

# Content Area Reading Indicators Benchmark/Gating System for 7th–9th Grade

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## Introduction

The purpose of this poster is to report results of preliminary benchmark goals analysis with a 7th grade subset of students. Preliminary benchmark goals for Content Area Reading Indicators (CARI™) were established within a gating system of five different indicators across three gates. The CARI measures include Maze, Silent Reading (SR), and Oral Reading (OR). Maze and SR each have one comprehension indicator, and the OR measure includes three indicators: Words Correct (WC), Comprehension, and Accuracy. Each indicator provides two types of scores: a raw score and a gate score. The gate score is a weighted score such that the standard deviation of gate scores is approximately equal to the standard deviation of OR Words Correct, enabling an equally weighted average of measures. Each of the scores is interpreted relative to the benchmark goals and cut points for risk. The CARI Maze system-wide norms were used to set the benchmark goal at the 40th percentile, which represents a performance of adequate reading proficiency. The cut point for risk was set at the 20th percentile.

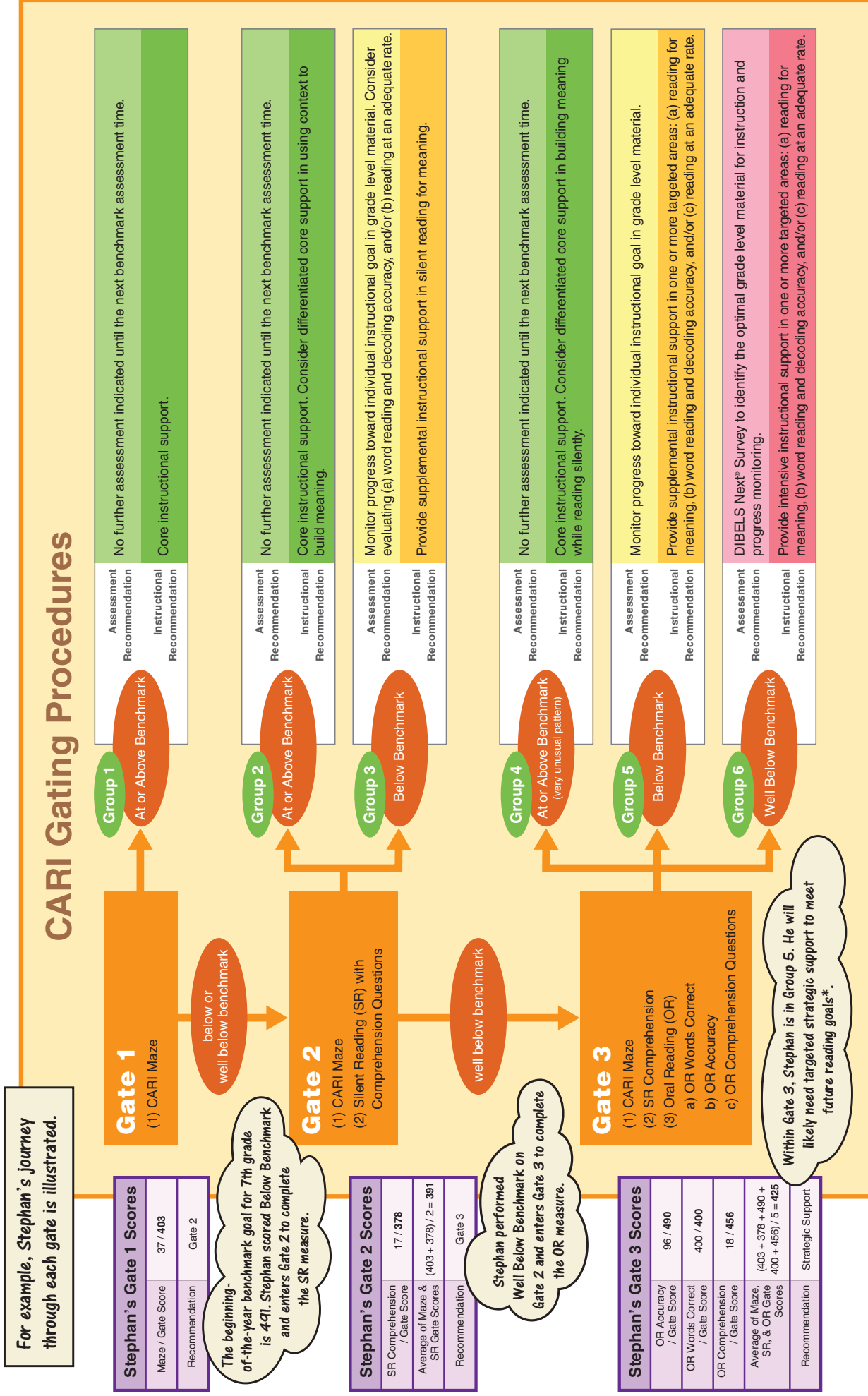
## Gating

CARI has three gates that are outlined in *Figure 1*. As students move through the gates, they are sorted into six different groups at three benchmark levels (Well Below Benchmark, Below Benchmark, and At or Above Benchmark). The groups can be used to help staff determine the best instructional placement for students. In Gate 1, Maze is administered to all students. Students with scores that are at or above the Maze benchmark goal comprise Group 1 and do not require further CARI assessment until the next scheduled benchmark. Students with scores below the Maze benchmark goal enter Gate 2 and are given the group-administered SR assessment. The Maze and SR gate scores are averaged to create a Gate 2 score that is used to make a decision about whether or not further CARI assessment is needed. Students with a Gate 2 score that is at or above benchmark are in Group 2 and require no further assessment until the next regularly scheduled benchmark. Students who earn a Gate 2 score that is below benchmark are in Group 3 with an instructional recommendation of likely to need strategic support. Students whose Gate 2 score is well below the benchmark goal enter Gate 3, and the OR measure is administered. The combined scores from CARI Maze, SR Comprehension, OR Words Correct, OR Accuracy, and OR Comprehension is averaged to create a Gate 3 score. Students whose Gate 3 score is at or above the benchmark are in Group 4. Few, if any, students are expected to reach the Gate 3 level of assessment and still achieve at or above benchmark status. Students in Group 5 have scored below benchmark on their Gate 3 score and are likely to need supplemental, strategic support. Students who score well below benchmark on Gate 3 are in Group 6 and are likely to need intensive instructional support. These students may also need instructional support in out-of-level skills. DIBELS Next Survey may be used to identify the appropriate level for progress monitoring. Based on the DIBELS Next Survey results, additional diagnostic information from DIBELS Deep PA & WRD (Phonemic Awareness and Word Reading and Decoding) or DIBELS Deep CFOL (Comprehension, Fluency, and Oral Language) may help guide appropriate next steps for instruction.

## Research Questions

1. For students in the 7th grade, what score on the CARI Maze measure corresponds with the 40th percentile and the 20th percentile on the CARI system-wide norms at each testing occasion?
2. Using linear equating, what are the corresponding equated scores that are used to create Gate scores?
3. Do CARI multiple gating procedures identify smaller numbers of students to receive additional assessments?
4. Do CARI multiple gating procedures identify students with lower levels of reading skills to receive additional assessment?

Figure 1. CARI multiple-gating procedures.



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## Method

### Participants

To establish gate scores and preliminary CARI benchmark goals and cut points for risk for all measures, data were collected in 11 school districts in eight U.S. states and one Canadian province. A subsample of 151 7th grade students who completed all three CARI measures (Maze, Silent Reading, Oral Reading) was selected from a larger sample of students who completed the Maze assessment only. This subsample included students with disabilities and students who were English language learners. Based on initial Maze scores the subsample included students across a range of academic levels including students who were struggling in content area literacy and those who were typically achieving.

### Measures

Each assessment measure includes a triad of passages that contains one science passage, one social studies passage, and one prose passage. Both the Maze and SR measures are group administered, while the OR measure is individually administered.

During the Maze task, the student is presented with a reading passage in which some words are replaced by a multiple-choice box that includes the original word and two distractors. The student reads the passage silently and selects the word in each box that best fits the meaning of the sentence. The student reads each of the three passages for three minutes. A Maze triad takes approximately 15 minutes to complete.

During the SR task, the student reads three short passages and has up to 45 minutes to answer a total of 45 multiple choice questions (15 per passage).

During the OR task, the student is given 90 seconds to read a passage orally. At the end of 90 seconds, a brief untimed comprehension component is administered. An OR triad takes approximately 12 minutes to complete.

### Data Collection

For the study, participating school districts administered the CARI measures and entered student scores into a data management system. All data were de-identified prior to analysis.

### Data Analysis

First, using the CARI system-wide norms (Latimer, Abbott, & Good, 2014), the 40th and 20th percentile for the Maze benchmark and cut point for risk were identified. Second, the corresponding Maze score and the four other indicator scores were equated to the OR Words Correct score at the beginning of the year using a linear equating process. Finally, the five indicators were combined to form each gate score to identify the student's benchmark status and the six different student groups resulting from the gating procedure.

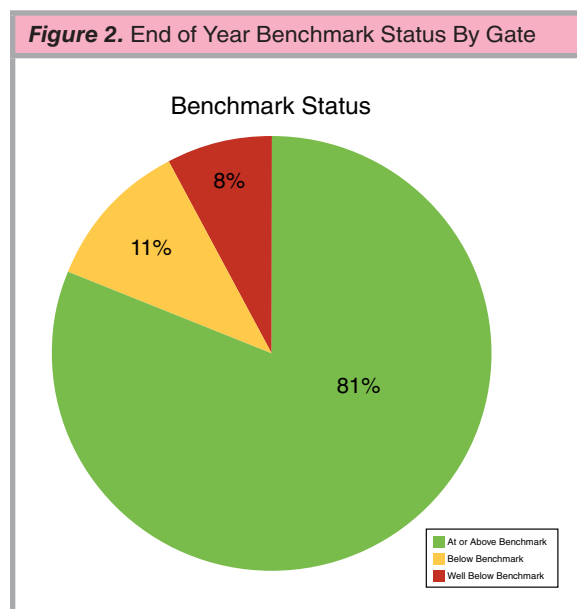
## Results

**Questions 1 and 2.** Table 1 shows the 7th-grade benchmark goals and cut points for risk for each measure and Gates 1–3. These scores are based on CARI system-wide norms (Latimer, et al., 2014). Benchmark goals and cut points for risk for 8th and 9th grade can be found in the appendix.

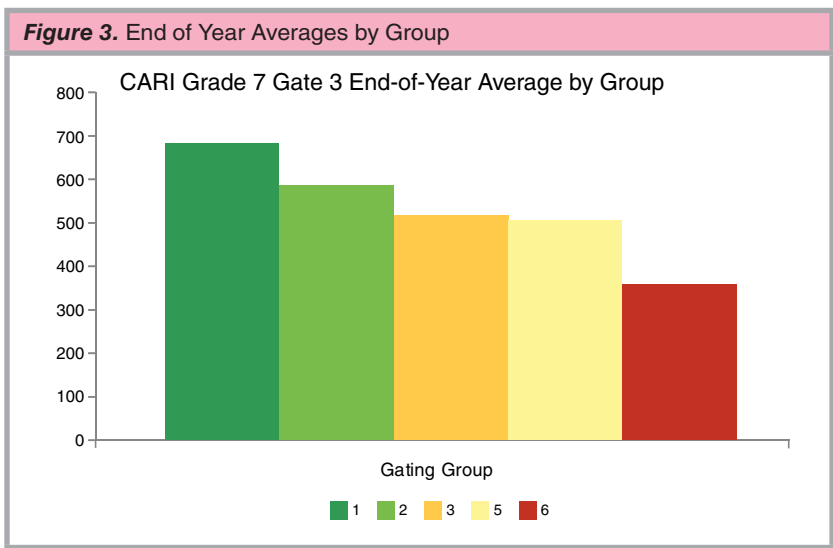
Measure	Score Level	Beginning of Year	Middle of Year	End of Year
Maze	At or Above Benchmark	52+	56+	62+
	Below Benchmark	38–51	41–55	45–61
	Well Below Benchmark	0–37	0–40	0–44
Silent Reading	At or Above Benchmark	23+	24+	26+
	Below Benchmark	19–22	20–23	21–25
	Well Below Benchmark	0–18	0–19	0–20
Oral Reading Words Correct	At or Above Benchmark	491+	515+	551+
	Below Benchmark	407–490	425–514	449–550
	Well Below Benchmark	0–406	0–424	0–448
Oral Reading Accuracy	At or Above Benchmark	97+	98+	98+
	Below Benchmark	96	97	97
	Well Below Benchmark	0–95	0–96	0–96
Oral Reading Comprehension	At or Above Benchmark	22+	23+	26+
	Below Benchmark	16–21	17–22	19–25
	Well Below Benchmark	0–15	0–16	0–18
CARI Gates 1–3	At or Above Benchmark	491+	515+	551+
	Below Benchmark	407–490	425–514	449–550
	Well Below Benchmark	0–406	0–424	0–448

Note: Benchmark goals are applied to the triad total.

**Question 3.** Figure 2 illustrates the number of students at each gate. The number of students is reduced at each subsequent gate.



**Question 4.** Figure 3 illustrates the number of students in each Gate Group. With the exception of Group 4 that, as expected, has no students, the number of students in each group decreases.



**Discussion and Implications for Practice**

The purpose of CARI is to inform decisions about which students are likely to need additional instructional support to achieve important future reading outcomes. The CARI benchmark goals represent the lowest level of reading skill that puts the odds in a student’s favor of reaching subsequent goals. CARI is designed to inform instructional decisions that improve outcomes. The CARI multiple-gating procedures provide an effective method to reduce student testing time for students who are making adequate progress and maximize assessment information for students with substantial needs. Results from this analysis indicate that as students progress through the gates, the number of students assessed drops and their skills decrease (and their need for support increases). This represents a targeted approach for middle and high school staff to determine the appropriate level of instructional support with the minimum level for assessment.

For example, Figure 1 illustrates one student’s journey through each gate based on the beginning of the year benchmark assessment. Note that Stephan scored below the benchmark goal on the Maze measure. He entered Gate 2 and completed the SR measure. Stephan performed well-below benchmark (below the cut point for risk) on Gate 2 and, therefore, entered Gate 3. Stephan completed the Oral Reading measure. This additional assessment provided school staff with three additional indicators: OR Words Correct, OR Accuracy, and OR Comprehension.

The Gate 3 score indicates that Stephan is in Group 5 and is likely to need targeted strategic support to meet future reading goals. From the OR measure, the teacher learns that Stephan’s OR Comprehension score is above the cut point for risk but still below the beginning of the year benchmark goal of 493. Stephan’s OR Accuracy score is very close to the benchmark goal. However, Stephan’s OR Words Correct score of 400 is below the benchmark. Stephan’s performance would indicate that he is likely to need strategic support in developing an adequate reading rate. Thus, it could be that Stephan’s poor performance on the CARI Maze and SR measures was due in part to a low reading rate and not entirely due to difficulty in comprehending the material. A plan for instructional support to increase oral reading fluency and reading for meaning is likely to be beneficial. Progress monitoring with OR can help to set a fluency goal and monitor progress. As Stephan’s fluency improves, Maze and SR progress monitoring could be collected as well so that Stephan has additional practice demonstrating comprehension in different formats.

**Limitations**

1. The CARI assessments were administered under uncontrolled conditions. Information on the training of assessors and fidelity of assessment is not available. However, these data do represent the way CARI is used in practice.
2. Although these data were collected in multiple school districts across the country, the sample is small and may not be nationally representative. This may potentially limit the generalizability of the results.

**References**

Latimer, R. J., Abbott, M., & Good, R. H. (2014). 2014–2015 *DIBELSnet Preliminary System-Wide Percentile Ranks for CARI Daze* (Technical Report No. 20). Eugene, OR: Dynamic Measurement Group.

## Appendix

### CARI Preliminary Benchmark Goals and Cut Points for Risk for the 2017-2018 School Year

#### ***CARI Seventh Grade Benchmark Goals and Cut Points for Risk***

Measure	Score Level	Beginning of year	Middle of year	End of Year
Maze	At or Above Benchmark	52+	56+	62+
	Below Benchmark	38-51	41-55	45-61
	Well Below Benchmark	0-37	0-40	0-44
Silent Reading	At or Above Benchmark	23+	24+	26+
	Below Benchmark	19-22	20-23	21-25
	Well Below Benchmark	0-18	0-19	0-20
Oral Reading Words Correct	At or Above Benchmark	491+	515+	551+
	Below Benchmark	407-490	425-514	449-550
	Well Below Benchmark	0-406	0-424	0-448
Oral Reading Accuracy	At or Above Benchmark	97+	98+	98+
	Below Benchmark	96	97	97
	Well Below Benchmark	0-95	0-96	0-96
Oral Reading Comprehension	At or Above Benchmark	22+	23+	26+
	Below Benchmark	16-21	17-22	19-25
	Well Below Benchmark	0-15	0-16	0-18
CARI Gates 1 - 3	At or Above Benchmark	491+	515+	551+
	Below Benchmark	407-490	425-514	449-550
	Well Below Benchmark	0-406	0-424	0-448

*Note.* Benchmark goals are applied to the triad total.

CARI Preliminary Benchmark Goals and Cut Points for Risk for the 2017-2018 School Year

**CARI Eighth Grade Benchmark Goals and Cut Points for Risk**

Measure	Score Level	Beginning of year	Middle of year	End of Year
Maze	At or Above Benchmark	57+	70+	74+
	Below Benchmark	40-56	53-69	55-73
	Well Below Benchmark	0-39	0-52	0-54
Silent Reading	At or Above Benchmark	25+	28+	29+
	Below Benchmark	21-24	24-27	24-28
	Well Below Benchmark	0-20	0-23	0-23
Oral Reading Words Correct	At or Above Benchmark	504+	569+	589+
	Below Benchmark	419-503	484-568	494-588
	Well Below Benchmark	0-418	0-483	0-493
Oral Reading Accuracy	At or Above Benchmark	98+	98+	99+
	Below Benchmark	97	97	98
	Well Below Benchmark	0-96	0-96	0-97
Oral Reading Comprehension	At or Above Benchmark	21+	25+	27+
	Below Benchmark	16-20	20-24	21-26
	Well Below Benchmark	0-15	0-19	0-20
CARI Gates 1 - 3	At or Above Benchmark	504+	569+	589+
	Below Benchmark	419-503	484-568	494-588
	Well Below Benchmark	0-418	0-483	0-493

*Note.* Benchmark goals are applied to the triad total.

CARI Preliminary Benchmark Goals and Cut Points for Risk for the 2017-2018 School Year

**CARI Ninth Grade Benchmark Goals and Cut Points for Risk**

Measure	Score Level	Beginning of year	Middle of year	End of Year
Maze	At or Above Benchmark	56+	60+	68+
	Below Benchmark	42-55	45-59	53-67
	Well Below Benchmark	0-41	0-44	0-52
Silent Reading	At or Above Benchmark	26+	28+	30+
	Below Benchmark	22-25	23-27	26-29
	Well Below Benchmark	0-21	0-22	0-25
Oral Reading Words	At or Above Benchmark	549+	573+	621+
Correct	Below Benchmark	465-548	483-572	531-620
	Well Below Benchmark	0-464	0-482	0-530
Oral Reading	At or Above Benchmark	98+	99+	99+
Accuracy	Below Benchmark	97	98	98
	Well Below Benchmark	0-96	0-97	0-97
Oral Reading	At or Above Benchmark	27+	29+	32+
Comprehension	Below Benchmark	21-26	23-28	26-31
	Well Below Benchmark	0-20	0-22	0-25
CARI Gates 1 - 3	At or Above Benchmark	549+	573+	621+
	Below Benchmark	465-548	483-572	531-620
	Well Below Benchmark	0-464	0-482	0-530

*Note.* Benchmark goals are applied to the triad total.



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**Disclosure**

Roland Good is a co-owner of Dynamic Measurement Group, Inc. (DMG). Mary Abbott, Rachael Latimer, and Amy Warnock are employees of DMG.

DMG is an educational company that is dedicated to supporting success for children and schools. DMG was founded by Roland H. Good III and Ruth Kaminski, authors of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS®), and is the official home of DIBELS research, development, and training.

DMG receives revenue from the publication of DIBELS® and other assessments, training and professional development, and the operation of the DIBELSnet® data reporting service.

CARI is available for free download and unlimited photocopying for educational purposes. Additional information about DMG is available at <https://dibels.org/>.

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