



New York State Education Department
Office of Special Education
Educational Partnership



Assessment Essentials

Part 2: Curriculum-Based Measurement (CBM)



Technical Assistance Partnership (TAP) for Academics at the University at Albany

Disclaimer

The resources shown are designed to provide helpful information. Resources are provided for instructional use purposes only and do not constitute NYSED endorsement of any vendor, author, or other sources. To the best of our knowledge, the resources provided are true and complete.

Introductions

- Name
- Role
- District
- School
- Population Served

Meeting Norms

- Take care of your needs (water, food, restroom, etc.)
- Speak your truth – Use “I” statements
- Ask what you need to understand and contribute
- Listen with respect
- Push your growing edge
- Participate and struggle together
- Expect a lack of closure
- Respect each other's needs and learning styles

Agenda

- Welcome
 - Introduction, Inclusion, and Virtual Norms
- CBM: What and Why?
- Administering and Scoring CBMs
- Interpreting CBMs
- Next Steps
- Wrap-up and Survey

Learning Objectives

Participants will be able to:

- Describe CBM and how it can be used.
- Explain why CBM is a valuable assessment tool for teaching.
- Administer and score an oral reading fluency (ORF) CBM.
- Interpret results of an ORF CBM.

Blueprint for Improved Results for Students with Disabilities



Self-Advocacy

Students engage in self-advocacy and are involved in determining their own educational goals and plan.



Family Partnership

Parents, and other family members, are engaged as meaningful partners in the special education process and the education of their child.



Specially-Designed Instruction

Teachers design, provide, and assess the effectiveness of specially-designed instruction to provide students with disabilities with access to participate and progress in the general education curriculum.



Research-Based Instruction

Teachers provide research-based instructional teaching and learning strategies and supports for students with disabilities.



Multi-tiered Support

Schools provide multi-tiered systems of behavioral and academic support.



Inclusive Activities

Schools provide high-quality inclusive programs and activities.



Transition Support

Schools provide appropriate instruction for students with disabilities in career development and opportunities to participate in work-based learning.

CBM

What is it and why should we use it?



*Which stage of
the Instructional
Hierarchy
are you in?*

Familiarity with CBM



1. Acquisition

- Some knowledge of CBM, and/or early use of these measures with students

2. Fluency

- Frequent, fluent use of these measures with students

3. Generalization

- Ability to use these measures across many different academic areas (math, reading, writing) with a variety of different students (various grade/instructional levels)

4. Adaptation

- Ability to use the measures in different ways, including progress monitoring, comprehensive curriculum-based evaluation (CBE), universal screening, and diagnostic skills assessment

Assessment and Educational Equity

What could happen if you use assessments that are technically unsuitable or poorly-designed for a particular situation?

Stop & Think



Defining CBM

WHAT is CBM?

CBM is an approach to assessment that includes specific measures that evaluate skills reflective of major educational goals across the curriculum.

Characteristics of CBM:

1. Alignment
2. Efficiency
3. Technical Adequacy
4. Standardized Procedures
5. Low-Inference
6. Clear Decision Rules
7. Repeated Measurement

WHAT is CBM?

1. Standardized directions
2. Testing materials
3. A timing device
4. Scoring rules
5. Standards/criteria for judging performance
6. Recording forms or charts

Hosp et al., 2016

The Versatility of CBM

WHY use CBM?

Assessment Type	Examples
Formative Assessment	Progress Monitoring
Summative Assessment	Year-end Assessment, Comprehensive Survey-level Assessment
Diagnostic Assessment	Error Analysis to Determine Skill Needs
High-Stakes Assessment	Special Education Eligibility Determination
Low-Stakes Assessment	Universal Screening, Progress Monitoring, Error Analysis to Determine Skill Needs

Common Skills Evaluated

WHAT is CBM?

	Academic Area		
	Reading	Mathematics	Written Language
Target Academic Skill/Behavior	<ul style="list-style-type: none">• Letter naming fluency• Letter sound fluency• Phoneme segmentation fluency• Nonsense word fluency• Word identification fluency• ORF, also called passage reading fluency• Maze	<ul style="list-style-type: none">• Oral counting• Number identification• Quantity discrimination• Missing number• Math computation• Number concepts and applications	<ul style="list-style-type: none">• Total words written• Words spelled correctly• Correct word sequence• Correct letter sequence

Dynamic Indicators of Basic Early Literacy Skills (DIBELS)

Administration Timeline

WHAT is CBM?

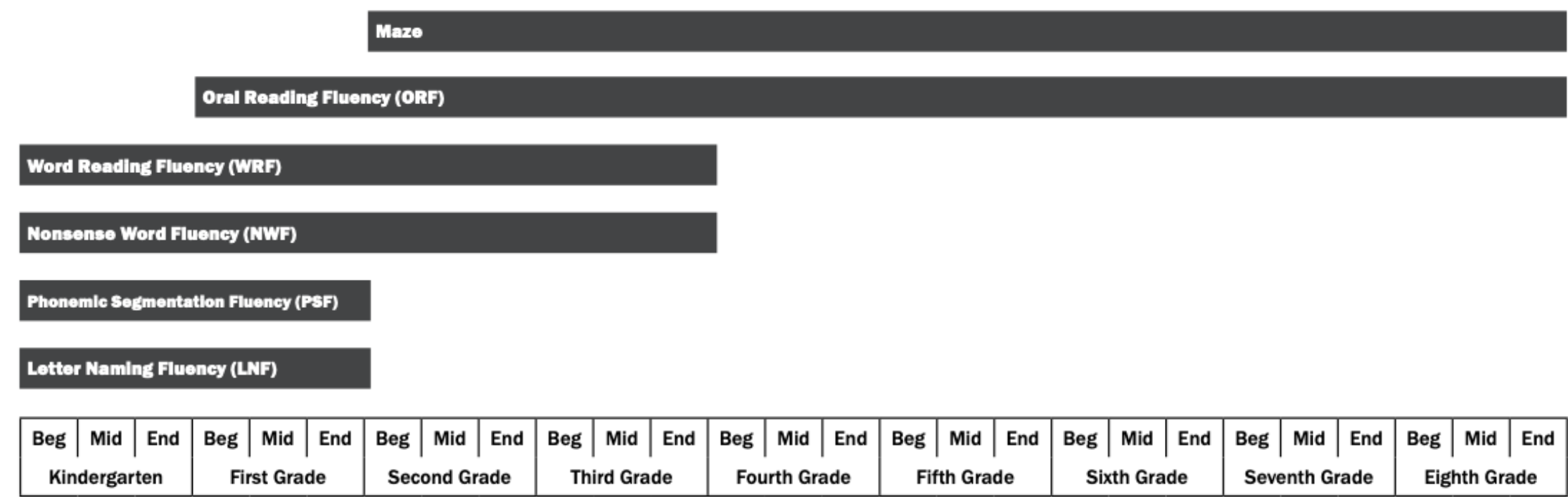


Figure 1.1 DIBELS 8th Edition Timeline of Subtest Availability by Grade

Acadience Reading Administration Timeline

WHAT is CBM?

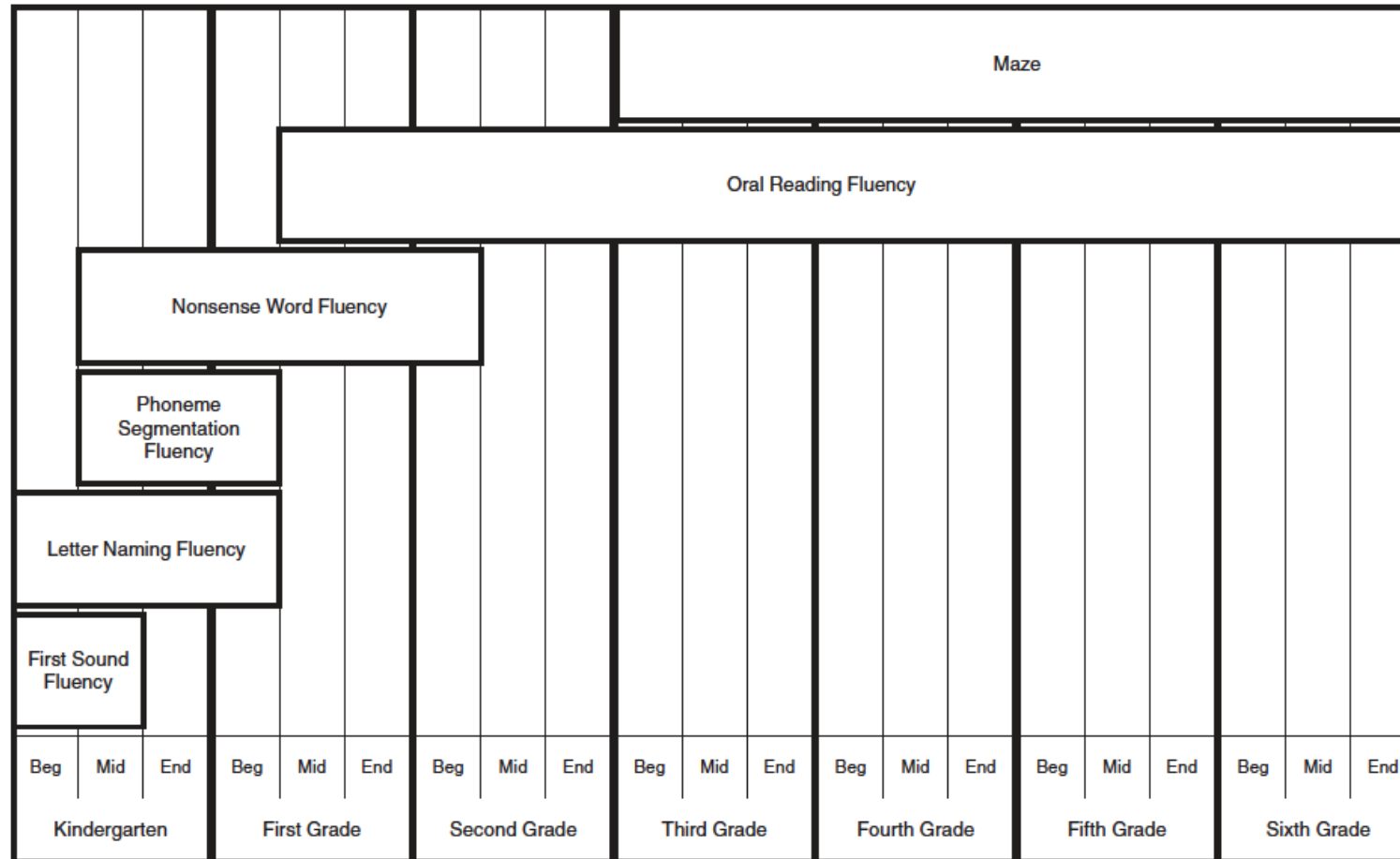


Figure 2.1 Acadience Reading Benchmark Administration Timeline

Acadience Math Administration Timeline

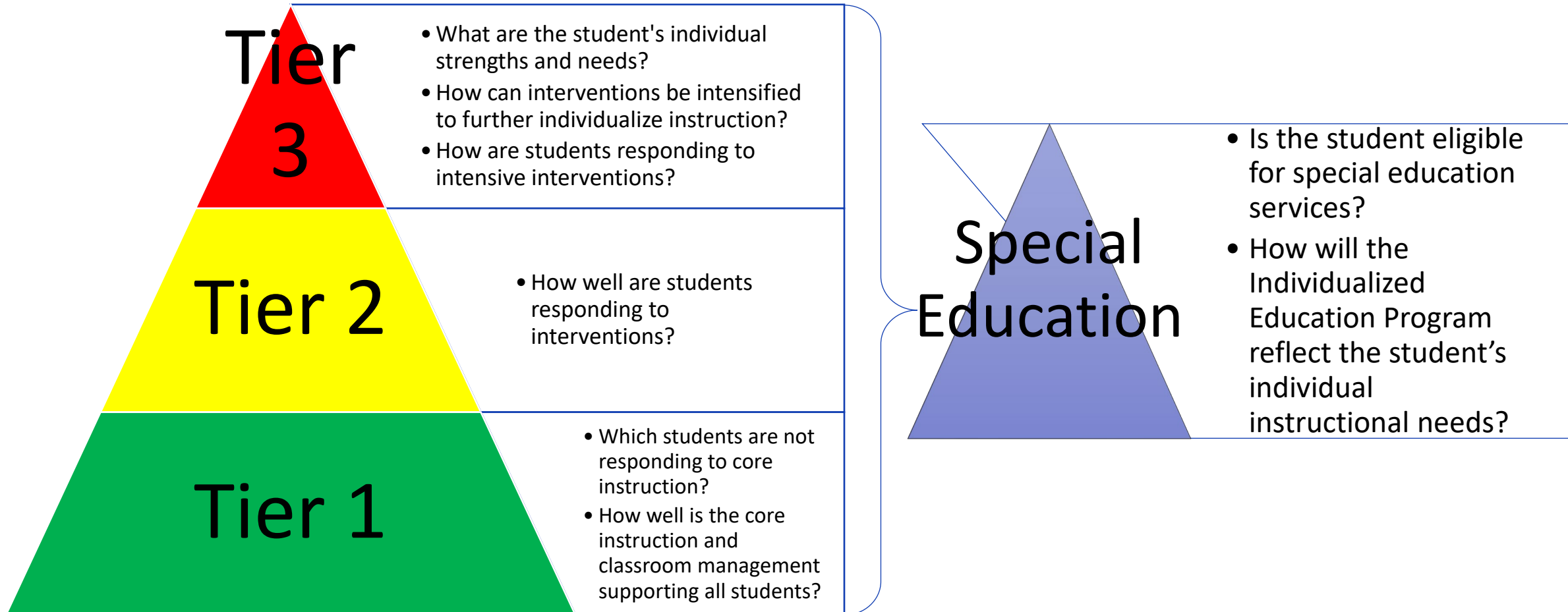
WHAT is CBM?

						Concepts and Applications																	
			Computation																				
			Missing Number Fluency																				
			Advanced Quantity Discrimination																				
Next Number Fluency						Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End			
Number Identification Fluency																							
Beginning Quantity Discrimination																							
Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End			
Kindergarten			First Grade			Second Grade			Third Grade			Fourth Grade			Fifth Grade			Sixth Grade					

Figure 1.1 Acadience Math Benchmark Administration Timeline

Assessment Questions at Each Tier

WHY use CBM?



Foundational Beliefs

WHY use CBM?

CBM relies on foundational beliefs about assessment and instruction that are intended to promote educational equity:

1. Decision making is not the same as judgement.
2. Data and evidence should be valued.
3. Students don't have predetermined or fixed ability.
4. Focus on alterable variables.
5. There are different types of knowledge.
6. Confront common misconceptions that influence teaching.
7. Use varied teaching approaches.
8. Keep an open and positive outlook.

Stop and Think

CBM: WHAT is it and WHY should we use it?



Examples of CBM Vendors

- Acadience*
- AimsWeb Plus
- DIBELS*
- easyCBM*
- FastBridge Learning
- Star CBM

***How have you used or seen
CBM used?***

***Do you think any differently
about CBM after what you've
heard so far?***

***What do you want to know
about these measures or any
information covered so far?***

Administering & Scoring CBM

How do I give these
measures?



Getting Ready to Administer CBM

Administering & Scoring CBM

1. Directions for Administration
2. Student Materials
3. Teacher/Administrator Materials
4. A Timing Device
5. Scoring Rules
6. Recording Forms or Charts

DIBELS 8th Edition Maze **Benchmark Maze 8**

Examiner script

I am going to give you a worksheet. When you get top and put your pencil down.

(Hand out the Maze student worksheets. Make sure student see a box with three words in it. Your job is to circle the context of the passage. Let's look at the Practice Passage.)

Tom goes to a school far from his house. Every morning (pause) to go to school.

Let's stop there. Let's circle the word "bus" because Listen to how that sentence sounds now.

Backstrap Weaving

Backstrap weaving is an ancient way of making cloth that has been used for thousands of years all around the world. It requires a wooden loom that can have be made easily and

DIBELS 8TH EDITION
UNIVERSITY OF OREGON | College of Education

Dynamic Indicators of Basic Early Literacy Skills
8th Edition

Administration and Scoring Guide
2021 Edition

University of Oregon (2021). 8th Edition of Dynamic Indicators of Basic Early Literacy Skills (DIBELS®): Administration and Scoring Guide, 2021 Edition. Eugene, OR: University of Oregon. Available: <https://dibels.uoregon.edu>

Benchmark - Grade 8 Scoring Booklet

Name: _____ ID: _____
School Year: _____
Class: _____

Assessment Date	Forms Given	ORF		Maze	
		Words Correct	Errors	Correct	Incorrect
	<input type="checkbox"/> Standard				
	<input type="checkbox"/> Other Specify Form ID				
	<input type="checkbox"/> Standard				
	<input type="checkbox"/> Other Specify Form ID				
	<input type="checkbox"/> Standard				
	<input type="checkbox"/> Other Specify Form ID				

DIBELS 8th Edition goals use equating so it is important to know the forms given. If you use the forms in this booklet at the designated time period, check off the Standard box. If you use alternate forms, check Other and write the ID in the space under the corresponding scores. For example - 8.1, 8.2, 8.3

Scores: If not using a Data System, calculated scores can be computed manually and recorded below:
Accuracy = ORF Words Correct / (ORF Words Correct + ORF Errors) x 100
Maze Adjusted = Number Correct / (0.5 x Number Incorrect)
Composite score calculations can be found at dibels.uoregon.edu

	ORF Accuracy	Maze Adjusted	Composite Score
Benchmark 1 Beginning			
Benchmark 2 Middle			
Benchmark 3 End			

University of Oregon (2020). 8th Edition of Dynamic Indicators of Basic Early Literacy Skills (DIBELS®). Eugene, OR: University of Oregon. Available: <https://dibels.uoregon.edu>

ORF Overview

Administering & Scoring CBM



**Oral Reading Fluency (ORF)
Administration & Scoring**

Module
MODULE
PROJECT EXPERT

Your Turn!



Practice Administering & Scoring ORF CBM



1. Gather necessary materials
 - Printed Project EXPERT Training Video Practice Packet 2
 - A timing device
 - A pen or pencil
2. Review “Administration & Scoring Tips”
3. Watch the video and score along with the administrator using the administrator copy (p. 4)

CBM ORAL READING FLUENCY



A Nest Made of Paper

People aren't the only creatures that make paper. Paper wasps, yellow jackets, and bald - faced hornets do, too.

In the spring, the insect queen, who has spent the winter hibernating, begins her nest. Paper wasps and bald - faced hornets build their nests on tree branches and under roof overhangs and other protected places. Yellow jackets build their nests in the ground.

The queen chews up wood and plant fibers and spits them out in her chosen site. Using this pulp, she builds up cells that look like the six - sided wax cells that bees make. She lays her eggs in them. When the eggs hatch and mature, they grow into workers who help build the nest.

Eventually, the nest can grow to be about the size of a basketball, somewhat elongated at the bottom, where the entrance is. The cells inside are enclosed in layered sheets of paper that wrap around the outside. Though the paper looks delicate, it is strong and waterproof. It is usually light gray and brown. It is finely striped, each stripe coming from a different kind of chewed - up material.

As the weather turns cold, most of the insects die. Only the new queens survive. They leave the nest to find a warm place to hibernate for the winter. The nest is empty, and will not be used again. In the spring, the new queen starts fresh.

(11)

(18)

(30)

(44)

(54)

(61)

(75)

(90)

(105)

(116)

(129)

(141)

(154)

(168)

(182)

(185)

(198)

(213)

(229)

(232)

Answer Key



Total words read 75 Total errors 25 Total words correct 50

Important Points

What is an important point or thought you have after practicing administering and scoring an ORF CBM?

How might this practice activity work for you when training or coaching educators?



Stop to Think



Interpreting CBM

What do the scores tell
us?



Norm-Referenced and Criterion-Referenced

What do the scores tell us?

Norm-Referenced Assessments	Criterion-Referenced Assessments
<p>Assessment tools that compare a student's score to those of a normative group to give a sense of where they fall in relation to others.</p> <p>Utilize standardized assessment procedures.</p>	<p>Assessment tools that compare a student's score to a specific performance level, or criterion that indicates skill or knowledge level and is predictive of later success.</p> <p>May or may not utilize standardized procedures.</p>
<p>Answers the question, "How does this student perform relative to other students?"</p>	<p>Answers the question, "How close is this student to a meaningful learning target?"</p>

Score Type

What do the scores tell us?

- Any measure can be made to be either normative or criterion-referenced.
- Certain statistics you see are specific to one or the other system.
- Normative systems may include standard scores, t-scores, percentiles, and grade/age equivalencies.
- Criterion-referenced systems may include odds ratios, grades, and predictive thresholds.

Criterion-Referenced Scoring for CBM

What do the scores tell us?

- We can utilize specific cut-scores provided by the publisher for criterion-referenced scoring.
- These criteria can be found in tables that provide score ranges that are often labeled with terms that indicate a level of student proficiency or risk for future academic difficulties.



Dynamic Indicators of
Literacy Skills

8th Edition

Administration and Scoring Guide,
2021 Edition

University of Oregon (2021). 8th Edition of Dynamic Indicators of Literacy Skills Administration and Scoring Guide, 2021 Edition. Eugene, OR: dibels.uoregon.edu

Appendix E: DIBELS 8th Edition Benchmark Cut-scores

Kindergarten			First grade			Second grade			Third grade		
A	M	E	A	M	E	A	M	E	A	M	E
Letter Name Fluency (LNF)											
35+	37+	42+	42+	47+	50+						
24	36	41	41	56	58						
16	31	35	32	51	53						
15	30	34	31	50	52						
0	0	0	0	0	0						
Phonemic Segmentation Fluency (PSF)											
15+	43+	53+	47+	57+	61+						
14	42	52	46	56	60						
5	29	44	31	43	45						
4	28	43	30	42	44						
1	23	37	19	34	37						
0	22	36	18	33	36						
0	0	0	0	0	0						
Nonsense Word Fluency (NWF) - Correct Letter Sounds (CLS)											
20+	36+	49+	47+	78+	87+	88+	103+	117+	121+	138+	141+
19	35	48	46	77	86	85	102	116	120	137	140
9	25	31	30	52	55	50	68	76	75	94	105
8	24	30	29	51	54	49	67	75	75	93	104
4	16	24	25	41	45	41	54	54	52	78	80
3	15	23	24	40	44	40	53	53	51	77	79
0	0	0	0	0	0	0	0	0	0	0	0
Nonsense Word Fluency (NWF) - Words Correct (WC)											
1+	8	12	15	25	27	24	35	38	33	45	44
0	7	5	14	15	15	20	22	24	30	31	31
0	2	6	4	13	14	14	19	21	23	29	30
0	1	4	1	10	11	10	15	17	18	23	24
0	0	3	0	9	10	9	14	16	17	22	23
0	0	0	0	0	0	0	0	0	0	0	0
Word Reading Fluency (WRF)											
10+	15+	20+	33+	50+	50+	63+	70+	60+	65+	70+	70+
9	17	19	32	49	49	62	69	59	64	69	69
4	10	12	17	25	26	36	43	40	50	55	54
3	9	11	16	24	25	35	42	39	49	54	54
0	1	6	8	14	17	18	23	27	30	40	47
0	0	5	7	13	16	17	22	26	29	39	46
0	0	0	0	0	0	0	0	0	0	0	0
Oral Reading Fluency (ORF) - Words Correct											
35+	57+	76+	85+	117+	128+	105+	141+	136+			
34	56	75	84	116	127	104	140	135			
10	21	39	49	78	94	73	105	114			
9	20	38	48	77	93	72	104	113			
5	10	26	39	69	77	55	85	96			
4	9	25	38	68	76	54	84	95			
0	0	0	0	0	0	0	0	0			
Oral Reading Fluency (ORF) - Accuracy											
87+	87+	92+	92+	96+	96+	96+	96+	96+			
66	86	90	91	95	95	95	95	95			
41	54	84	84	91	91	91	91	91			
40	53	84	83	90	90	90	90	90			
0	0	0	0	0	0	0	0	0			
DIBELS Composite Score											
334+	393+	450+	354+	424+	480+	361+	423+	474+	385+	427+	487+
331	390	449	353	423	479	360	422	473	384	426	486
306	371	420	330	389	441	329	389	439	332	393	442
305	370	419	329	388	440	328	388	438	331	392	441
280	356	406	321	377	427	316	373	421	314	377	424
279	355	405	320	376	426	315	372	420	313	376	423
200	200	200	200	200	200	200	200	200	200	200	200
Standard Score											
110+	145+	180+	150+	205+	225+						
10.5	14.0	17.5	14.5	20.0	22.0						
5.0	9.0	9.5	8.0	12.0	15.5						
4.5	8.5	9.0	7.5	11.5	15.0						
2.5	6.5	7.0	5.0	9.5	12.0						
2.0	6.0	6.5	4.5	9.0	11.5						
0	0	0	0	0	0						

Administration and Scoring Guide

© 2021 University of Oregon. All rights reserved.

Appendix E - DIBELS 8th Edition | 123

Criterion-Referenced Scoring Practice

What do the scores tell us?



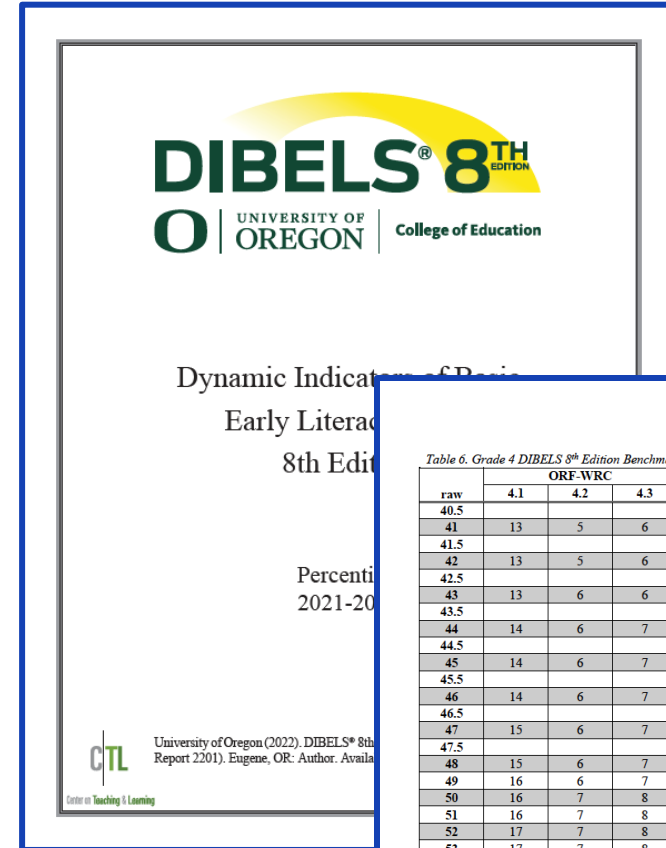
Legend
Blue goal = Core support; Negligible risk (nearly all students in this range score at or above the 40th percentile rank on criterion measure)
Green range = Core support; Minimal risk (about 80% of students who score at or above the 40th percentile rank on criterion measure fall in this range or above)
Yellow range = Strategic support; Some risk (about 80% of students who score below the 40th percentile on criterion measure fall in this range or below)
Red range = Intensive support; At risk (about 80% of students who score below the 20th percentile on criterion measure fall in this range)

	Fourth grade			Fifth grade			Sixth grade			Seventh grade			Eighth grade		
Goal Range	B	M	E	B	M	E	B	M	E	B	M	E	B	M	E
Oral Reading Fluency (ORF) - Words Correct															
131+	158+	159+	159+	139+	149+	157+	151+	157+	160+	152+	161+	164+	142+	156+	159+
130	158	158	158	138	148	156	150	156	159	151	160	163	141	155	158
87	121	125	103	122	137	123	123	133	141	126	136	141	125	131	135
86	120	124	102	121	136	122	132	140	125	135	140	140	124	130	134
62	98	99	81	108	124	99	117	125	101	121	127	110	116	121	
61	97	98	80	107	123	98	116	124	100	120	126	109	115	120	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running Fluency (ORF) - Accuracy															
96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+	96+
95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maze															
21.0+	23.5+	28.0+	20.0+	27.0+	29.5+	23.0+	30.5+	33.5+	25.5+	33.0+	38.5+	24.5+	32.0+	38.0+	
14.5	16.5	17.0	13.5	17.0	21.0	14.5	19.5	26.5	20.0	24.5	29.5	20.0	26.0	28.0	
14.0	16.0	16.5	13.0	16.5	20.5	14.0	19.0	26.0	19.5	24.0	29.0	19.5	25.5	27.5	
11.0	13.0	14.0	10.5	14.5	18.0	12.5	15.0	20.5	15.5	18.0	24.5	16.5	19.5	24.5	
10.5	12.5	13.5	10.0	14.0	17.5	12.0	14.5	20.0	15.0	17.5	24.0	16.0	19.0	24.0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIBELS Composite Score															
368+	431+	461+	370+	421+	469+	364+	411+	454+	359+	407+	450+	378+	434+	478+	
367	430	460	369	420	468	363	410	453	357	406	449	377	433	477	
331	399	442	335	394	449	336	386	435	336	385	430	361	404	452	
330	398	441	334	393	448	335	385	434	335	384	429	360	403	451	
310	380	421	313	380	436	313	370	419	315	374	417	345	391	437	
309	379	420	312	379	435	312	369	418	314	373	416	344	390	436	
200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	B	M	E	B	M	E	B	M	E	B	M	E	B	M	E
	Fourth grade			Fifth grade			Sixth grade			Seventh grade			Eighth grade		

Norm-Referenced Scoring for CBM

What do the scores tell us?

- Norm tables can be utilized to determine a percentile rank for a CBM score.
- These norm tables are typically located in separate technical manuals.



The image shows the cover of the DIBELS 8th Edition technical manual. The title 'DIBELS 8TH EDITION' is prominently displayed in green and yellow. Below it, 'UNIVERSITY OF OREGON College of Education' is written. The subtitle 'Dynamic Indicators of Basic Early Literacy Skills' is partially visible. The text '8th Edition' and 'Percentile Ranks for 2021-2022' are also present. The CTL logo (Center on Teaching & Learning) is at the bottom left, and a note about the report's origin is at the bottom right.

Table 6. Grade 4 DIBELS 8th Edition Benchmark Assessment Percentile Ranks for 2021-2022

raw	ORF-WRC			ORF-ACC			MAZE			raw
	4.1	4.2	4.3	4.1	4.2	4.3	4.1	4.2	4.3	
40.5							99	99	98	40.5
41	13	5	6	2	1	1	99	99	98	41
41.5							99	99	98	41.5
42	13	5	6	2	1	1	99	>99	98	42
42.5							>99		99	42.5
43	13	6	6	2	1	1			99	43
43.5									99	43.5
44	14	6	7	2	1	1			99	44
44.5									99	44.5
45	14	6	7	2	1	1			99	45
45.5									99	45.5
46	14	6	7	2	1	1			99	46
46.5									99	46.5
47	15	6	7	2	1	1			99	47
47.5									99	47.5
48	15	6	7	2	1	1			>99	48
49	16	6	7	2	2	1				49
50	16	7	8	2	2	1				50
51	16	7	8	3	2	1				51
52	17	7	8	3	2	1				52
53	17	7	8	3	2	1				53
54	18	7	8	3	2	2				54
55	18	7	8	3	2	2				55
56	19	8	9	3	2	2				56
57	19	8	9	4	2	2				57
58	20	8	9	4	2	2				58
59	20	8	9	4	2	2				59

Note: Grade and benchmark period are reported in column headers as "Grade/Period" where 4 = grade 4, 1 = beginning of year, 2 = middle of year, and 3 = end of year. ORF-WRC = Oral Reading Fluency - Words Read Correctly; ORF-ACC = Oral Reading Fluency Accuracy.

©University of Oregon. All rights reserved.



Norm-Referenced Scoring Practice

What do the scores tell us?

Table 6. Grade 4 DIBELS 8th Edition Benchmark Assessment Percentile Ranks for 2021-2022

raw	ORF-WRC			ORF-ACC			MAZE			raw
	4.1	4.2	4.3	4.1	4.2	4.3	4.1	4.2	4.3	
40.5							99	99	98	40.5
41	13	5	6	2	1	1	99	99	98	41
41.5							99	99	98	41.5
42	13	5	6	2	1	1	99	>99	98	42
42.5							>99		99	42.5
43	13	6	6	2	1	1			99	43
43.5									99	43.5
44	14	6	7	2	1	1			99	44
44.5									99	44.5
45	14	6	7	2	1	1			99	45
45.5									99	45.5
46	14	6	7	2	1	1			99	46
46.5									99	46.5
47	15	6	7	2	1	1			99	47
47.5									99	47.5
48	15	6	7	2	1	1			>99	48
49	16	6	7	2	2	1				49
50	16	7	8	2	2	1				50
51	16	7	8	3	2	1				51
52	17	7	8	3	2	1				52
53	17	7	8	3	2	1				53
54	18	7	8	3	2	2				54
55	18	7	8	3	2	2				55
56	19	8	9	3	2	2				56
57	19	8	9	4	2	2				57
58	20	8	9	4	2	2				58
59	20	8	9	4	2	2				59

Note. Grade and benchmark period are reported in column headers as "Grade.Period" where 4 = grade 4, .1 = beginning of year, .2 = middle of year, and .3 = end of year. ORF-WRC = Oral Reading Fluency - Words Read Correctly; ORF-ACC = Oral Reading Fluency Accuracy.

©University of Oregon. All rights reserved.

48

Additional Considerations

What do the scores tell us?

- Note the examples provided offer ***ways to interpret a single score.***
- Other Uses:
 - Universal Screening
 - Progress Monitoring
 - Survey-Level Assessment
 - Error Analysis

Summary

- CBM is an approach to assessment that measures discrete skills reflective of major educational goals across the student's curriculum.
- CBMs are aligned with curriculum, efficient, technically adequate, standardized, low-inference with clear decision rules, and useful for repeated measurement.
- CBMs should be administered with fidelity using standardized procedures, materials, and scoring rules.
- CBMs can yield norm-referenced and/or criterion referenced scores.

Questions and Answers

