

Summary of Research Project Relating Star Reading® and Star Math® to ACT EXPLORE Performance

Overview

[Renaissance Learning \(2013b\)](#) conducted a study linking Star interim assessments to ACT's EXPLORE assessment of college preparedness. The reading and English EXPLORE subtests were linked with Star Reading, and the math EXPLORE subtest was linked with Star Math. This research will help educators using Star answer the important question—Are my students on track to be college ready as defined by ACT?

Linking EXPLORE assessment and college-readiness scores—Are my students on track to be college ready as defined by ACT?

Though marketed as an assessment for grades 8 and 9, students generally take EXPLORE in fall of eighth grade as part of ACT's College and Career Readiness System which also includes the PLAN in 10th grade and ACT in 11th grade. EXPLORE reports scaled scores ranging from 1 to 25 to describe a student's degree of college readiness. ACT's college-readiness benchmarks are 15 for the reading subtest, 13 for English, and 17 for math.

To identify these college-readiness benchmark scores, ACT began by finding the ACT score associated with a 50% chance of earning a B or higher in credit-bearing courses commonly taken by first-year college students. The benchmarks were then developed by identifying the EXPLORE scores associated with a 50% probability of meeting each of the corresponding ACT benchmarks. For more information about EXPLORE and how the college-readiness benchmarks were calculated, see [ACT, Inc., 2011](#).

Procedure and sample

Using equipercentile-linking analysis, two linking studies were conducted using data from six school years (2007/2008 to 2012/2013)—one to determine same-year Star cut scores for grade 8, and another to determine prior-year Star cut scores for grade 7. The same-year dataset included records from more than 29,000 students; the prior-year dataset included more than 20,000 students.

Results: Star cut scores

The following table lists the Star cut scores that correspond to each EXPLORE college readiness benchmark. Students who achieve the Star cut score or higher are considered on track for college success. More specifically, ACT pinpointed the EXPLORE benchmarks by finding which scores were associated with a 50% probability of subsequently achieving the college-readiness benchmark scores on the ACT. Thus, students who meet the linked Star cut scores should have about a 50% chance of achieving ACT scores associated with college success.

This context for how the scores are determined can help facilitate appropriate interpretations and applications. Though meeting these cut scores provides a good estimate of college preparedness, the scores are not meant to be absolute indicators of whether a student should go to college or not.

EXPLORE College-Readiness Benchmark Scores and Linked Star Reading Scores

Subject	EXPLORE Benchmark	Linked Star Reading Scaled Score	
		Prior Year (Grade 7 Spring)	Same Year (Grade 8 Fall)
Reading	15	852	882
English	13	672	694

EXPLORE College-Readiness Benchmark Scores and Linked Star Math Scores

Subject	EXPLORE Benchmark	Linked Star Math Scaled Score	
		Prior Year (Grade 7 Spring)	Same Year (Grade 8 Fall)
Math	17	843	828

*Please note: For math, the cut score for grade 7 is higher than for grade 8. This is a commonly observed pattern that we attribute to the “summer slump” phenomenon, which is particularly acute in math, resulting in significant drops in performance from spring to fall.

Estimating whether students are “on track” in earlier grades

Once the Star-EXPLORE linking study was completed, an additional linking was conducted to find Star score ranges for grades 5 and 6 that correspond to college readiness ([Renaissance Learning, 2013a](#)). Such ranges may be useful for early identification of students at risk of failing to make college-readiness goals in reading and math, empowering teachers to provide intervention during formative years when it could be most meaningful.

Logistic regression was used to find scores at the end of grades 5 and 6 associated with a 25%, 50%, and 75% probability of achieving the college-readiness Star cut score for grade 7. These scores represent a range of probable college readiness educators can use to guide decisions about instruction for students in late elementary and early middle school grades.

Star Reading Grade 7 College-Readiness Cut Scores and Linked Earlier-Grade Scaled Score Ranges

Subject	Star Reading Grade 7 Spring Cut Score	Grade 5 Spring Star Reading Scaled Score Range			Grade 6 Spring Star Reading Scaled Score Range		
		25% Prob.	50% Prob.	75% Prob.	25% Prob.	50% Prob.	75% Prob.
Reading	852	560	662	765	642	758	875
English	672	443	535	626	498	603	708

Star Math Grade 7 College-Readiness Cut Scores and Linked Earlier-Grade Scaled Score Ranges

Subject	Star Math Grade 7 Spring Cut Score	Grade 5 Spring Star Math Scaled Score Range			Grade 6 Spring Star Math Scaled Score Range		
		25% Prob.	50% Prob.	75% Prob.	25% Prob.	50% Prob.	75% Prob.
Math	843	722	789	857	767	828	889

Bibliography

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Additional reading

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