

Study Profile: STAAR Chemistry – ACT Science (★★★★☆)

The STAAR chemistry – ACT science external validity study is designed to establish empirical links between performance on the STAAR chemistry assessment and performance on the ACT science test.

Motivation (★★★★☆)

This analysis was based on a single group of students who took both the STAAR chemistry and the ACT science assessments between 2009 and 2011. Data from STAAR derive from low-stakes operational administrations between 2009 and 2011 and are linked to motivated ACT science scores in corresponding years.

Representativeness (★★★★☆) and Sample Size (★★★★★)

Grade Levels

All Chemistry Examinees Versus Those Linked to ACT Scores

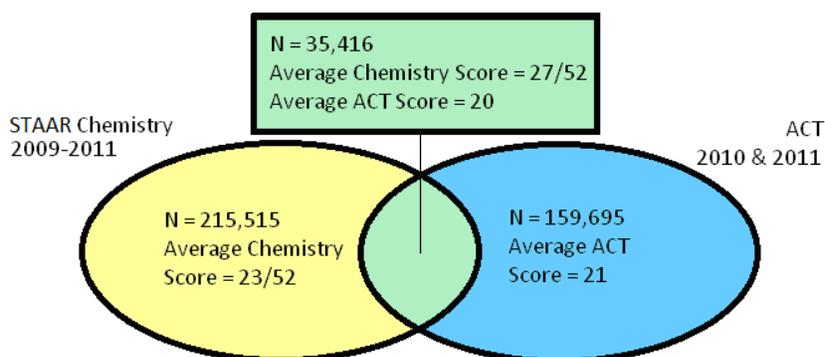
Group	Grade 8		Grade 9		Grade 10		Grade 11		Grade 12		Missing		Total
All Chemistry	5	0%	4,853	2%	142,909	57%	92,733	37%	10,423	4%	8	0%	250,931
Linked	0	0%	66	0%	15,506	44%	18,407	52%	1,436	4%	1	0%	35,416

Demographic Characteristics

All Chemistry Examinees Versus Those Linked to ACT Scores

Group	Female		Economically Disadvantaged		African American		Hispanic		White		Other	
All Chemistry	127,130	51%	117,179	47%	30,893	12%	105,892	42%	96,212	38%	17,934	7%
Linked	19,486	55%	13,893	39%	4,726	13%	11,318	32%	16,450	46%	2,922	8%

Summary of STAAR Chemistry and ACT Achievement Linked and Unlinked Groups



Average ACT Scores Based on Students' STAAR Performance

Satisfactory Academic Performance	Advanced Academic Performance
23	28

Correlation (★★★★☆)

Correlation between STAAR chemistry and ACT science = **0.65**

Content Overlap (★★☆☆☆)

There is minimal (5%) content/skills overlap between the STAAR chemistry assessment and the ACT science assessment.

Assessment Characteristics

Assessment Characteristic	STAAR Chemistry	ACT science
Purpose	Created to determine mastery of the chemistry Texas Essential Knowledge and Skills (TEKS), the state-mandated curriculum	Designed to help college admissions officials identify students likely to achieve success in general science courses.
Assessment Type	A criterion-referenced assessment	A criterion-referenced assessment
Content	Measures matter and the periodic table, atomic structure and nuclear chemistry, bonding and chemical reactions, gases and thermochemistry, and solutions. At least 40% of the test questions will incorporate scientific process skills.	The science component of the ACT is designed to assess process skills involving interpretation, analysis, evaluation, reasoning, and problem-solving in the context of biology, chemistry, physics, geology, astronomy, and meteorology.
Item Format	52 items total: 47 multiple-choice items and 5 gridded-response items	40 multiple-choice items total
Administration	<ul style="list-style-type: none"> • Administered in May, July, and December • Administered online and on paper • Administered by trained school personnel • 4 hour time limit 	<ul style="list-style-type: none"> • Administered in February, April, June, September, October, and December • Administered on paper • Administered by trained supervisors and proctors at an approved location (typically a local school with school district staff administering the test) • 35 minute time limit
Performance Standards	Performance standards will be established and implemented in spring 2012	<ul style="list-style-type: none"> • Score scale is 1–36. • Average score is 21 • College readiness benchmark score is 24