they meet needs for food, shelter, air, and water, including self. Teacher models process and student is video taped repeating (eat food, use energy from food to exercise, breathe air and release CO ₂ , sweat to release water and cool body)	

MAAECF Science – High School

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
4. Identify and describe animals and plants and their environments. (continued)	4C. Interdependence and Interactions			
	SL4C.a	Student uses a food chain or food web to explain the flow of energy.	Student uses a switch to answer yes/no or true/false to statements provided Student touches model/diagram to show energy flow and matches specific points with prepared statements. Student uses pictures or objects to sequence energy flow.	Embed mode of communication Following directions Motor skills
	SL4C.b	Students use a food web or food chain to describe relationships different aquatic and land-based ecosystems (consumer/producer/ decomposer; predator/prey)	Place labels from word bank or pictures in food web diagram to show relationships (e.g., predators and prey; consumer-bird/producer-plants/ decomposer-worm) Match terms (consumer/producer/ decomposer; predator/prey) with pictures	
	SL4C.c	Student uses a teacher demonstration, model, or diagram to create a diagram showing the carbon-oxygen cycle in an ecosystem	Student duplicates diagram. Student orders prepared pictures and statements to show 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.”	Student uses a switch to answer yes/no or true/false to statements provided about the cell (e.g., cells make up all parts of our body – blood, skin, bones, etc.; cells take food and oxygen to all parts of our body, etc.)	Embed mode of communication Increase content vocabulary
	SL5A.b	Student identifies parts of animal and plant cells.	Given a model of cell with parts, student places object on correct part when named.	Motor skills
	SL5A.c	Student compares parts of animal and plant cells and explain differences and similarities	Given models of parts of plant and animal cells, student indicates which parts are in both (e.g., nucleus) and which are only in one cell (e.g., plant cells have walls and animals do not)	Work with others
SL5A.d	Students use tools (e.g., microscope, viewer) or	Student uses objects (e.g., Cheerios) to make and label unicellular and multi-cellular	Visual discrimination	

MAAECF Science – High School

Life Science Strand

MECF Science Competencies	Rating scale item #	MECF Objectives/Rating Scale Items	Possible classroom learning activities/resources	Possible <u>support skills</u> to integrate with academic instruction
		visuals to examine and identify unicellular and multi-cellular organisms.	organisms. Student uses objects (e.g., Cheerios) to create series of diagrams showing how cells increase (multiply) to become tissue and then organ.	
5. Identify and describe structures of living systems and their functions. (continued)	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)	Student matches likely offspring of organisms (plants, animals, and humans) with parents. Student uses communication device to select visuals of traits from parents that have been passed on to offspring. Student interviews peers about a trait they have in common with parent(s) (skin color, eye color, etc.) and makes a bar graph to show results.	Embed mode of communication Increase content vocabulary Motor skills
	SL5B.b	Student distinguishes between traits passed on from parents and behaviors that are learned.	Student sorts statements/picture symbols into two groups: inherited traits and learned behaviors	Make choices
	SL5B.c	Use models (e.g., punnet square) to predict possible offspring traits given the genetic makeup of parents.	Student completes punnet square to show probable offspring traits for different combinations (e.g., hair color, eye color)	

References

- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 *et seq.*, as amended by the Individuals with Disabilities Education Act Amendments of 1997, Pub. L. No. 105-17, 111 Stat. 37 (1997).
- Flowers, C., Browder, D., Wakeman, S., & Karvonen, M. (2007). "Links for Academic Learning: The Conceptual Framework." National Alternate Assessment Center (NAAC) and the University of North Carolina at Charlotte.
- 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.
- No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat. 1425 (2002).
- 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/ATAadaptBks.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		http://www.ric.edu/sherlockcenter/dsi/romeo.pdf
Student listens <i>and follows</i> along with objects	<p>Romeo and Juliet fell in love.</p> 	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	 <p>Romeo and Juliet fell in love.</p>	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