Using DRC BEACON to Predict SC READY Achievement

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PURPOSE

The purpose of this document is to provide teachers, administrators, and other DRC BEACON assessment users with information about how to use the SC READY predictive information that is provided on DRC BEACON reports. The DRC BEACON to SC READY predictions have several potential uses. These uses are discussed, and evidence of the validity of those uses is provided. Detailed DRC BEACON to SC READY prediction tables showing the DRC BEACON to SC READY score and achievement-level correspondence are also provided.

DRC BEACON ASSESSMENTS

DRC BEACON is an interim (periodic) assessment that was developed by Data Recognition Corporation (DRC) to measure student achievement in English language arts (ELA) and mathematics in grades 3–8. The assessment is delivered on the DRC INSIGHT engine in a computer-adaptive testing (CAT) mode. Adaptive test administrations allow students and teachers a precise view of student achievement afforded by the CAT process of continually adjusting item difficulty to an individual student's ability level throughout each test administration.

DRC BEACON assessments can be configured in a variety of ways, including comprehensive ELA and mathematics tests or in smaller testlets that focus on specific domains of content. We recommend that the full ELA and mathematics tests be administered three times a year (Fall, Winter, and Spring), allowing teachers and students the ongoing opportunity to identify individual and group learning needs, and to monitor student progress toward learning expectations.

DRC BEACON assessment results are delivered through a dynamic interactive reporting system that allows users the opportunity for immediate individual results, roster reports, and links to college- and career-ready standards. The interactive reporting system also allows users to disaggregate, categorize, and sort data to create various useful summaries of test results.

USING DRC BEACON IN SUPPORT OF EVIDENCE-BASED TEACHING AND LEARNING

The DRC BEACON assessments are intended to provide periodic feedback on student learning at times when students are most receptive to information about their progress and learning needs. That is, DRC BEACON offers the opportunity to collect information about student learning while there is still sufficient time remaining in the school year to take action on improvement goals.

Specifically, DRC BEACON provides indications of: a) mastery through detailed descriptions of student achievement, b) growth targets, progress, and adequacy related to improvement needs at individual and aggregate levels, and c) learning progressions that help teachers differentiate instruction by identifying what students are ready to learn next and where to focus efforts for maximum impact as they progress throughout the year.

DRC BEACON also provides predictions of student achievement on the SC READY summative assessments in ELA and mathematics in grades 3–8 for each of the Fall, Winter, and Spring administrations; however, only ELA will be available in 2025–2026, as mathematics will be going through a new standard setting in 2026. Rather than indicating how the students would perform on SC READY at that moment in time, the predictions account for typical growth to be expected at the end of the school year. These predictions provide appropriate context for teachers to understand where students are in their learning relative to end-of-year expectations.

Since DRC BEACON is administered three times per year, teachers are afforded these insights about student learning on a continual basis. These insights directly support processes such as: a) setting instructional priorities that are sensitive to evidence-based student learning needs, b) seeking more targeted interventions for students who require them, and c) establishing early warning indicators for students who may be at risk of not achieving grade-level proficiencies by the end of the school year. Students are afforded insights into their progress toward targeted achievement levels, and information about where they might focus their learning strategies to reach end-of-year goals.

Providing information about students' expected SC READY achievement at multiple points during the school year to support teachers and students in these ways is the fundamental purpose of the DRC BEACON to SC READY predictions.

INTERPRETING THE DRC BEACON TO SC READY PREDICTIONS

The predictive relationship between DRC BEACON and SC READY scores is particularly useful as it relates DRC BEACON achievement to expectations about how students will perform on the SC READY assessments. Each SC READY achievement level has a corresponding scale score range and description that teachers and students can use to understand the knowledge and skills that are required of students to meet the expectations embodied in each level as they progress in their learning, and there is a DRC BEACON scale score range that corresponds to those expectations for each subject, grade, and DRC BEACON administration (Fall, Winter, Spring).

This information is available for ELA only in Table 1, noting that a student's prediction of achievement on the SC READY assessment is best used within each administration window, as the inferences drawn over time are likely to change based on a combination of student learning and the data used as a basis for predictions in each window.

TABLE 1. SC READY ACHIEVEMENT-LEVEL SCALE SCORE RANGES, ELA GRADES 3–8

ELA		Does Not Meet Expectations	Approaches Expectations	Meets Expectations	Exceeds Expectations
Third Grade	SC READY Perf Level SS Range	100-359	360-453	454-540	541-825
	Fall BEACON Scale Score	160-304	305-370	371-419	420-800
	Winter BEACON Scale Score	160-332	333-385	386-425	426-800
	Spring BEACON Scale Score	160-348	349-396	397-430	431-800
Fourth Grade	SC READY Perf Level SS Range	100-419	420-490	491-602	603-850
	Fall BEACON Scale Score	180-357	358-393	394-460	461-820
	Winter BEACON Scale Score	180-355	356-395	396-480	481-820
	Spring BEACON Scale Score	180-356	357-405	406-489	490-820
Fifth Grade	SC READY Perf Level SS Range	100-464	465-524	525-631	632-875
	Fall BEACON Scale Score	200-372	373-418	419-549	550-840
	Winter BEACON Scale Score	200-394	395-416	417-559	560-840
	Spring BEACON Scale Score	200-399	400-421	422-553	554-840
Sixth Grade	SC READY Perf Level SS Range	100-470	471-550	551-645	646-900
	Fall BEACON Scale Score	220-356	357-447	448-563	564-860
	Winter BEACON Scale Score	220-386	387-442	443-533	534-860
	Spring BEACON Scale Score	220-378	379-456	457-581	582-860
Seventh Grade	SC READY Perf Level SS Range	100-509	510-567	568-663	664-925
	Fall BEACON Scale Score	240-389	390-441	442-594	595-880
	Winter BEACON Scale Score	240-408	409-420	421-588	589-880
	Spring BEACON Scale Score	240-399	400-456	457-650	651-880
Eighth Grade	SC READY Perf Level SS Range	100-526	527-593	594-686	687-950
	Fall BEACON Scale Score	260-386	387-436	437-624	625-900
	Winter BEACON Scale Score	260-404	405-464	465-614	615-900
	Spring BEACON Scale Score	260-419	420-486	487-631	632-900

As an example of how to use the DRC BEACON to SC READY predictions, consider a third-grade student who scores 335 on the DRC BEACON ELA assessment in the Fall. The SC READY ELA score prediction for this student is in the middle of the "Approaches Expectations" range on the SC READY assessment. This prediction, along with the information about a student's relative strengths and potential misunderstandings that are provided on the DRC BEACON reports, gives the teacher and the student information that can be used to focus instruction in a way that builds on the student's strengths and addresses their misunderstandings.

This prediction can also serve as a signal that a student may need additional interventions, or efforts to accelerate their learning. In this particular example, the predictive information indicates that the student is not expected to reach the "Meets Expectations" level, so may require some acceleration in their progress toward proficiency. This prediction, combined with the information about a student's relative strengths that is provided on DRC BEACON reports, can further assist teachers in focusing instruction and other interventions and supports.

DRC BEACON TO SC READY PREDICTIVE VALIDITY

The Standards for Educational and Psychological Testing (AERA, APA, and NCME, 2014) define validity as

"…the degree to which evidence and theory support the interpretations of test scores entailed by the proposed uses of a test."

In the preceding discussions, the intended uses and interpretations of DRC BEACON test results, and their predictions of achievement on the SC READY assessments, are defined and discussed. However, according to the Standards, it is not enough to simply define test score uses. Scores must also be evaluated through an ongoing collection of evidence supporting score validity for their intended uses.

The DRC BEACON Technical Report (DRC, 2020), provides the collection of validity evidence that has been gathered in support of the use of the DRC BEACON assessments, and the body of validity evidence can be summarized as follows:

- **Content:** DRC BEACON assessment content is aligned with state standards and the DRC BEACON blueprints, developed and reviewed through rigorous processes, and is accessible to students through adherence to universal design principles and assigned accommodations.
- **Relationship with Other Variables:** DRC BEACON scores show a strong relationship to the state summative assessment, SC READY, indicating that assessments measure similar things in a reliable manner.
- **Response Processes:** Student responses to the DRC BEACON items follow expected patterns.
- **Internal Structure:** DRC BEACON has strong score reliability, score scale properties, and adaptivity in terms of student experience and score accuracy.
- **Consequences:** DRC BEACON items have been subject to rigorous bias, fairness, and sensitivity reviews.

However, the DRC BEACON to SC READY predictions require additional evidence to support their uses as described. The following provides a brief overview of the methods used to create the DRC BEACON to SC READY predictions and to collect evidence of the validity of those predictions.

DATA

Data for the linking study were gathered from four administrations: 1) DRC BEACON Fall 2024 (August–November), 2) DRC BEACON Winter 2024/2025 (December–February), 3) DRC BEACON Spring 2025 (March–May), and 4) SC READY Spring 2025. Student data from each DRC BEACON administration was matched with SC READY data at the student level. The matched data were then re-sampled, using propensity score matching to weight the original samples to be state representative in terms of achievement, gender, ethnicity, disability status, English proficiency, and IEP before the linking analysis.

METHOD

Linking DRC BEACON to SC READY uses a statistical method called "Isotonic regression" (Barlow, Bartholomew, Bremner, & Brunk, 1972) to create the SC READY achievement predictions. Isotonic regression is sometimes referred to as monotonic regression, which is a technique of fitting a free-form line to a sequence of observations such that the fitted line is non-decreasing (or non-increasing) everywhere and lies as close to the observations as possible. Isotonic regression was chosen among several alternative linking methods as the most appropriate linking method to link DRC BEACON and SC READY achievement. Separate regression lines were developed for each DRC BEACON administration—Fall, Winter, and Spring—so outcomes from each administration account for expected progress for the remainder of the school year.

PREDICTIVE VALIDITY EVIDENCE

As discussed, the intended use of predictions requires an evaluation of the predictive validity of DRC BEACON scores. An effective approach to collecting this type of evidence is to simply compare students' actual SC READY scores to the scores they were predicted to achieve throughout the school year. Fortunately, this information is readily available. The predicted SC READY scale scores and achievement levels were compared with observed SC READY scale scores and achievement levels. The correlations and the classification consistency coefficients between predicted scale scores and actual SC READY scale scores were generated for ELA across all grades and administrations and show strong correlations (ranging from 0.80 to 0.91) and moderate rates of classification consistency (kappas ranging from 0.40 to 0.62), demonstrating prediction accuracies.

Moving forward, the DRC BEACON to SC READY predictions will be updated annually.

REFERENCES

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