WAYNE RESA
Leading... Learning for All

Examples of Curriculum-Based Measurement Probes

Field Guide to RtI Prepared by
Wayne County RtI/LD Committee
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Using Michigan Content Expectations as Universal Learning Targets

RtI requires universal screening of the curriculum content. The term "universal" means every student. A universal screening target represents the learning the students are expected to accomplish by the completion of the grade level. Typically, the universal screenings are taken at the beginning, middle, and end of the school year to mark student progress and identify students who are not keeping pace with the learning targets for the grade.

Our Wayne County schools align curricula to the Michigan Curriculum Framework. For grades K – 8, the Grade Level Content Expectations (GLCE) defines the learning to be accomplished at each grade. The High School Course Expectations (HSCE) defines learning expectations for grades 9 through 12. Learning targets for students in preschool are typically defined by developmental markers of pre-reading and pre-math skills. The alignment of assessment to curriculum and instruction is fundamental to a quality school system. The GLCEs and HSCEs are the year-end targets for all learners. Implicit to the concept of RtI is the notion that districts will articulate the scope and sequence of curricula and conduct screenings three times a year to measure student progress toward the accomplishment of grade level expectations.

Student learning is monitored with measures that mark student progress toward year-end learning targets. When schools use norm-referenced tests to measure annual growth, the construct of learning is defined by the test manufacturer. Standardized, research-based curriculum measurement probes are intended to serve as global indicators of achievement. When schools use curriculum measures, the construct of learning is defined by the alignment of the classroom instruction to grade level content.

Examples of Research-Based Probes in Eight Achievement Areas

The IDEA 2004 identifies 8 achievement areas:

(i) **Oral expression**

(ii) **Listening comprehension**

(iii) **Written expression**

(iv) **Basic reading skill**

(v) **Reading fluency skills**

(vi) **Reading comprehension**

(vii) **Mathematics calculation**

(viii) **Mathematics problem solving**

What follows are examples of curriculum based measurement procedures within the eight achievement areas. Curriculum-based measures are intended to be repeated throughout the school year to screen progress. They are general measures of achievement. Examples of how the CBM measures may align to the GLCEs are included.

When schools use curriculum measures [to assess growth], the construct of learning is defined by the alignment of the classroom instruction to grade level content.

Oral Expression

Oral Language development is the foundation to literacy development. Oral expression skills are regarded as skills to be taught in the classroom.

Oral language skills are acquired over time and through a variety of venues. Students learn through explicit instruction to speak confidently and coherently in a variety of social and academic situations. They acquire skills that will enable them to make relevant contributions to class discussions, express feelings and opinions effectively, and demonstrate knowledge through formal presentations. With continual practice, gestures, facial expressions, colorful language and humor are skillfully incorporated by the student. The Speaking Grade Level Content Expectations are tied closely to the Grade Level Content Reading and Writing Expectations so that teacher can creatively design and integrate curriculum.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 19

The Speaking GLCEs identify universal targets in the areas of speaking convention and speaking discourse.

Example: Oral Expression Universal Annual Target by Grade Level

S.CN.01.02 Explore and use language to communicate with a variety of audiences and for different purposes including making requests, solving problems, looking for solutions, constructing relationships, and expressing courtesies.

Kindergarten	S.CN.00.01 Explore and use language to communicate with a variety of audiences and for different purposes including problem-solving, explaining, looking for solutions, constructing relationships, and expressing courtesies.
Grade 1	S.CN.01.02 Explore and use language to communicate with a variety of audiences and for different purposes including making requests, solving problems, looking for solutions, constructing relationships, and expressing courtesies (PC .06)
Grade 2	S.CN.02.02 Explore and use language to communicate effectively with a variety of audiences and for different purposes including questions and answers discussions, and social interactions. (PC.04)
Grade 3	S.CN.03.02 Adjust their use of language to communicate effectively with a variety of audiences and for different purposes including gathering information, making requests, discussing, classroom presentations, and playground interactions.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 19

Sample Oral Language Curriculum-Based Measurement Item

The Michigan Literacy Progress Profile (MLPP) includes standardized procedures and prompts for the measurement of Oral Language. Child responses are scored with a rubric. It is recommended practice to administer the prompts repeatedly during instruction and to chart student progress. Excerpts from the MLPP (http://www.mlpp-msl.net/assessments/default.html) that describe the MLPP Oral Language rationale, construct, procedure for administration, recommended progress monitoring, and scoring follow:

Rationale

The development of literacy begins through the use of spoken language. Oral language provides a means to observe children as they learn to construct conceptual meanings though words. Children who are developing language appropriately will demonstrate an increasingly complex use of words in explanations. Comprehension as shown though the production of structural relationships of words in spoken language will provide indicators of the child's knowledge about meaning and communicating. Given the close relationship between reading and language, we could expect that children with well-developed oral language skills and appropriate instruction will move into printed text easily.

While oral language has many functions, most of which occur in a social context, the purpose of these assessments are limited in scope. This oral language assessment relates to children's ability to effectively use semantic (meaning) and syntactic (function and grammar) cueing systems while communicating to support the learning of reading and writing skills.

In order to establish instructional priorities for each child in the emergence of literacy development the Oral Language assessment is used. These tools help teachers understand what individual children know specifically about speaking and listening to construct and communicate ideas.

Definition

Oracy is fluency in speaking and listening. In this document, we use the term Oral Language which includes the expressive (speaking) and receptive (listening) aspects of language.

The chart on the following page provides an overview of Oral Language assessment in the MLPP. Each tool is identified, along with the purpose for the assessment, and the appropriate grade level for use of the assessment. This chart is meant as a guide for teacher's choice of assessment tools. The selection of the appropriate assessment is best determined through the teacher's on-going observation of students within the classroom environment.

Sample Oral Language Curriculum-Based Measurement Item—continued

ASSESSMENT OPTIONS AT SECOND GRADE		
Tools	**What Is Assessed**	**Appropriate Use**
Oral Language Sample Free Recall or Picture Prompt	Ability to demonstrate syntax and complexity of sentences, vocabulary, identification and elaboration of ideas.	Preschool—Grade 1
Oral Language Rubric	Ability to use expressive language which communicates ideas, organization and structure, vocabulary, style and voice, conventions, and non-verbal communication elements in ways that connect to knowledge about text usage in reading and writing	Grades 1-3

Assessment Guidelines for Expressive Language (Speaking) First — Third Grade

PROCEDURE

1. During the normal classroom routing, observe individual children using expressive language (speaking) in both large groups and small groups.
2. Identify four or five students to observe closely for a period of time using the Expressive Language Rubric. Continue until you have assessed each child in your classroom.
3. After completing the information at the top of the rubric:
   - record the individual focus child's name,
   - record the names of group participants,
   - describe the context of the observation (i.e. small group of discussion of informational text or compare/contrast of two versions of a fairy tale, large group science reports), and
   - record on the rubric the qualities the student demonstrates in the oral interaction.
4. Utilize the expressive language rubric throughout the year in a variety of contexts and with several groupings of students.
5. Record the student's level(s) of performance on the student's profile.
6. Analyze the marked rubric(s), place in the student's portfolio and use as a guide when making instructional decisions.

ANALYSIS

Analysis of the student's expressive language (speaking) performance will provide further information. The following questions about the student's performance will help in designing instruction:

- Is this experience typical of this child's speaking?
- How is this experience similar to other expressive language interactions?
- Does this context and participants allow this student to demonstrate her/his strengths in oral language?
- What further experiences are needed to gain a better understanding of this child's speaking abilities?

PRE K-FIRST GRADE ORAL LANGUAGE SAMPLE SCORING RUBRIC	
Syntax	
4	Uses appropriate syntax of the English language with complex sentences. Regular and irregular plurals and past tenses are used correctly.
3	Uses appropriate syntax of the English language. Regular plurals and past tenses are used correctly. Irregular forms are not.
2	Uses correct English syntax for very simple sentences and inappropriate use of plurals and past tenses.
1	Uses very little correct syntax of the English language and inappropriate use of plurals and past tenses. May use only present tense, even when prompted. No complete sentences used.
Vocabulary	
4	Uses interesting vocabulary some of the time, including use of descriptive adverbs and/or adjectives.
3	Uses basic language consisting mostly of nouns and verbs with some use of adjectives.
2	Uses very simple, basic language consisting mostly of nouns and verbs with little use of adjectives.
1	Unable to name some of the elements of the picture. Lack of vocabulary impedes storytelling.
Elaboration	
4	Relates the elements in the picture while using extensive prior knowledge and past experiences. The narrative is substantive and well organized.
3	Relates the elements in the picture incorporating past experiences and prior knowledge.
2	Uses a simple sentence or two while relating the elements in the picture to each other.
1	Gives labels for elements in the picture; i.e., boy, house, etc.

Excerpt from Michigan Literacy Progress Profile (MLPP)

Listening Comprehension

Listening and Viewing are grouped together in the Grade Level Content Expectations as receptive and responsive processes, ones that share many skills and strategies. As in Reading, these expectations focus on comprehension and analysis. Listening for meaning or gaining information is essential if students are to be successful. These skills begin as listening to simple instructions in kindergarten, and progress to being able to paraphrase what a speaker said and ask relevant questions about the content, validity and purpose of a presentation. Listening and viewing are also critical components in vocabulary development which directly impacts reading success."

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 19

The GLCEs include annual instructional targets in the areas of Listening and Viewing, further described as Conventions and Responses.

Example: Listening Comprehension by Grade Level

L.RP.00.01

Listen to or view knowledgeably and discuss a variety of genre

Kindergarten	LRP.00.01 Listen to or view knowledgeable and discuss a variety of genre.
Grade 1	LRP.01.01 Listen to or view knowledgeable and discuss a variety of genre.
Grade 2	LRP.02.01 Listen or view knowledgeably and discuss a variety of genre.
Grade 3	LRP.03.01 Listen to or view knowledgeably and discuss a variety of genre and compare their responses to those of their peers.
Grade 4	LRP.04.01 Listen to or view knowledgeably and discuss a variety of genre and compare their responses to those of their peers.
Grade 5	LRP.05.01 Listen to or view knowledgeably and discuss a variety of genre and compare their responses to those of their peers.
Grade 6	LRP.06.01 Listen to or view knowledgeably a variety of genre to summarize, take notes on key points, and ask clarifying questions.
Grade 7	LRP.07.01 Listen to or view knowledgeably a variety of genre to identify, state, and react to a speaker's point of view and bias.
Grade 8	LRP.08.01 Listen to or view knowledgeably a variety of genre to react to a speaker's intent and apply a speakers' reasoning to other situations.

Excerpt from *ELA Across the Grades*, Michigan Department of Education

Sample Listening Comprehension Curriculum Measurement at Grade Level

The following is an example of a Listening Comprehension criterion-referenced measurement taken from the BRIGANCE Diagnostic-Comprehensive Inventory of Basic Skills (Albert H. Brigance, Curriculum Associates). Information regarding the item, directions for the administration and scoring, rules for scoring and the sample item are listed:

PROBE OBJECTIVE

By "Date", when a selection from a lower first-grade, textbook-criterion-referenced vocabulary of 35 words and 5 questions are read aloud, the student will listen and respond orally to the questions with at least 4/5 (80%) comprehension accuracy.

SKILL

Listens to a selection with a designated readability level and responds orally to five comprehension questions.

MATERIALS

Selections and questions form the first-grade through ninth-grade levels.

DISCONTINUE

Your discretion, or after failing to score with at least 80% comprehension accuracy for two consecutive levels.

TIME

Your discretion.

ACCURACY

At least 4/5 (80%) accuracy for each grade level. Student responses may vary. Give credit if the student's answers are reasonable and show understanding. An example of a typical acceptable response is given with each question. Students are not required to include every possible detail in their responses.

If needed, you may seek a follow-up question to encourage the student to clarify or to be more specific in order to evaluate the response. However, the follow-up question should not give clues.

If the student responds to the first four questions correctly, credit may be given without asking the last question.

Sample Listening Comprehension Curriculum Measurement at Grade Level—continued

DIRECTIONS:

This assessment is made by asking the student to listen carefully as you read a passage and then respond orally to five questions you ask about the passage.

Select the passage at the grade level you think will be the most appropriate to initiate the assessment (the highest grade you anticipate the student can respond to successfully).

Say: I'm going to read a short story (article). I want you to listen carefully as I read it. Then I will ask you some questions about what I have read.

Read the passage at a comfortable rate for the student and in an appropriate tone of voice. After reading the passage, ask the five questions, pausing after each for the student's response.

If necessary, repeat the question, but do not reread the passage. If the student's response is still unclear, ask follow-up questions for clarification, but do not give clues.

If the validity of the results from administering the first Form for a grade level is questionable, confirm the validity by using the alternate Form for the respective grade level.

Continue the assessment at the higher or lower grade levels until you determine the highest grade level at which the student can respond with 80% accuracy.

NOTES:

Reading Rate for Presenting the Selections: Normally the selections in the listening comprehension assessments should be read at a normal speech rate of about 150 words per minute. However, for diagnostic purposes, you may wish to decrease the rate of reading the selection to determine if poor auditory processing skills are the cause of poor listening comprehension. Research has shown that decreasing the rate of speech from 150 words per minute to 110 words per minute improves listening comprehension for students with poor auditory processing skills.

Speaking Skills Required: Listening vocabulary skills are frequently at a higher skill level when speaking vocabulary skills. For example, the student may understand the meaning of a spoken work, but may have difficulty telling the meaning. Observations or follow-up probing questions may help to determine if there is a significant discrepancy between the student's listening comprehension skills and speaking or fluency skills.

Limitations of This Assessment: Results obtained from this assessment indicate the level at which the student can comprehend and recall for a short period of time. The results do not indicate the level at which the student can listen and comprehend for longer periods of time, such as during a lesson in the typical classroom setting.

Sample Listening Comprehension Item
Lower First Grade Level

Form A

Jenny ran to the bus stop. She was in a hurry. She did not want to miss the bus. But Jenny was too late. It was gone. Now she would have to walk home.

1. **Why did Jenny run?**

   (She didn't want to miss the bus.)

2. **Why did Jenny miss the bus?**

   (She was too late; The bus had gone; She didn't run fast enough.)

3. **What would Jenny have to do because she missed the bus?**

   (Walk home.)

4. **What is a bus stop?**

   (The place where the bus stops for people to get on/off it.)

5. **What would be a good name for this story?**

   (Running for the Bus; Jenny Missed Her Bus)

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Written Expression

Michigan's GLCEs in the area of Written Expression are categorized into seven domains: Writing Genre, Writing Process, Spelling, Writing Attitude, Grammar and Usage, Personal Style, and Handwriting. Written expression skills, as a form of communication, literacy, and thinking ability, are taught with stages for writing instruction. For students with spelling or psychomotor deficits, direct instruction can lead to improvements in accuracy of spelling and basic legibility.

To assure mastery of essential writing skills, processes, and strategies, explicit and systematic instruction should occur at every grade level. Using the stages of the writing process, students will continue to evolve in their ability to fluently compose clear, focused, and cohesive writings. Progressing through the grades, students will use the skills they have previously learned to refine, extend, and acquire new knowledge at the next grade level.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 14.

Example: Written Expression Universal Annual Target by Grade Level

Grade 5	W.GR.05.01 In the context of writing, correctly use compound subjects and predicates; proper nouns and pronouns; articles; conjunctions; hyphens in compound and number words; commas between two independent clauses to set off direct address, long phrases, clauses; colons to separate house and minutes and to introduce a list.
Grade 6	W.GR.06.01 In the context of writing, correctly use style conventions (e.g., Modern Language Association Handbook) and a variety of grammatical structures in writing including indefinite and predicate pronouns; transitive and intransitive verbs; adjective and adverbial phrases; adjective and adverbial subordinate clauses; comparative adverbs and adjective; superlative, conjunctions; compound sentences; appositives; independent and dependent clauses; introductory phrases; periods; commas; quotation marks; and use of underlining and italics for specific purposes.
Grade 7	W.GR.07.01 In the contexts of writing, correctly use style conventions (e.g., Modern Language Association Handbook) and a variety of grammatical structures including participial phrases; adverbial subordinate clauses; superlative adjectives and adverbs; present, past, future, continuous verb tenses; parentheses; singular and plural possessive forms; and indefinite pronoun referents.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 14

Sample Written Expression Curriculum Measurement Probes

The following information regarding how to make curriculum probes in Written Expression are taken from *Curriculum-Based Measurement: A Manual for Teachers* by Jim Wright, School Psychologist in Syracuse City Schools. This resource may be found at www.interventioncentral.org.

DESCRIPTION

CBM Writing probes are simple to administer but offer a variety of scoring options. As with math and spelling, writing probes may be given individually or to groups of students. The examiner prepares a lined composition sheet with a story-starter sentence or partial sentence at the top. The student thinks for 1-minutes about a possible story to be written from the story-starter, and then spend 3-minutes writing the story. The examiner collects the writing sample for scoring. Depending on the preference of the teacher, the writing probe can be scored in several ways.

MATERIALS NEEDED FOR GIVING CBM WRITING PROBES

- Student copy of CBM writing probe with story-starter
- Stopwatch
- Pencils for students

CREATING A MEASUREMENT POOL FOR WRITING PROBES

Since writing probes are essentially writing opportunities for students, they require minimal advance preparation. The measurement pool for writing probes would be a collection of grade-appropriate story-starters, from which the teacher would randomly select a story-starter for each CBM writing assessment. Writing texts are often good sources for lists of story-starters; teachers may also choose to write their own.

PREPARING CBM WRITING PROBES

The Teacher selects a story-starter from the measurement pool and places it at the top of a lined composition sheet. The story-starter should avoid wording that encourages students to generate lists. It should also be open-ended, requiring the writer to build a narrative rather than simple to write down a "Yes" or "No" response.

Sample Written Expression Curriculum Measurement Probes—continued

CBM Written Language

Name _____ Grade _____ Date _____

One day, I was out sailing. A storm carried me far out to sea and wrecked my boat on a desert island. _____

_____

_____

The CBM writing probe in above is a good example of how such a probe might appear. This particular probe was used in a 5th grade classroom.

ADMINISTRATION OF CBM WRITING PROBES

The examiner distributes copies of CBM writing probes to all the students in the group. (Note: These probes may also be administered individually). The examiner says to the students:

> *I want you to write a story. I am going to read a sentence to you first, and then I want you to write a short story about what happens. You will have 1-minute to think about the story you will write and then have 3-minutes to write it. Do your best work. If you don't know how to spell a word, you should guess. Are there any questions?*
>
> *For the next minute, thing about. . . [insert story-starter].* The examiner starts the stopwatch.

At the end of 1-minute, the examiner say, "Start writing".

While the students are writing, the examiner and any other adults helping in the assessment circulate around the room. If students stop writing before the 3-minute timing period has ended, monitors encourage them to continue writing.

After 3 additional minutes, the examiner says, "Stop writing". CBM writing probes are collected for scoring.

Sample Written Expression Curriculum Measurement Probes—continued

SCORING

The instructor has several options when scoring CBM writing probes. Student writing samples may be scored according to the (1) number of words written, (2) number of letters written, (3) number of words correctly spelled, or (4) number of writing units placed in correct sequence. Scoring methods differ both in the amount of time that they require of the instructor and in the quality of information that they provide about a student's writing skills. Advantages and potential limitations of each scoring system are presented below.

1. **Total words—**The examiner counts up and records the total number of words written during the 3-minute writing probe. Misspelled words are included in the tally, although numbers written in numeral form (e.g., 5, 17) are not counted. Calculating total words is the quickest of scoring methods. A drawback, however, is that it yields only a rough estimate of writing fluency (that is, of how quickly the student can put words on paper) without examining the accuracy of spelling, punctuation, and other writing conventions. The CBM writing sample below was written by a 6th grade student:

CBM writing sample scored for total words

I woud drink water from the ocean 07
and I woud eat the fruit off of..... 08
the trees. Then I woud bilit a..... 07
house out of trees, and I woud..... 07
gather firewood to stay warm. I..... 06
woud try and fix my boat in my..... 08
spare time. 02
Word total =..... 45

Using the total-words scoring formula, this sample is found to contain 45 words.

Sample Written Expression Curriculum Measurement Probes—continued

SCORING—CONTINUED

2. **Total letters—**The examiner counts up the total number of letters written during the 3-minute probe. Again, misspelled words are included in the count, but numbers written in numeral form are excluded. Calculating total letters is reasonably quick operation. When compared to word-total, it also enjoys the advantage of controlling for words of varying length. For example, a student who writes few words but whose written vocabulary tends toward longer words may receive a relatively low score on word-total but receive a substantially higher score for letter-total. As with word-total though, the letter-total formula gives only a general idea of writing fluency without examining a student's mastery of writing conventions. When scored according to total letters written, our writing sample is found to contain 154 letters.

CBM writing sample scored for total letters

I woud drink water from the ocean 27
and I woud eat the fruit off of..... 24
the trees. Then I woud bilit a..... 23
house out of trees, and I woud..... 23
gather firewood to stay warm. I..... 25
woud try and fix my boat in my..... 23
spare time. 09
Letter total =.....154

Sample Written Expression Curriculum Measurement Probes—continued

SCORING—CONTINUED

3. **Correctly Spelled Words—**The examiner counts up only those words in the writing sample that are spelled correctly. Words are considered separately, not within the context of a sentence. When scoring a word according to this approach, a good rule of thumb is to determine whether—in isolation—the word represents a correctly spelled term in English. If it does, the word is included in the tally. Assessing the number of correctly spelled words has the advantage of being quick. Also, by examining the accuracy of the student's spelling, this approach monitors to some degree a student's mastery of written language. Our writing sample is found to contain 39 correctly spelled words.

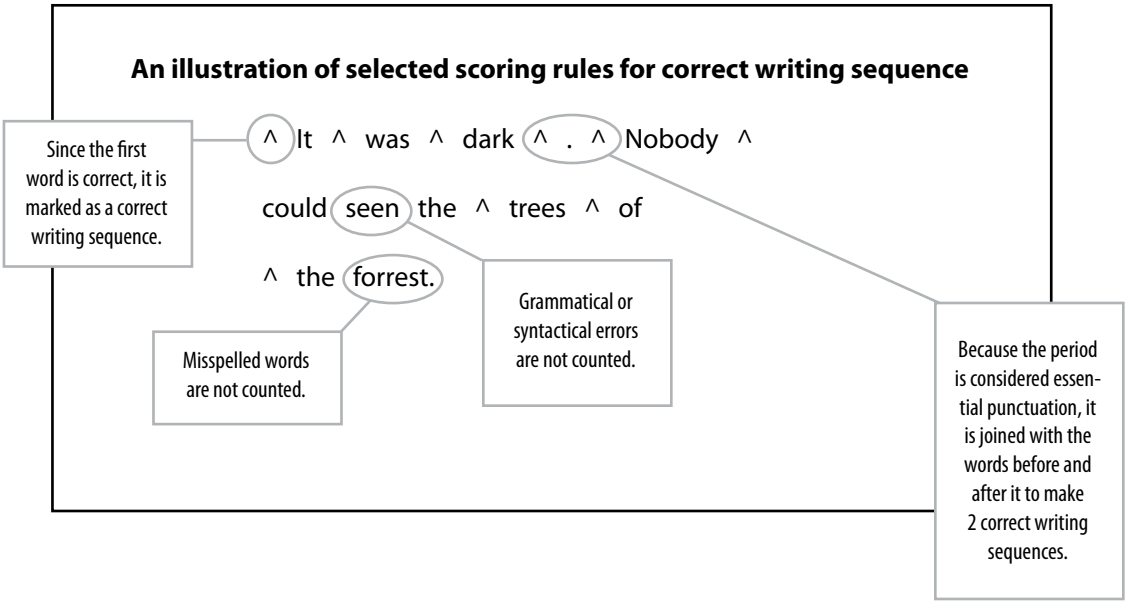
CBM writing sample scored for corrrectly spelled words

I woud drink water from the ocean 06
and I woud eat the fruit off of..... 07
the trees. Then I woud bilit a..... 05
house out of trees, and I woud..... 06
gather firewood to stay warm. I..... 06
woud try and fix my boat in my..... 07
spare time. 02
Correctly spelled words total = ... 39

Sample Written Expression Curriculum Measurement Probes—continued

SCORING—CONTINUED

4. Correct Writing Sequences—When scoring correct writing sequences, the examiner goes beyond the confines of the isolated word to consider units of writing and their relation to one another. Using this approach, the examiner starts at the beginning of the writing sample and looks at each successive pair of writing units (writing sequence). Words are considered separate writing units, as are essential marks of punctuation. To receive credit, writing sequences must be correctly spelled and be grammatically correct. The words in each writing sequence must also make sense within the context of the sentence. In effect, the student's writing is judged according to the standards of informal standard American English. A carat (^) is used to mark the presence of a correct writing sequence.



Sample Written Expression Curriculum Measurement Probes—continued

Example:

^ Is ^ that ^ a ^ red ^ car ^ ?

Necessary marks of punctuation (excluding commas) are included in correct writing sequences.

Example:

^ Is ^ that ^ a ^ red ^ car ^ ?

Syntactically correct words make up a correct writing sequence.

Example:

^ Is ^ that ^ a ^ red ^ car ^ ?

^ Is ^ that ^ a ^ car ^ red ^ ?

Semantically correct words make up a correct writing sequence.

Example:

^ Is ^ that ^ a ^ red ^ car ^ ?

If correct, the initial word of a writing sample is counted as a correct writing sequence.

Example:

^ The ^ Terrible ^ Day

Titles are included in the correct writing sequence count.

Sample Written Expression Curriculum Measurement Probes—continued

SCORING—CONTINUED

Not surprisingly, evaluating a writing probe according to correct writing sequences is the most time-consuming of the scoring methods presented here. It is also the scoring approach, however, that yields the most comprehensive information about a student's writing competencies. While further research is needed to clarify the point, it also seems plausible that the correct writing sequence method is most sensitive to short-term student improvements in writing. Presumably, advance in writing skills in virtually any area (e.g., spelling, punctuation) could quickly register as higher writing sequence scores. Our writing sample is found to contain 37 correct writing sequences.

CBM writing sample scored for correct writing sequence
(Each correct writing sequence is marked with a caret [^])

^ I woud drink ^ water ^ from ^ the ^ ocean..... 05
^ and ^ I woud eat ^ the ^ fruit ^ off ^ of..... 06
^ the ^ trees ^ . ^ Then ^ I woud bilit a..... 05
^ house ^ out ^ of ^ trees, ^ and ^ I woud 06
gather ^ firewood ^ to ^ stay ^ warm ^ . ^ I..... 06
woud try ^ and ^ fix ^ my ^ boat ^ in ^ my..... 06
^ spare ^ time..... 03
Correct word sequences = ... 37

Reading Fluency Skills

Research has shown that Reading Fluency is the most robust indicator of overall reading ability. Reading fluency is highly correlated with overall reading ability. The most complete methodology for RtI implementation is in the area of Reading Fluency., focused on the primary grades. Schools commonly use the DIBELS and related resources as a starting point for RtI implementation with this skill. Reading fluency skills are also aligned to the Michigan Curriculum Framework.

Example: Reading Fluency Universal Annual Target by Grade Level

R.WS. 02.05 Automatically recognize frequently encountered words in print whether encountered in connected text or in isolation with the number of words that can be read fluently increasing steadily across the school year.

Kindergarten	R.WS.00.05 Students will automatically recognize a small number (about 18) of frequently encountered, personally meaningful words in print. (PC.06)
Grade 1	R.WS.01.05 automatically recognize frequently encountered words in and out of context with the number of words that can be read fluently increasing steadily across the school year.
Grade 2	R.WS.02.05 automatically recognize frequently encountered words in print whether encountered in connected text or in isolation with the number of words that can be read fluently increasing steadily across the school year.
Grade 3	R.WS.03.01 automatically recognize frequently encountered words in print whether encountered in connected text or in isolation with the number of words that can be read fluently increasing steadily across the school year.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 19

Reading Fluency Skills—continued

The USDOE has published recommended targets for the number of words per minute students should be reading at each grade level. These targets may be referenced when determining the student's level of performance relative to grade/age expectations.

RATE AND FLUENCY GUIDELINES: WORDS PER MINUTE BY GRADE		
Grade	**Silent Reading**	**Oral Reading**
2	70-100	66-104
3	95-130	86-124
4	120-170	95-130
5	160-210	108-140
6	180-230	112-145
7	180-240	122-155

Source: http://www.ed.gov/teachers/how/tools/initiative/summerworkshop/mccabe/index.html
Taylor, Harris, Pearson and Garcia, 1989

DIBELS: Dynamic Indicators of Basic Early Literacy Skills

As stated in the discussion on Basic Reading Skill, the DIBELS (Roland H. Good III and Ruth A. Kaminski, University of Oregon) method of measuring reading fluency and monitoring student progress is extremely well researched and has proven effectiveness in reducing identified reading deficits in young children. Refer to the official website at www.http://dibels.uoregon.edu to learn more about this measurement and related tools. The DIBELS is specific to young children at and below the third grade level.

Curriculum-Based Measurement (CBM) Reading Fluency Probe Example

The following example of CBM oral reading fluency probe demonstrates how a school may develop and use probes of reading fluency for wider application with classroom materials and more grade levels.

Example of CBM Reading Fluency Probe Administration and Scoring from Jim Wright, Curriculum-Based Measurement: A Manual for Teachers 1992, Syracuse City Schools, www.interventioncentral.org

MATERIALS NEEDED FOR GIVING CBM READING PROBES

- Numbered and unnumbered copies of reading passage
- Stopwatch
- Pen or marker

ADMINISTRATION OF CBM READING PROBES

The examiner and the student sit across the table from each other. The examiner hand the student the unnumbered copy of the CBM reading passage. The examiner takes the numbered copy of the passage, shielding it from the student's view. The examiner says to the students:

> *When I say, 'start,' being reading aloud at the top of this page. Read across the page [demonstrate by pointing]. Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?*
>
> *[Pause] Start.*

The examiner begins the stopwatch when the student says the first word. If the student does not say the initial word within 3-seconds, the examiner says the word and starts the stopwatch. As the student reads along in the text, the examiner records any errors by marking a slash (/) through the incorrectly read word. If the student hesitates for 3-seconds on any word, the examiner says the word and marks it as an error. At the end of 1-minute, the examiner says, Stop and marks the student's concluding place in the text with a bracket (])

Curriculum-Based Measurement (CBM) Reading Fluency Probe Example—continued

SCORING

Reading fluency is calculated by first determining the total words attempted within the timed reading probe and then deducting from that total the number of incorrectly read words.

The following scoring rules will aid the instructor in marking the reading probe:

Words read correctly are scored as correct:

- Self-corrected words are counted as correct.
- Repetitions are counted as correct.
- Examples of dialectical speech are counted as correct.
- Inserted words are ignored.

Example:

Text: The small gray fox ran to the cover of the trees.
Student: "The smill gray fox rant to the trees."

Mispronunciations are counted as errors.

Example:

Text: When she returned to the house, Grandmother called for Franchesca.
Student: "When she returned to the home, Grandmother called for Franchesca."

Substitutions are counted as errors.

Curriculum-Based Measurement (CBM) Reading Fluency Probe Example—continued

Example:

Test: Anna could not compete in the last race.
Student: "Anna could not in the last race."

Omissions are counted as errors.

Example:

Text: She looked at the bright, shining face of the sun.
Student: "She looked at the shining bright face of the sun."

Transpositions of word-pairs are counted as one error.

Words read to the student by the examiner after 3-seconds have gone by are counted as errors.

Curriculum-Based Measurement (CBM) Reading Fluency Probe Example—continued

COMPUTING READING FLUENCY RATE IN A SINGLE PASSAGE

The scoring of a reading probe is straightforward. The examiner first determines how many words the reader actually attempted during the 1-minute reading sample. On the completed probe in Figure 2.2, for instance, the bracket near the end of the text indicates that the student attempted 48 words before his time expired. Next, the examiner counts up the number of errors made by the reader. On this probe, the student committed 4 errors. By deducting the number of errors from the total words attempted, the examiner arrives at the number of correctly read words per minute. This number services as an estimate of reading fluency, combining as it does the student's speed and accuracy in reading. So by deducting the errors from the total words attempted, we find that the child actually read 44 correct words in 1 minute.

Summertime ! How lovely it was out.....6

in the country, with the wheat 12

standing yellow, the oats green, ...17

and the hay all stacked down in the 25

grassy meadows ! And there went the 31

stork on his long red legs,.....37

chattering away in Egyptian, for he 43

had learnt that language from] his 49

mother . The fields and meadows 54

Basic Reading Skill

Basic reading skill is a broad area that may encompass skills for reading decoding, word recognition skills, word study, and fluency in reading. Reading decoding is the ability to figure out how to read unknown words by using knowledge of letters, sounds, and word patterns. For skilled readers reading decoding is almost automatic, so the reader can devote full attention to comprehension of the reading material. Reading decoding skills are essential to being a fluent reader. Students must learn the association of sounds, letters, and word meaning in developing basic reading skills. The developmental sequence for basic reading skills are described in the following table:

Age 3	Recitation of rhymes Rhyming by pattern Alliteration
Age 4	Syllable counting (50% of children by age 4)
Age 5	Syllable counting (90% of children by age 5)
Age 6	Initial consonant matching Blending 2-3 phonemes Counting phonemes (70% of children by age 6) Rhyme identification Onset-rime division
Age 7	Blending 3 phonemes Segmentation of 3-4 phonemes (blends) Phonetic spelling Phoneme deletion
Age 8	Consonant cluster segmentation Deletion within clusters

Source: *Straight Talk About Reading*, Susan L. Hall and Louisa C. Moats, Ed.D.

Phonemic Awareness in Michigan Grade Level Content Expectations

The complete GLCE is the area of Phonemic Awareness is presented in the following table:

Kindergarten	R.WS.00.01 Students will demonstrate phonemic awareness by the wide range of sound manipulation competencies including sound blending and deletion. R.WS.00.02 Recognize that words are composed of sounds blended together and carry meaning.
Grade 1	R.WS.01.01 Demonstrate phonemic awareness by the wide range of sound manipulation competencies including sound blending and deletion. R.WS.01.02 Recognize that words are composed of sounds blended together and carry meaning.
Grade 2	R.WS.02.01 Demonstrate phonemic awareness by the wide range of sound manipulation competencies including sound blending and deletion. R.WS.02.02 Recognize that words are composed of sounds blended together and carry meaning.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 6

DIBELS: Dynamic Indicators of Basic Early Literacy Skills

The DIBELS (Roland H. Good III and Ruth A. Kaminski, University of Oregon) method of measuring reading fluency and monitoring student progress is extremely well researched and has proven effectiveness in reducing identified reading deficits in young children. Refer to the official website at www.http://dibels.uoregon.edu to learn more about this measurement and related tools. The DIBELS is specific to young children at and below the third grade level.

Research-Based Phoneme Segmentation Probes

Minneapolis Public Schools utilizes research based phoneme segmentation probes based on research. The probes and procedures are included in the district Online Performance and Measurement Manual located at: http://pic.mpls.k12.mn.us/Performance_Assessment_Manual.html.

Onset Phoneme Identification and Phoneme Segmentation Measures

PROCEDURES

The examiner says the words aloud and then records the student's correct responses on the probe. After saying the word aloud, the examiner gives the student 3-seconds to begin responding. After the student finishes responding, the examiner should proceed to the next word on the list. Do not provide corrective feedback to the student during the one-minute timing. If the student cannot identify sounds in any of the first six words, testing is discontinued. Otherwise, testing continues for 1-minute. If the student finishes the probe before the end of 1-minute, the examiner returns to the beginning of the probe.

DIRECTIONS

The examiner should say to the student,

> *We are going to do listening activities.*

Onset Phonemes: Recommended for use with beginning kindergartners. Mastery of Onset Phonemes is a score of 25.

> *I will tell you a word and you will give me the first sound. If I say the word 'cap', you will give me the sound /k/. If I say 'it', you will say /i/. If I say 'top', you will say /t/. Let's try it."*

Give the student 3 practice trials using, 'no', 'bus' and 'ten'. After each response, provide the student feedback using either the word 'correct' or 'incorrect'. For incorrect responses, give the student the correct response before going to the next stimulus. After the three trials, begin the test.

Research Based Phoneme Segmentation Probes—continued

Segmentation: Recommended for use with kindergartners and first graders who have not mastered Onset Phonemes.

> *"I will tell you a word and you will give me the sounds you hear in that word. If I say 'cap, you will say /c/ /a/ /p/. If I say 'it, you will say /i/ /t/. If I say 'top', you will say /t/ /o/ /p/. Let's try it.*

Give the student 3 practice trials using, 'no', 'bus' and 'ten'. After each response, provide the student feedback using either the word 'correct' or 'incorrect'. For incorrect responses, give the student the correct response before going to the next stimulus. After the three trials, begin the test.

If the student cannot respond to the first 6 words, discontinue testing and mark a score of 0 for that probe.

Isolated Sounds Correct Recording: As the student responds, underline each isolated sound correct on the record sheet. This can be kept as a permanent record of student work and can be used by the teacher to further inform instructional planning. Students with articulation errors will not be penalized. For example: t for k, w for r, th for s, w for l, and d for g.

Add up the number of correct phonemes produced. This is the student's number of correct phonemes identified in one-minute. A recording line for both Onset Phonemes and Phoneme Segmentations is included on the bottom of each probe.

Progress Monitoring: To progress monitor Phonemic Awareness skills, begin by administering the Onset Phoneme Identification probe. Continue monitoring Onset Phonemes until a score of 25 is reached. Onset Phoneme Identification is a sub-skill of phoneme Segmentation. For student's who master the skill of Onset Phoneme Identification, begin progress monitoring with the Phoneme Segmentation probes.

To monitor student progress in Onset Phoneme Identification and/or Phoneme Segmentation, use probes 2 – 15 and graph the number of correct phonemes.

Onset Phoneme Identification and Phoneme Segmentation

PROBE 1

Student Name:_____ **Date:**____/____/____

1.	d a t e	(3) _____	10.	l o g	(3) _____
2.	r u g	(3) _____	11.	f a m e	(3) _____
3.	c o a t	(3) _____	12.	s o b	(3) _____
4.	a d d	(2) _____	13.	g a s	(3) _____
5.	f i s h	(3) _____	14.	h o m e	(3) _____
6.	p a l	(3) _____	15.	m i n e	(3) _____
7.	T i m	(3) _____	16.	n a i l	(3) _____
8.	l e t	(3) _____	17.	f i g h t	(3) _____
9.	b y	(2) _____	18.	c h i n	(3) _____

Correct Onset Phonemes: ____ Correct Segmented Phonemes: ____

Probes developed by Dee Deno with consultation and assistance from Doug Marston, Mary Pickart, Pam Geatz and Ann Casey.

Revised July 2000

Source: Minnesota Public School, *Online Performance Assessment Manual*. http://pic.mpls.k12.mn.us/Performance_Assessment_Manual.html

Word Recognition Skills

Traditionally, Basic Reading Skill, within the context of special education applications, has referred to Word Recognition Skills, including skills for word analysis and basic reading vocabulary.

Example of Michigan Grade Level Content Expectations: Word Recognition Skills

Grade 1	R.FL.01.03 read aloud unfamiliar text with a minimum of 90% accuracy in word recognition at an independent reading level.
Grade 2	R.FL.02.03 read aloud unfamiliar text with a minimum of 90% accuracy in word recognition at an independent reading level.
Grade 3	Note: read aloud unfamiliar text with a minimum of 90% accuracy in word recognition at an independent reading level.

Excerpt from *ELA Across the Grades*, Michigan Department of Education, Page 9

Example of Curriculum Based Measurement of Basic Reading

The following example of a CBM of Basic Reading Skill is an excerpt from the website: http://www.itrc.ucf.edu/FORPD/strategies/stratfluency.html. The website includes procedures developed through the FOR-PD Project of the ITRC@UCF College of Education and administered by a grant from the Florida Department of Education and Just Read, Florida!

Rasinski (2004) developed a procedure that combines oral reading rate with reading accuracy. Targets for the assessment of reading accuracy and reading rate are listed.

ASSESSING ACCURACY AND AUTOMATICITY

Rasinki (2004) has adapted curriculum based measurement of oral fluency to include measurements of reading accuracy as well as reading rate.

Accuracy is determined by the percentage of words a reader can read correctly. It has been shown to be a valid measure of reading proficiency (Rasinski, 2004). The levels of accuracy in reading reflect various levels of word decoding accuracy.

Levels of Performance for Word Decoding Accuracy

Independent Level.....97% - 100%

Instructional Level .....90% - 96%

Frustration Level.....< 90%

Readers who score in the independent level are able to read the assessment text or other text of similar difficulty without assistance. Readers who score within the instructional level are able to read the assessment text or other text of similar difficulty with some assistance provided by the teacher or parent. Those readers scoring at the frustration level will find the assessment text too challenging to read, even with assistance.

Example of Curriculum-Based Measurement of Basic Reading—continued

Reading rate provides a way of determining students' level of automaticity.

READING RATE PROFICIENCY			
Grade	**Fall (CWPM)**	**Winter (CWPM)**	**Spring (CWPM)**
1		10-30	30-60
2	30-60	50-80	70-110
3	50-90	70-100	80-110
4	70-110	80-120	100-140
5	80-120	100-140	110-150
6	100-140	110-150	120-160
7	110-150	120-160	130-170
8	120-160	130-170	140-180

Using this procedure, the student reads grade-level text orally. The probe takes only 60 seconds. The person administering the test marks the reader's uncorrected errors and then counts the total number of words read correctly. This assessment is quick and can be repeated at one sitting on different passages. If multiple passages are used, comparing the median score against performance norms is recommended.

This procedure has been validated through a number of studies (Rasinki, 2004). It has also been found to have strong correlations with student's performance on standardized tests of reading achievement for students in all grade levels (Rasinki, 2004).

Example of Curriculum-Based Measurement of Basic Reading—continued

PROCEDURES FOR MEASURING ACCURACY AND RATE:

1. Find a passage of approximately 250 words written at the student's grade placement. Submit the passage to a text readability formula to estimate its grade appropriateness.

2. Ask the student to read the passage for one minute. Mark any uncorrected errors made by the student. Errors include mispronunciations, substitutions, reversals, omissions, or words pronounced by the examiner after a wait of 2-3 seconds without an attempt or response from the student. Mark the point in the text where the student ends the one-minute read.

3. Repeat steps 1 and 2 with two different passages (optional). If you choose to repeat the process, use the median or middle score for analysis.

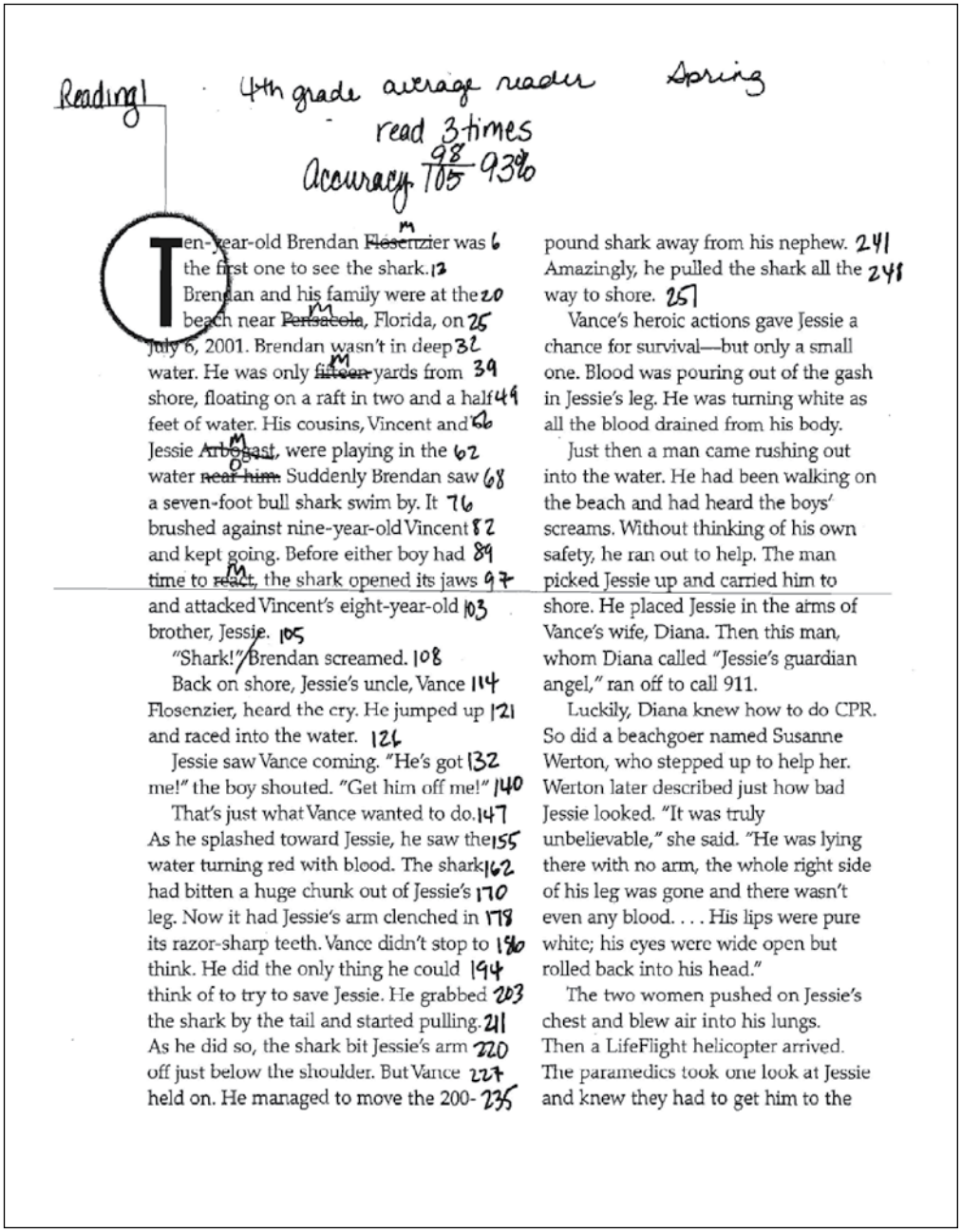
4. Determine accuracy by dividing the number of words read correctly per minute (WCPM) by the total number of words read (WCPM + an uncorrected errors). This number will be a percentage. Compare the student's performance against the target norms.

5. Determine the rate by calculating the total number of WCPM and comparing the student's performance against the target norms.

Source: http://www.itrc.ucf.edu/FORPD/strategies/stratfluency.html

Example of Curriculum-Based Measurement of Basic Reading—continued

Example using text "Shark Attack" from *On the Edge: Against the Odds*, McGraw-Hill/Contemporary, 2003.



Reading 1 · 4th grade average reader · Spring
read 3 times
Accuracy 98/105 93%

Ten-year-old Brendan ~~Flosenzier~~ was the first one to see the shark.
Brendan and his family were at the beach near ~~Pensacola~~, Florida, on July 6, 2001. Brendan wasn't in deep water. He was only ~~fifteen~~ yards from shore, floating on a raft in two and a half feet of water. His cousins, Vincent and Jessie ~~Arbogast~~, were playing in the water ~~near him~~. Suddenly Brendan saw a seven-foot bull shark swim by. It brushed against nine-year-old Vincent and kept going. Before either boy had time to ~~react~~, the shark opened its jaws and attacked Vincent's eight-year-old brother, Jessie.

"Shark!" Brendan screamed.

Back on shore, Jessie's uncle, Vance Flosenzier, heard the cry. He jumped up and raced into the water.

Jessie saw Vance coming. "He's got me!" the boy shouted. "Get him off me!"

That's just what Vance wanted to do. As he splashed toward Jessie, he saw the water turning red with blood. The shark had bitten a huge chunk out of Jessie's leg. Now it had Jessie's arm clenched in its razor-sharp teeth. Vance didn't stop to think. He did the only thing he could think of to try to save Jessie. He grabbed the shark by the tail and started pulling. As he did so, the shark bit Jessie's arm off just below the shoulder. But Vance held on. He managed to move the 200-pound shark away from his nephew. Amazingly, he pulled the shark all the way to shore.

Vance's heroic actions gave Jessie a chance for survival—but only a small one. Blood was pouring out of the gash in Jessie's leg. He was turning white as all the blood drained from his body.

Just then a man came rushing out into the water. He had been walking on the beach and had heard the boys' screams. Without thinking of his own safety, he ran out to help. The man picked Jessie up and carried him to shore. He placed Jessie in the arms of Vance's wife, Diana. Then this man, whom Diana called "Jessie's guardian angel," ran off to call 911.

Luckily, Diana knew how to do CPR. So did a beachgoer named Susanne Werton, who stepped up to help her. Werton later described just how bad Jessie looked. "It was truly unbelievable," she said. "He was lying there with no arm, the whole right side of his leg was gone and there wasn't even any blood. . . . His lips were pure white; his eyes were wide open but rolled back into his head."

The two women pushed on Jessie's chest and blew air into his lungs. Then a LifeFlight helicopter arrived. The paramedics took one look at Jessie and knew they had to get him to the

Source: http://www.itrc.ucf.edu/FORPD/strategies/cbmorfelem.pdf

Reading Comprehension Skills

The Michigan Grade Level Content Expectations (p. 5) defines reading as a dynamic and interactive process leading to constructing meaning from text. Research has shown that explicit instruction of students can improve reading comprehension. The curriculum measurement probes commonly used provide an index of general reading ability. Essentially, the student predicts language based on understanding of the material in the text. Schools may need to develop curriculum based assessments to measure GLCEs for progress monitoring purposes.

Reading Comprehension GLCE: Universal Target of Reading Comprehension Skill

Grade 1	R.WS.01.08 Use syntactic and semantic cues including picture clues, word chunks, and the structure of book language to determine the meaning of words in grade-appropriate texts.
Grade 2	R.WS.02.10 Use syntactic and semantic cues including reading context; picture clues; prefixes re-, un-; and suffixes –s, -ed, -ing to determine the meaning of words in grade-appropriate texts.
Grade 3	R.WS.03.02 Use structural, syntactic, and semantic cues including letter-sound, rimes, base words, and affixes to automatically read frequently encountered words, decode unknown words, and decide meanings including multiple meaning words.
Grade 4	R.WS.04.02 Use structural, syntactic, and semantic cues including letter-sound, rimes, base words, and affixes, and syllabication to automatically read frequently encountered words, decode unknown words, and decide meanings including multiple meaning words.

Excerpt from *ELA Across the Grades*, Michigan Department of Education

Example of Reading Comprehension Curriculum Measurement Using Maze

Maze is a multiple-choice close task that students complete while reading silently. The first sentence of a 150-400 word passage is left intact. Thereafter, every 7th word is replaced with three words inside parenthesis. One of the words is the exact one from the original passage. Science-based research has shown that this provides a reliable and valid measure of reading comprehension.

The probe is administered for 3 minutes and may be administered in classroom, small group, or individual situations. The number of correct answers is scored.

CBM-MAZE PASSAGE

Once upon a time, there was a merchant whose wife died, leaving him with three daughters.

The two older daughters were good-looking **(but, stand, then)** very disagreeable. They cared only for **(until, themselves, himself)** and for their appearance; they spent **(palace, wicked, most)** of the time admiring their reflections (in, of, turned) a looking glass.

The third and youngest **(once, daughter, date)** was quite different from the other **(him, two, beast)**. She was beautiful-so beautiful that **(I, loved, she)** was known as Beauty. She was **(also, ago, dream)** good and kind. Everyone loved Beauty, **(changed, by, except)** for her sisters, who were jealous **(handsome, of from)** her. They hated her.

Source: http://www.aimsweb.com/uploaded/files/scoring_maze.pdf
AimsWeb,Edformation, Inc. 6420 Flying Cloud Drive, Suite 204, Eden Prairie, MN 55344, Phone: 1-888-944-1882

Example of Reading Comprehension Curriculum Measurement Using Maze—continued

AFTER MAZE TESTING: SCORING

After students have completed a Maze, we recommend immediate scoring. Our most important task is to determine the Number of Words (Items) Correct. The number of errors are important, but less so. Determining Words Correct is easy. Use your answer key and put a slash (/) through incorrect words.

What is correct?

An Answer is considered correct if the student circles the word that matches the correct word on the scoring template.

What is Incorrect?

An answer is considered an error if the student:

a. circles an incorrect word.

b. omits word selections other than those the student was unable to complete before the 3-minutes expired.

Making Scoring Efficient

1. Count the total number of items up to the last circled word.
2. Compare the student answers to the correct answers on the scoring template. Mark a slash (/) through incorrect responses.
3. Subtract the number of incorrect answers from the total number of items attempted.
4. Record the total number of correct answers on the cover sheet followed by the total number of errors (e.g., 35/2, 45/0)

Prorating

Some students may finish all the items before the 3 minutes are up. To be able to make the most accurate judgment about their progress, the student's score can be prorated to what they would have scored if there were enough items for 3-minutes of student reading. To prorate:

1. When the student finished must be recorded and the number correct counted. For example, the student may have finished in 2 minutes and correctly answered 40 items.
2. Convert the time taken to seconds. 2 minutes = 120 seconds
3. Divide the number of seconds by the number correct. 120/40 = 3
4. Calculate the number of seconds in the full 3 minutes. 3 minutes = 180 seconds
5. Divide the number of full seconds by the calculated value from Step 3. 180/3 = 60

Source: http://www.aimsweb.com/uploaded/files/scoring_maze.pdf

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Mathematics Calculation

The Michigan Curriculum Framework has organized mathematics skills in five strands: Number and Operations, Algebra, Measurement, Geometry, and Data and Probability. Mathematics calculation skills are present across the strands and grade levels. Below is an example of a calculation Grade Level Content Expectation of a basic mathematics calculation skill.

Example Grade Level Content Expectation: Universal Target Math Calculation Grade 4

Add and subtract whole numbers

N.FL.04.08 Add and subtract whole number fluently.

Example of Mathematics Calculation Curriculum-Based Measurement

The following example of a math calculation probe was taken from the Minneapolis Public Schools Online Manual Performance Assessment of Academic Skills in the Problem Solving Model at the website:

MATERIALS

Select the appropriate grade level probe. Screening materials are used for students in grades 1 through 8. (Grade 1 screening begins in January)

PROCEDURE

- Read the directions to the students and time for 2 minutes.
- Monitor students for starting and stopping on time.
- Make sure students are working across the rows and attending to each problem.
- Be sure the students are turning the page and continuing on the back if they complete the front.
- Do not assist or help students work individual problems.

Example of Mathematics Calculation Curriculum-Based Measurement—continued

DIRECTIONS

Say: *"Listen to these directions, but wait until I tell you to start. You will be writing answers to these math problems for 2 minutes. There are several kinds of problems on this page—some are…and some are…etc. Look at each problem carefully before you answer it. Start at the first problem on the left of the top row, work across that row, then begin the next row. Try every problem. If you come to one you cannot answer, you can put an X on it and go on to the next but you must try each problem. If you finish this side, go on to the back."*

Demonstrate to students by pointing to the back page.

Say: *"Are there any questions? Ready? Begin."*

Start timing as you say: *"Begin."*

After 2 minutes, say: *"Thank you. Put your pencils down."*

SCORING

- Use the answer sheet.
- Draw a line under each correct digit. Example:

41	155
+22	x 10
63 (2)	000
	1500
	1500 (11)

- The digit must be in the correct place to be counted as correct. Example:

41
+22
603 (1)

- Students get full points for a problem even if they do not show their work. Example:

155
x 10
1550 (11)

Example of Mathematics Calculation Curriculum-Based Measurement—continued

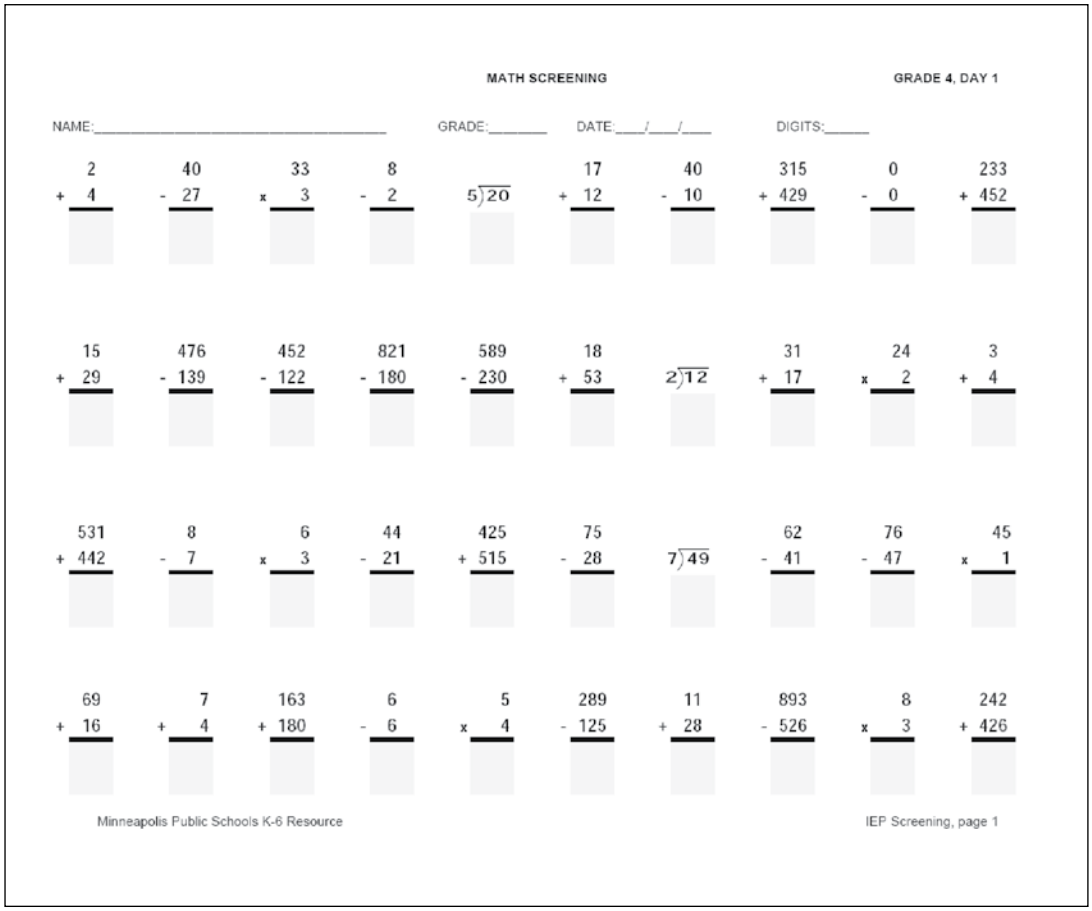
- If a student does not show all of their work, and the answer is not completely correct, they only get credit for the correct digits in the answer. Example:

  155
  x 10
  2540 (2)

- Reversals are counted as correct digits.
- Carries are not counted.
- Remainders of zero are not counted
- An extra digit is not counted at all.
- "X" counts as a placeholder in multiplication problems.
- Give credit for any digits that are correct, even if the problem has not been corrected.
- If a student starts a problem and then crosses it out, give credit for any correct digits that were written.
- Count the number of correct digits per row and write this number in the parentheses at the end of the row.
- Total the correct number of digits and record it at the top of the page.

Source: *Performance Assessment of Academic Skills in the Problem Solving Model Online Manual*
Minneapolis Public Schools, 807 NE Broadway, Minneapolis, MN 55413 | Phone: 612-668-0460 | Fax: 612-668-0464
http://pic.mpls.k12.mn.us/sites/97711090-59b5-4f98-964e-32ab29cf5be/uploads/mathscreen.pdf

Example of Mathematics Calculation Curriculum-Based Measurement—continued



MATH SCREENING

GRADE 4, DAY 1

NAME:_____ GRADE:_____ DATE:___/___/___ DIGITS:_____

2 + 4	40 - 27	33 x 3	8 - 2	$5\overline{)20}$	17 + 12	40 - 10	315 + 429	0 - 0	233 + 452
15 + 29	476 - 139	452 - 122	821 - 180	589 - 230	18 + 53	$2\overline{)12}$	31 + 17	24 x 2	3 + 4
531 + 442	8 - 7	6 x 3	44 - 21	425 + 515	75 - 28	$7\overline{)49}$	62 - 41	76 - 47	45 x 1
69 + 16	7 + 4	163 + 180	6 - 6	5 x 4	289 - 125	11 + 28	893 - 526	8 x 3	242 + 426

Minneapolis Public Schools K-6 Resource

IEP Screening, page 1

Mathematics Problem Solving

Mathematics in the Michigan Curriculum Framework is organized across five strands: Numbers and Operations, Algebra, Measurement, Geometry, and Data and Probability. Within each of these strands, problem-solving or mathematical reasoning skills are defined by grade levels. In the development of curriculum probes, it will be important to control for other skills, such as reading ability that may interfere with the child's ability to demonstrate understanding or application of math concepts.

Example: Mathematics Problem Solving Universal Annual Target by Grade Level

D.RE.03.01 Read and interpret bar graphs in both horizontal and vertical forms

Sample Mathematics Reasoning Curriculum Probe

Task Content Standard: Understands and applies basic and advanced concepts of data analysis and distributions.

MI Standard: Construct and interpret line graphs

Benchmark(s): Constructs and interprets simple bar graphs, pie charts, and line graphs.
Given a table of data, selects the correct graphic representation for the data.

MI GLCE: (D.RE.05.01) Read and interpret line graphs and solve problems based on line graphs.

Task Description: In Part A, the teacher asks the student to identify which columns have the most animals, least animals, and the same number of animals. In addition the student is asked to total all animals on the graph (total = 24/viente y cuatro, bayn-tay ee kwa-troh). In part B, the teacher asks the student to place the "circle" on specific graph coordinates. The intent of Part B is to assess the student's ability to construct, read, and interpret data using graphs.

Materials: The teacher uses the graphs on the pages 2 and 3 to assess basic understanding of graphs. For part B, to mark the graph coordinate, the student should use one of the small circles from the A-blocks included in the assessment kit.

Sample Mathematics Reasoning Curriculum Probe—continued

Scoring: (Use teacher judgment with the following point system to score performance unless the Task Description above indicates grade level estimates for specific subtasks, then use directions in the Task Description for scoring.)

0 points	Based on performance of this task, the student is not proficient in the national target standards and benchmark(s) (i.e., the student does not understand the task, makes no attempt to complete the task, or is not proficient).
1 points	Based on performance of this task, the student displays incomplete understanding of concepts and has notable misconceptions relative to the National Target Standards and benchmark(s) (attempts made but there are serious errors).
2 points	The student's understanding/skill is developing or emerging but she or he is not completely proficient in the National Target Standards and benchmark(s).
3 points	Based on performance of this task, the student demonstrates proficiency in skills and concepts necessary to meet the National Target Standards and benchmarks.

Sample Mathematics Problem-Solving Probe

A. Understanding basic graphs

1. Which column has more animals?
   ?Cual columna tiene mas animals?
2. Which column has the least animals?
   ?Cual columna tiene menos animals?
3. Which columns have the same number of animals?
   ?Cuales columnas tienen el mismo numero de animals?
4. How many animals are there in all?
   ?Cuantos animals hay en total?

8					
7					
6					
5					
4					
3					
2					
1					

Excerpt Adapted From: *Snapshot Assessment Mathematics: Interpreting displays of data using graphs*

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