Follow the ACT Research: Best Practices in Education

Dominic Iannone

ACT Senior Account Executive

Dominic.Iannone@act.org

928.486.1051

ACT®

Why Research Matters

- Data Driven Decisions are good. Right?

- Hidden Dangers of using data incorrectly
  - Gates Small School Initiative

The Most Dangerous Equation- except from *Picturing the Uncertain World* by Howard Wainer, 2009.

ACT: Your Research Experts

- Our research team consists of about 50 people, the majority with PhD's in statistics, data analysis, or psychometrics

- This team analyzes data related to ACT solutions, but also looks for broader trends in education.

- You can see a full list of our ACT Research team on their website.

Jeff Allen, PhD

Jeff Allen is a statistician in Applied Research.

Today's Agenda

How does ACT use research to support its mission?

Current Issues in Education and Assessment

Research-tested methods for improving student readiness

Drilling down in the data
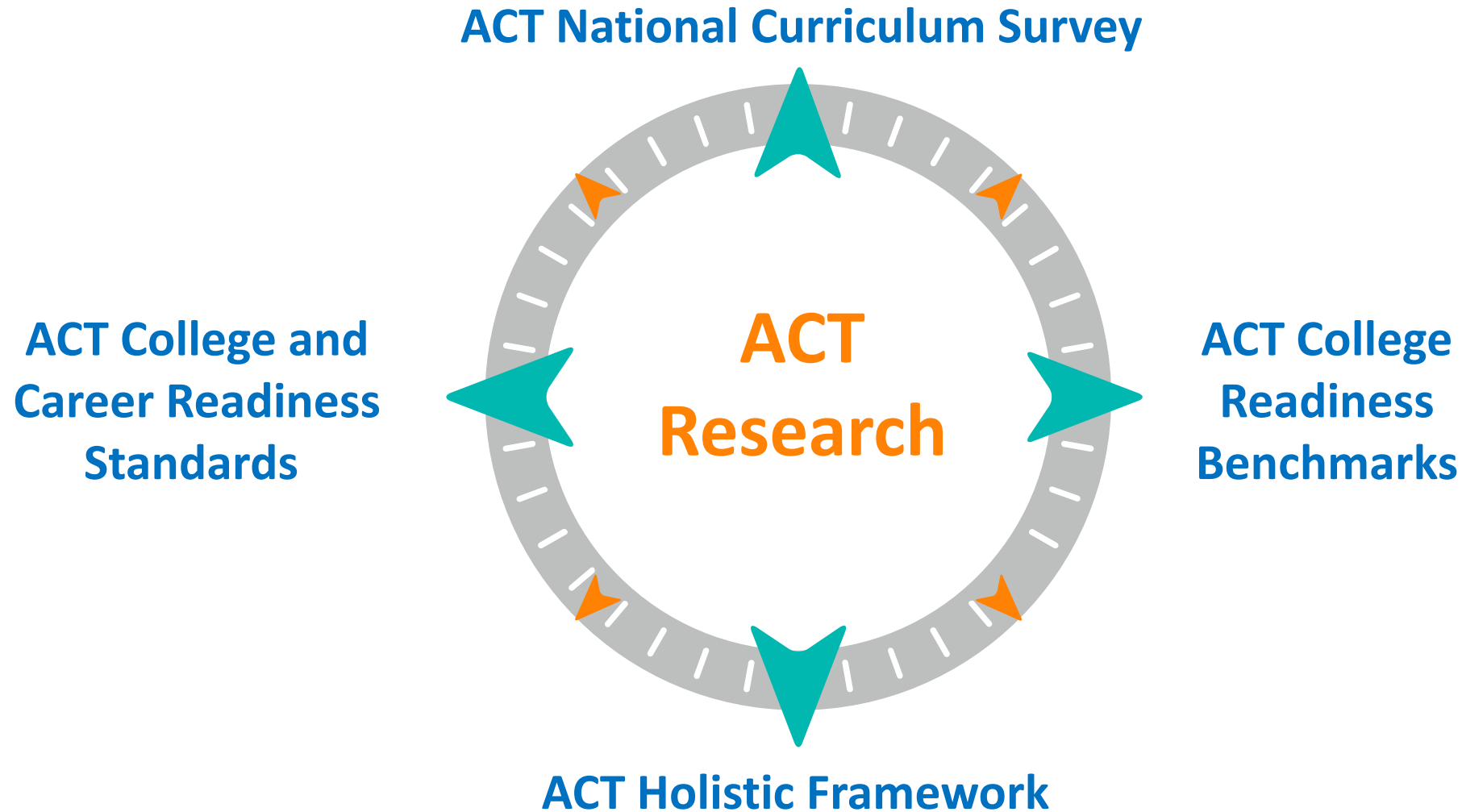
Backbone of the Research

Because of our unique access to ACT data, much of our research uses the ACT as point of reference

Is that a good measure? What does the ACT actually measure?

ACT®

ACT NATIONAL CURRICULUM SURVEY®

- Conducted every 3-5 years by ACT

- Includes sample survey of nearly 10,000 educators and industry leaders

- Shows skills and knowledge taught at each grade level

- Collects data about what entering college students should know and be able to do to be ready for college-level coursework

- Consultation with content area experts

Area	Number of Respondents
Early elementary school	1,214
Upper elementary school	1,213
Middle school	1,623
High school	1,619
K–12 administrators	405
College instructors	2,883
Workforce supervisors	405
Workforce employees	406
TOTAL	9,768

ACT®

ACT FOUNDATION: Understanding Standards and Benchmarks Readiness

College readiness means meeting benchmarks

- Success in credit-bearing, first-year courses
- Two- or four-year college, trade school, technical school, or military
- Without needing to take remedial courses

Career readiness requires knowledge and skills comparable to those expected of a first-year college student

Our goal is to prepare and educate all students according to a common academic expectation that prepares them for postsecondary education and the workforce

ACT®

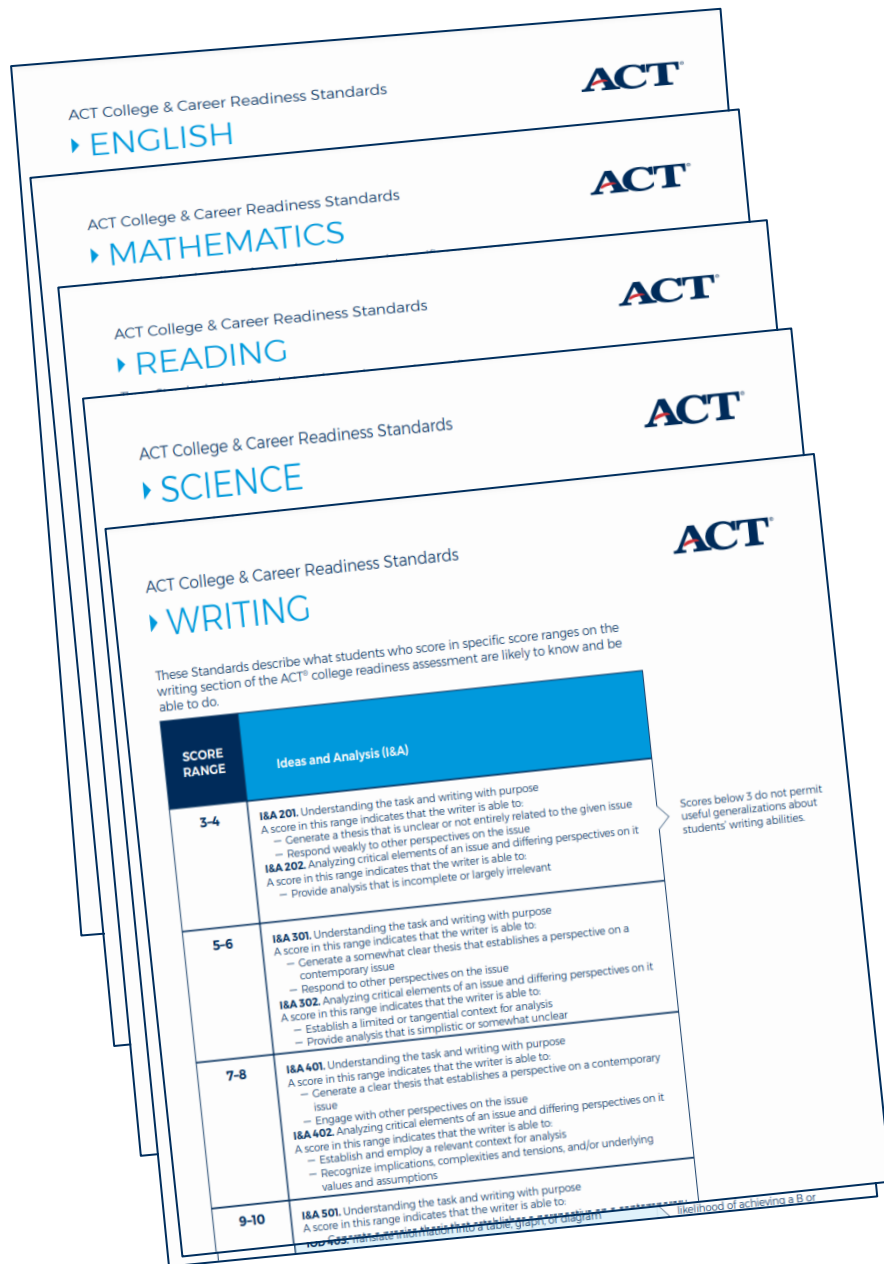# ACT COLLEGE AND CAREER READINESS STANDARDS

Descriptions:

Essential skills and knowledge students needed to be prepared for college and career

Standards:

- English
- Math
- Reading
- Science
- Writing

Identify the knowledge and skills students are likely to demonstrate at various score ranges on each academic test.

ACT College & Career Readiness Standards
▸ ENGLISH

ACT College & Career Readiness Standards
▸ MATHEMATICS

ACT College & Career Readiness Standards
▸ READING

ACT College & Career Readiness Standards
▸ SCIENCE

ACT College & Career Readiness Standards
▸ WRITING

These Standards describe what students who score in specific score ranges on the writing section of the ACT® college readiness assessment are likely to know and be able to do.

SCORE RANGE	Ideas and Analysis (I&A)
3–4	**I&A 201.** Understanding the task and writing with purpose. A score in this range indicates that the writer is able to: — Generate a thesis that is unclear or not entirely related to the given issue — Respond weakly to other perspectives on the issue **I&A 202.** Analyzing critical elements of an issue and differing perspectives on it. A score in this range indicates that the writer is able to: — Provide analysis that is incomplete or largely irrelevant
5–6	**I&A 301.** Understanding the task and writing with purpose. A score in this range indicates that the writer is able to: — Generate a somewhat clear thesis that establishes a perspective on a contemporary issue — Respond to other perspectives on the issue **I&A 302.** Analyzing critical elements of an issue and differing perspectives on it. A score in this range indicates that the writer is able to: — Establish a limited or tangential context for analysis — Provide analysis that is simplistic or somewhat unclear
7–8	**I&A 401.** Understanding the task and writing with purpose. A score in this range indicates that the writer is able to: — Generate a clear thesis that establishes a perspective on a contemporary issue — Engage with other perspectives on the issue **I&A 402.** Analyzing critical elements of an issue and differing perspectives on it. A score in this range indicates that the writer is able to: — Establish and employ a relevant context for analysis — Recognize implications, complexities and tensions, and/or underlying values and assumptions
9–10	**I&A 501.** Understanding the task and writing with purpose. A score in this range indicates that the writer is able to:

Scores below 3 do not permit useful generalizations about students' writing abilities.

ACT COLLEGE AND CAREER READINESS BENCHMARKS

Subject	Scores*	First-Year College Course
English	18	English Composition
Math	22	College Algebra
Reading	22	Social Sciences
Science	23	Biology
ELA	20	English Composition and Social Sciences
STEM	26	Calculus, Chemistry, Biology, Physics, and Engineering

*Minimum scores associated with post-secondary success in credit-bearing, entry-level courses. PreACT College Readiness Indicators can also be used to evaluate student readiness.

Table 2. ACT Cutoff Score Guide for Placement in First-Year College Courses

Course Type	ACT Test	Score Needed for 50% Chance of B or Higher
English Courses		
Standard Composition	English	18
Advanced Composition	English	19
Mathematics Courses		
College Algebra	Mathematics	22
Pre-Calculus	Mathematics	24
Trigonometry	Mathematics	24
Calculus	Mathematics	27
Social Science Courses		
American History	Reading	23
Other History	Reading	23
Psychology	Reading	22
Sociology	Reading	21
Political Science	Reading	22
Natural Science Courses		
Biology	Science	23
Chemistry	Science	26

Benchmark scores associated with post-secondary success in credit-bearing courses.

ACT®

The Reality of Meeting the ACT College Readiness Benchmarks
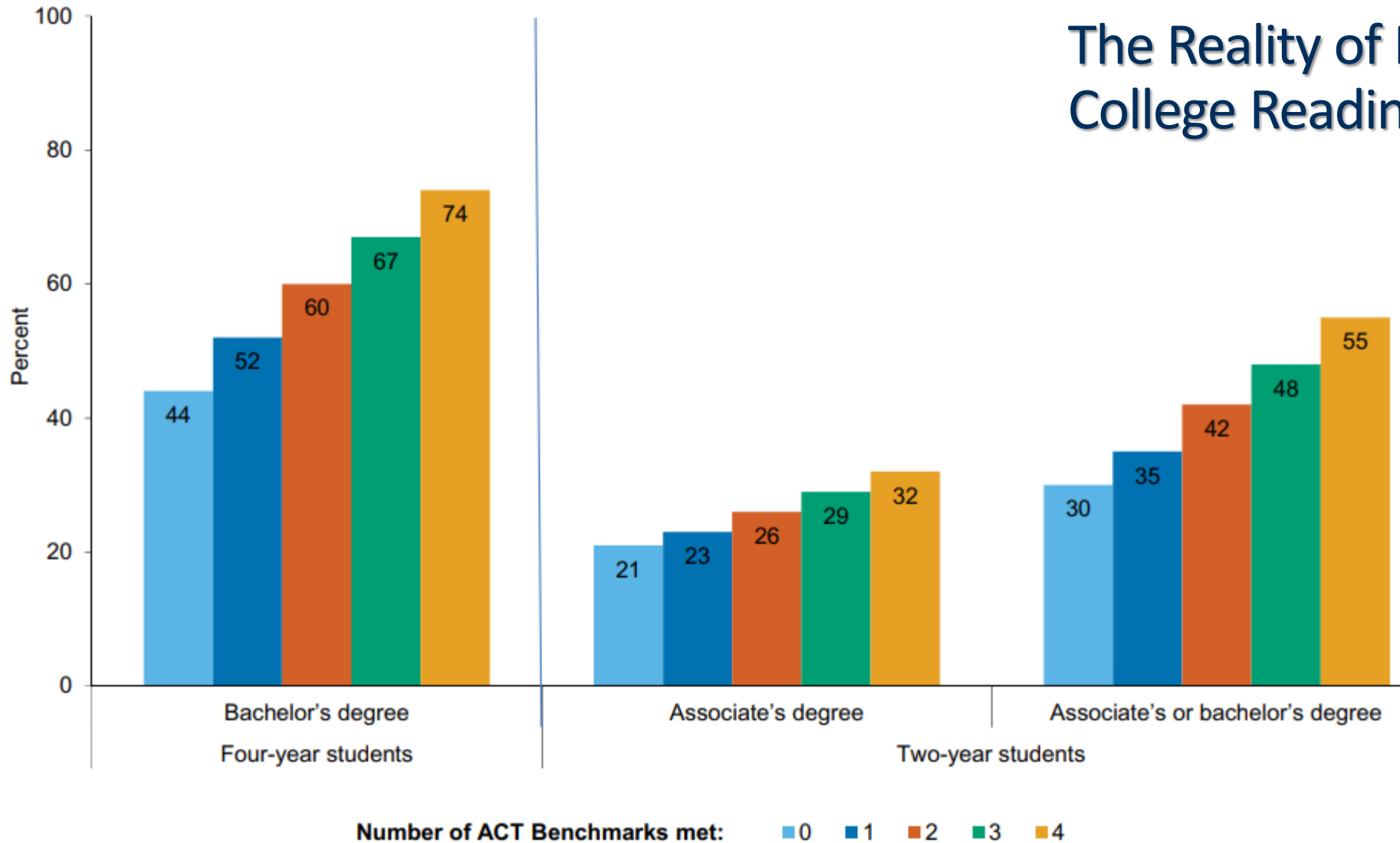
Figure 1. Six-year degree completion rates by number of ACT Benchmarks met and institution type.[4]

Beyond the Surface

Research on the ACT Itself

Is the Test Biased?

- As some elite colleges begin reviewing their standardized test policies, this old debate has kicked off again

- Critics argue testing penalizes students from disadvantaged backgrounds

- Proponents argue testing can actually increase diversity in college

The New York Times

The Misguided War on the SAT

Colleges have fled standardized tests, on the theory that they hurt diversity. That's not what the research shows.

https://www.nytimes.com/2024/01/07/briefing/the-misguided-war-on-the-sat.html
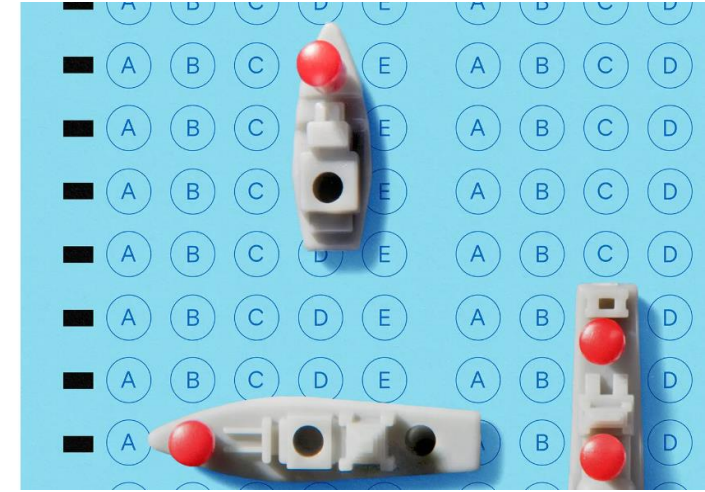
"In particular, SAT/ACTs can be especially helpful in identifying students from less-resourced backgrounds who would succeed at Dartmouth but might otherwise be missed in a test-optional environment," the statement said.

https://thehill.com/homenews/education/4458907-the-days-of-optional-sat-scores-may-be-coming-to-an-end/

ACT®

What's the DIF?

https://www.act.org/content/dam/act/unsecured/documents/R2309-Item-Properties-Associated-With-DIF-on-the-ACT-06-2023.pdf

- "Differential item functioning (DIF) is statistical evidence that a group of examinees performed unusually well or poorly on a given item, and it is commonly interpreted as evidence of potential item bias."

- Items with MH D-DIF between -1.0 and 1.0 would be considered as exhibiting "negligible or nonsignificant DIF"

Table 1. Means and Standard Deviations (SD) of MH D-DIF Distributions

Section	Asian-White		Black-White		Hispanic-White		Female-Male	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
English	0.09	0.75	−0.11	0.67	−0.05	0.52	−0.01	0.49
Math	0.07	0.73	−0.15	0.66	−0.07	0.50	−0.04	0.54
Reading	0.05	0.59	−0.09	0.58	−0.04	0.46	0.00	0.46
Science	0.05	0.58	−0.12	0.60	−0.05	0.46	−0.03	0.46

ACT®

School Day Administration Research

Figure 1. Demographics of ACT-Tested Graduating Class[3]

- Before school-day testing
- With school-day testing

Student group	Before school-day testing	With school-day testing
Low income (<$50K)	43%	51%
Black	15%	16%
Hispanic	10%	14%
Underrepresented race/ethnicity	30%	36%
Male	46%	49%
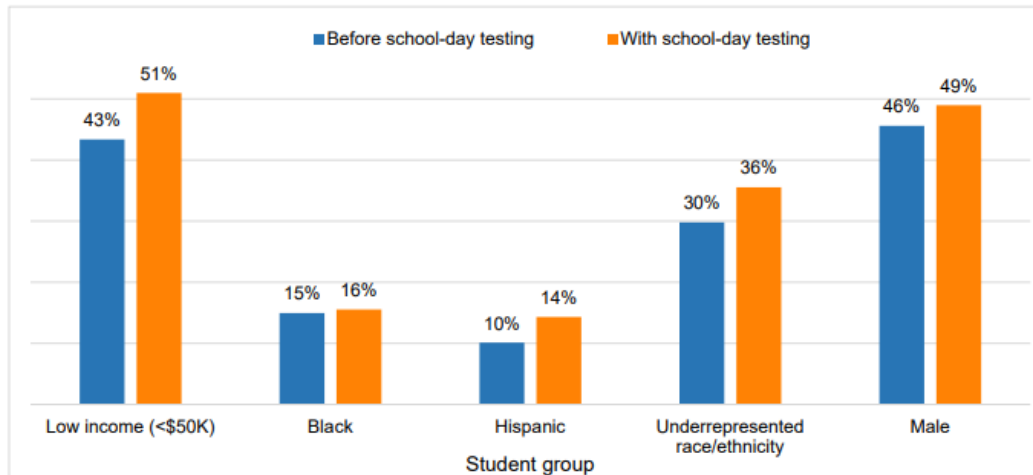
Figure 3. Percent Increase in Number of College Readiness Benchmarks Met With School-Day Testing

Total	29%
Low income (<$50K)	44%
Middle income ($50K–$100K)	23%
High income (>$100K)	20%
Black	30%
Hispanic	60%
Underrepresented race/ethnicity	47%
White	24%
Female	26%
Male	31%
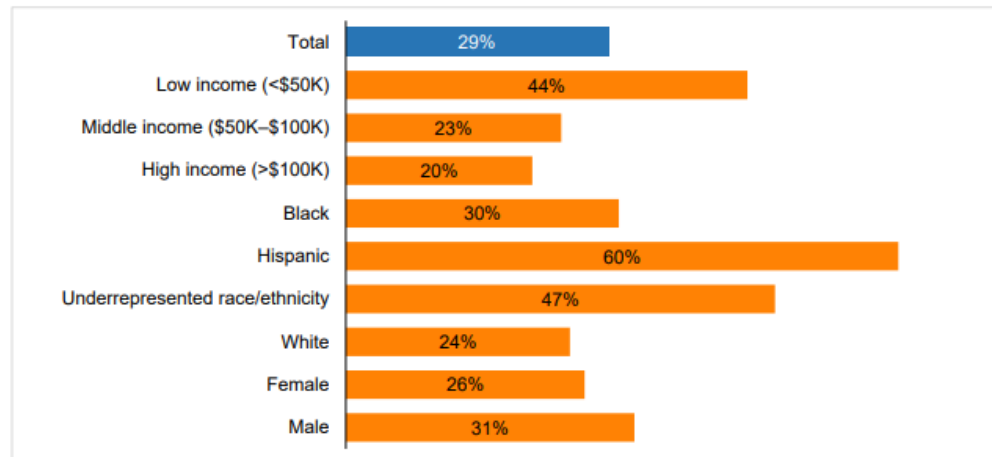
- An increasing number of students are taking the ACT through school day testing.
- Research indicates that school school-day testing is an important equity tool
- Increases representation of test-takers
- Increases number of students able to demonstrate College Readiness

School-Day Administration of the ACT Test: Removing Barriers and Opening Doors for All Students

ACT®

ACT Research: Test Day Absenteeism Among Students Who Registered for the ACT with a Fee Waiver

Scan the QR Code to Read More Test Day Absenteeism and ACT Fee Waivers
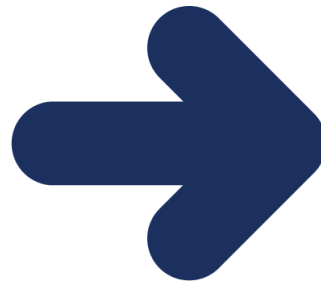
Where are we at?

ACT®

The World that Covid Wrought

- The news has been filled with stories about Covid Learning Loss.

- What do you see in your district?

ONLY ON   EDUCATION INSIDER
SCHOOL DISTRICTS SPENDING MILLIONS
TO ADDRESS COVID LEARNING LOSS
WRAL·NEWS
WRALTV   @WRAL

ACT®

The ACT as a canary in the Coal Mine
How have scores changed?

- ACT test scores from 11th-grade state and district testing programs declined during the pandemic years of 2021 and 2022. The analysis adjusted for changes in the tested population across years in race/ethnicity, gender, school percent tested, and number of days between September 1 and the ACT test date. **Because of the adjustments, the declines in average ACT scores are less likely to be due to changes in the tested population and more likely to be due to the pandemic.**

- The ACT score declines are generally comparable to 2 to 4 months of lost instruction

- Relative to 2021, scores in 2022 improved most in reading and science and improved slightly for English. But math scores declined slightly from 2021 to 2022. This suggests that **the negative effects of the pandemic on college and career readiness have persisted, especially in math**.

Table 2. Average ACT Composite Score Changes for the 2021 Cohort, by Group

Group	Average Composite score					
	2018–2020	2021	Diff.	Adj. diff.	SE adj. diff.	d
Total	19.17	18.71	−0.46	−0.66	0.01	−0.12
Gender						
Female	19.39	18.90	−0.49	−0.68	0.01	−0.13
Male	18.95	18.52	−0.43	−0.63	0.01	−0.12
Race/ethnicity						
African American	15.92	15.44	−0.49	−0.65	0.02	−0.12
Asian American	21.61	22.01	0.40	−0.03	0.04	−0.01
Hispanic	17.23	16.84	−0.39	−0.56	0.02	−0.11
Native American	16.28	15.84	−0.44	−0.45	0.06	−0.08
Native Hawaiian/OPI	16.48	16.11	−0.37	−0.59	0.11	−0.11
Two or more races	19.18	18.60	−0.58	−0.64	0.03	−0.12
White	20.28	19.67	−0.61	−0.72	0.01	−0.14
School Type						
Public School	19.04	18.56	−0.47	−0.66	0.01	−0.12
Private School	22.38	21.73	−0.64	−0.72	0.03	−0.14
School Locale						
Rural	18.41	17.90	−0.51	−0.63	0.01	−0.12
Town	18.61	18.00	−0.61	−0.68	0.02	−0.13
Suburb	19.90	19.54	−0.36	−0.64	0.01	−0.12
Urban	19.34	19.00	−0.34	−0.69	0.01	−0.13

Note. Diff. = difference; Adj. = adjusted; SE = standard error; d = adjusted difference in standard deviation units; OPI = other Pacific Islander.

Examining the Covid-19 Pandemic's Impacts on ACT Score by Jeff Allen, 2022

Drilling Down: Understanding Nebraska's ACT Scores During the Covid-19 Pandemic

- Compared Nebraska performance in spring of 2017-2019 with fall 2020 and spring 2021

Questions considered

1. How were Nebraska's ACT test scores impacted by the COVID-19 pandemic?

2. 2. Did the pandemic's impact on ACT test scores vary for different student groups?

3. 3. Was the pandemic's impact on ACT test scores worse for communities with greater social vulnerability?

4. 4. Was the pandemic's impact on ACT test scores worse for communities with higher COVID-19 case rates?

Understanding Nebraska's ACT Scores During the COVID-19 Pandemic by Jeff Allen, ACT; Hongwook Suh, NDE; Jeremy Heneger, NDE, 2022

Total Group ACT Score Changes

Table 3. Average ACT Score Changes for 2020 Cohort

ACT Score	2017–2019	Average Score				
		2020	Diff.	Adj. Diff.	SE Adj. Diff.	*d*
Composite	19.35	19.45	0.09	−0.65	0.04	−0.12
English	18.43	18.27	−0.16	−1.29	0.04	−0.20
English + reading	37.96	38.33	0.37	−1.69	0.08	−0.14
Math	19.37	19.16	−0.21	−0.53	0.04	−0.11
Reading	19.53	20.06	0.53	−0.39	0.05	−0.06
Science	19.59	19.79	0.20	−0.35	0.04	−0.07

Note: Diff. = difference, Adj. = adjusted, SE = standard error, *d* = adjusted difference in standard deviation units

Table 4. Average ACT Score Changes for 2021 Cohort

ACT Score	2017–2019	Average Score				
		2021	Diff.	Adj. Diff.	SE Adj. Diff.	*d*
Composite	19.35	18.84	−0.51	−0.64	0.03	−0.12
English	18.43	17.60	−0.83	−0.98	0.04	−0.15
English + reading	37.96	36.74	−1.22	−1.49	0.08	−0.12
Math	19.37	18.81	−0.56	−0.69	0.03	−0.14
Reading	19.53	19.14	−0.39	−0.51	0.04	−0.08
Science	19.59	19.10	−0.49	−0.61	0.04	−0.12

Note: Diff. = difference, Adj. = adjusted, SE = standard error, *d* = adjusted difference in standard deviation units

Answering the Research Questions

1. Test scores did decline during the pandemic years. Adjustments were made to ensure these declines were not attributed to changes in the tested population.

2. Declines were most severe for English least severe for reading and science. Previous research is consistent, as students show larger gains for English while in school

3. Generally, declines were similar across different student groups

4. No consistent variations based on county-level social vulnerability across cohorts

The Student View

Nearly one half (42%) of surveyed high school seniors reported that **the pandemic affected their thoughts** on at least one college- or career-related choice (whether to attend college, what type of school to attend, which school to attend, which program of study or major to pursue, what career to pursue).

- a much higher percentage of students from low income families (families with income equal to or less than $36,000) reported that their thoughts were influenced by the pandemic than did students from higher-income families (percentage differences ranged from 13% to 19%)

- One fifth of the students (20%) in the low-income group even indicated that the pandemic made them think about whether to attend college at all.
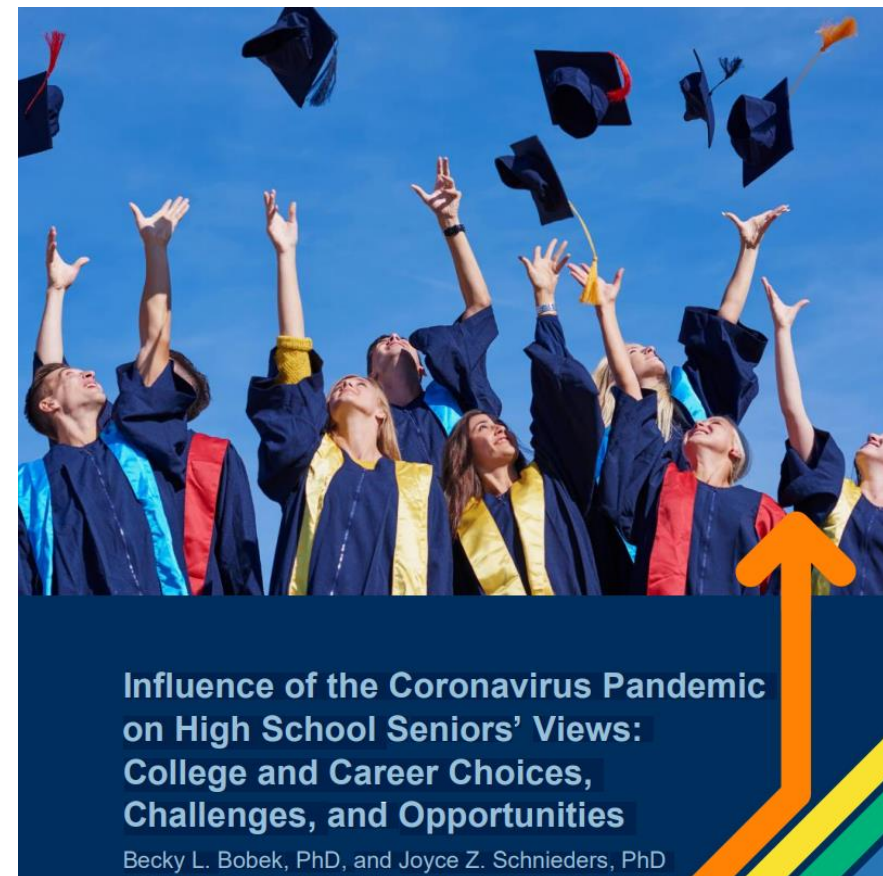
Influence of the Coronavirus Pandemic on High School Seniors' Views: College and Career Choices, Challenges, and Opportunities
Becky L. Bobek, PhD, and Joyce Z. Schnieders, PhD

ACT®

Scope of the Impact on Students' Views

Table 1. Percentages of Students from Different Racial/Ethnic Groups Reporting the Pandemic Affected Their Thoughts on College and Career Choices

Choice	Asian (n = 445)	Black (n = 313)	Latinx (n = 327)	White (n = 336)
Future career	32	32	39	30
Program of study or major	32	27	35	24
Which school to attend	33	30	36	22
Type of school to attend	19	24	27	12
Whether or not to attend college	9	18	12	9

Note. The *n* counts in this table are unweighted sample sizes, while the percentages given in the text were calculated after weighting.

ACT®

Other ways to measure preparation?

ACT®

What about GPA?

> "Because the greatest rate of grade inflation was observed in mathematics and science, it is possible that these subject grade point averages may be overestimations of academic readiness.

Edgar I. Sanchez, PhD

[Evidence of Grade Inflation Since 2010 in High School English, Mathematics, Social Studies and Science Courses](#)

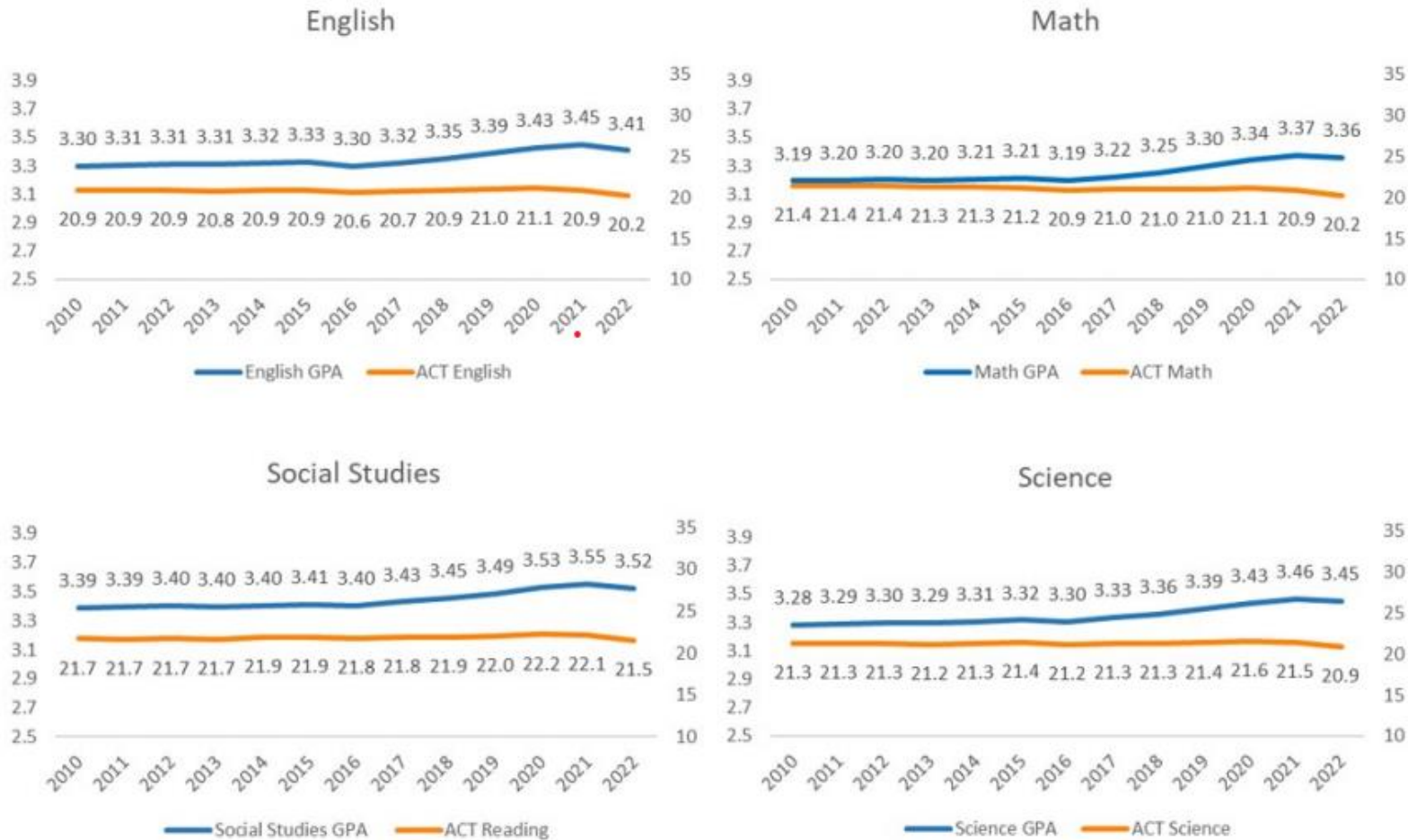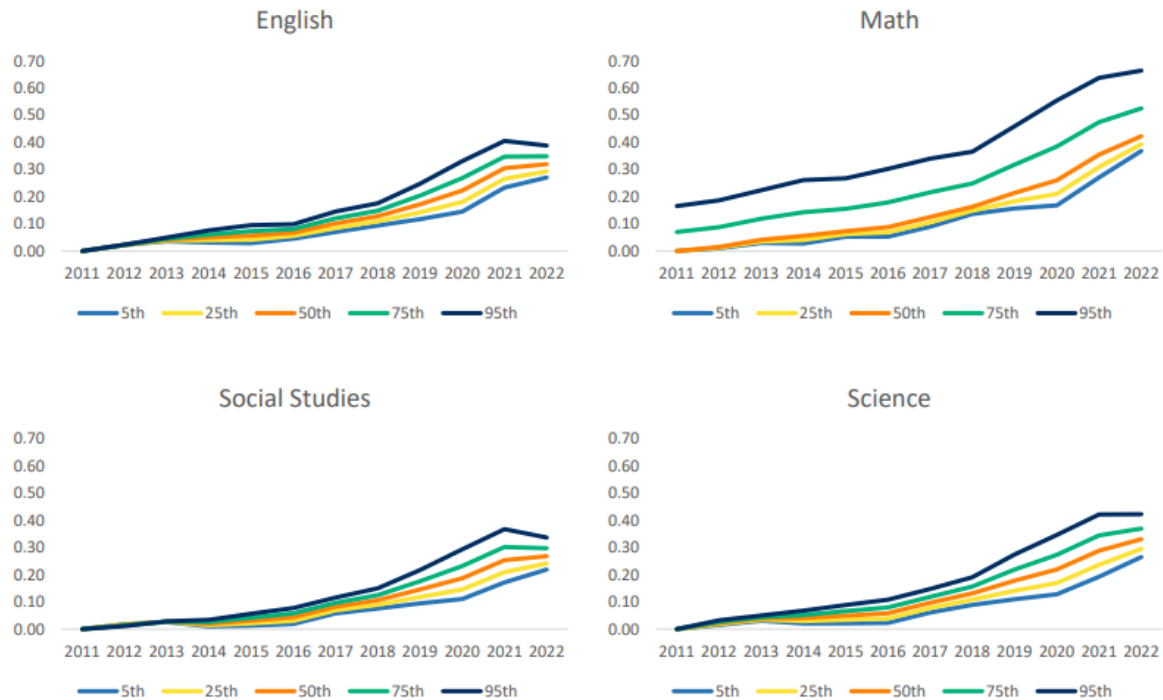# Are grades still a good predictor of success?

Figure 2. Observed Subject GPA and ACT Subject Score by Year

Figure 8. Standardized Differences by Subject in Adjusted Grades Between 2010 and Subsequent Years by Percentile of Students Eligible for Free or Reduced-Price Lunch at a School

> As average HSGPA continues to increase, more students are receiving A grades and fewer students are receiving B and C grades. This compresses the upper end of the HSGPA scale and makes it more difficult to use HSGPA to differentiate students' academic achievement and preparation. If this trend continues, it poses a threat to the validity of HSGPA for the purposes of understanding academic readiness and for using HSGPA for college admissions or course placement.

Improving Preparation

Remember that we are not just preparing for the test.

Does taking the PreACT help with the ACT?
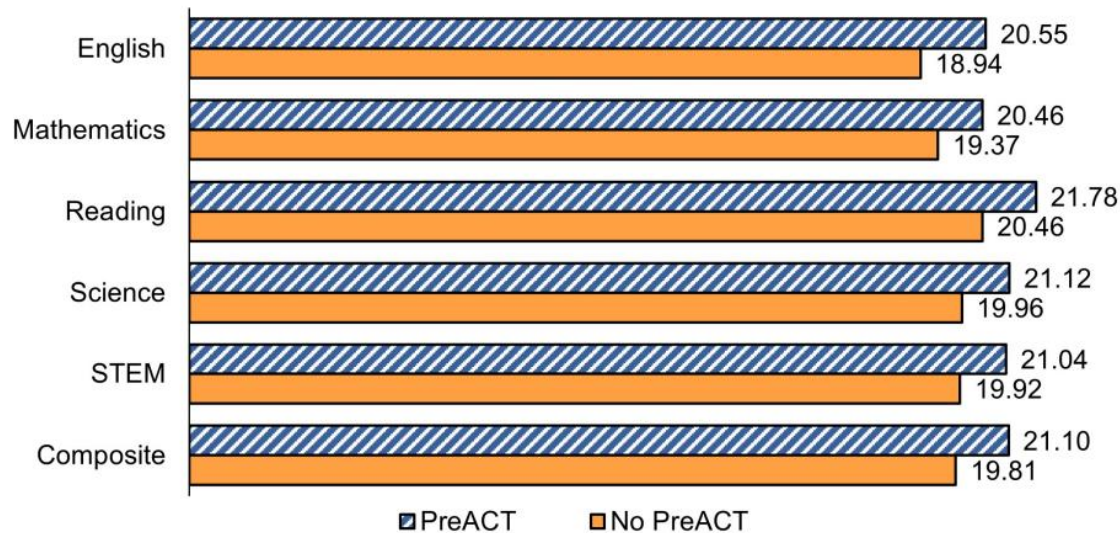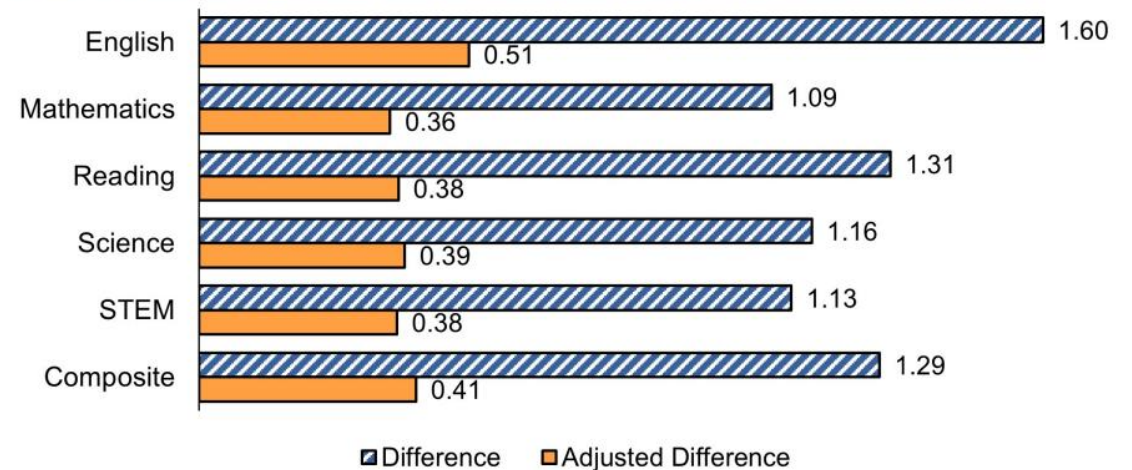
Figure 2. Mean ACT Scores by PreACT Testing Status

	PreACT	No PreACT
English	20.55	18.94
Mathematics	20.46	19.37
Reading	21.78	20.46
Science	21.12	19.96
STEM	21.04	19.92
Composite	21.10	19.81

Figure 3. Difference in Mean ACT Scores (PreACT Group – No PreACT Group)

	Difference	Adjusted Difference
English	1.60	0.51
Mathematics	1.09	0.36
Reading	1.31	0.38
Science	1.16	0.39
STEM	1.13	0.38
Composite	1.29	0.41

Note. Results are averaged across 29 states.

[Summary of Performance Growth](#)

Why does it matter?

Increased familiarity decreased anxiety

Opportunities to identify areas for improvement

Adjusted difference largely explainable by course enrollment, course rigor, and school characteristics

To maximize benefits, schools must use the data!

• Are you reviewing your curriculum and your instruction? Identifying students in need of intervention?

ACT®

AP course	PreACT/ ACT score	3 or higher		4 or higher	
		Fall	Spring	Fall	Spring
ELA-related					
English Language and Composition	E+R	42	45	54	56
	ELA	20	21	25	26
English Literature and Composition	E+R	49	51	61	62
	ELA	23	24	28	28
European History	E+R	45	49	57	60
	ELA	21	23	26	28
Human Geography	E+R	41	41	52	52
	ELA	19	19	24	24
Psychology	E+R	39	42	46	49
	ELA	19	20	22	23
US Govt and Politics	E+R	47	50	59	61
	ELA	22	23	27	28
US History	E+R	44	47	55	57
	ELA	21	22	25	26
World History	E+R	39	43	51	55
	ELA	19	20	24	25

PreACT and PreACT 8/9 as a predictor of AP success

STEM-related

Biology	STEM	22	23	26	27
Calculus AB*	STEM	25	25	28	28
Chemistry	STEM	24	25	28	29
Computer Science A	STEM	24	24	28	28
Environmental Science	STEM	23	24	25	26
Macroeconomics	STEM	24	26	27	28
Microeconomics	STEM	23	25	25	28
Physics 1**	STEM	27	27	30	30
Physics C: E and M	STEM	26	28	28	30
Physics C: Mechanics	STEM	25	25	28	28
Statistics	STEM	23	24	27	28

PreACT and ACT Test Scores Associated with AP Exam Success

ACT®

Does prep work?
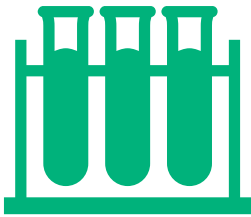
Students who perform test preparation activities before taking the ACT® test tend to see about a 1-point gain in their Composite score.

The benefit of test preparation for students will differ depending on students' motivation, effort, and the context in which they use test preparation tools.

Students from traditionally underserved populations, including those with lower incomes and traditionally underserved students, tend to benefit most from test preparation.
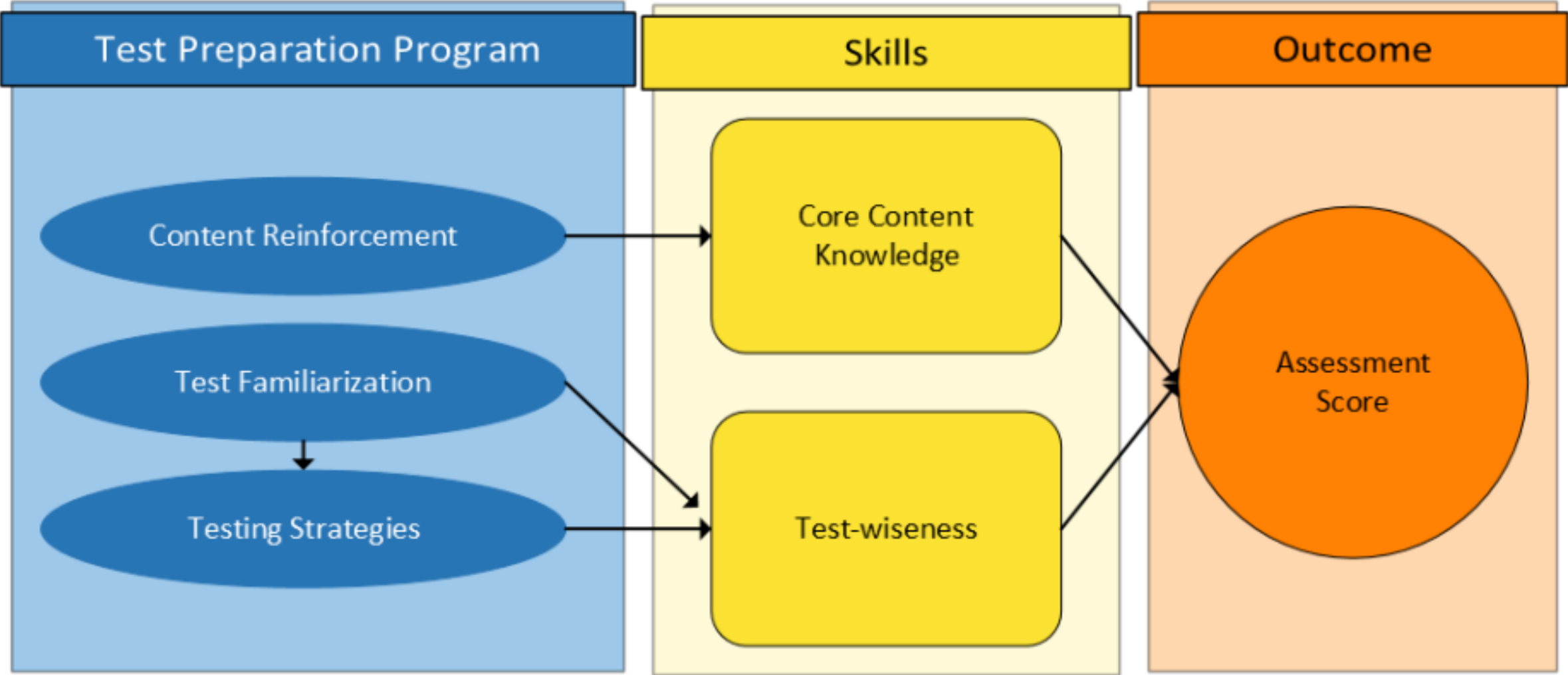
ACT®

What does test prep really mean?

"Test Prep" really consists of three separate components

- content reinforcement
- test familiarization
- testing strategies

Test Prep Research

Figure 1. Test Preparation Conceptual Model

Example of Efficacy: ACT Online Prep (AOP)

Students who used ACT Online Prep for fewer than 7 hours saw greater score gains, on average, than students who did not use any test preparation programs (1.06 vs. 0.67 points). Students who used ACT Online Prep for 7 or more hours saw an average gain score over double that of students who did not use test preparation programs (about 1.3 points).

we can estimate that if students used ACT Online Prep for over 21 days, reviewed over 55 lessons, took at least 16 practice sessions and at least two practice tests, and reset the system between 6 and 10 times, they would have an average gain score that would be 1.51 points higher than if they did not use the system

What helps generally?

Students who engaged in the following test-related behaviors had somewhat larger adjusted ACT Composite score gains, on average, than did students who did not engage in these behaviors:

- preparing for the ACT test (via practice tests, web-based test prep programs, commercial test prep courses, etc.)

- minimizing stress and anxiety while taking the ACT

- having a snack during the ACT test's break time

- using a calculator while taking the ACT

Does Retesting generally lead to improved scores?

Figure 1. Average Gain From First to Last ACT Test, by Subject

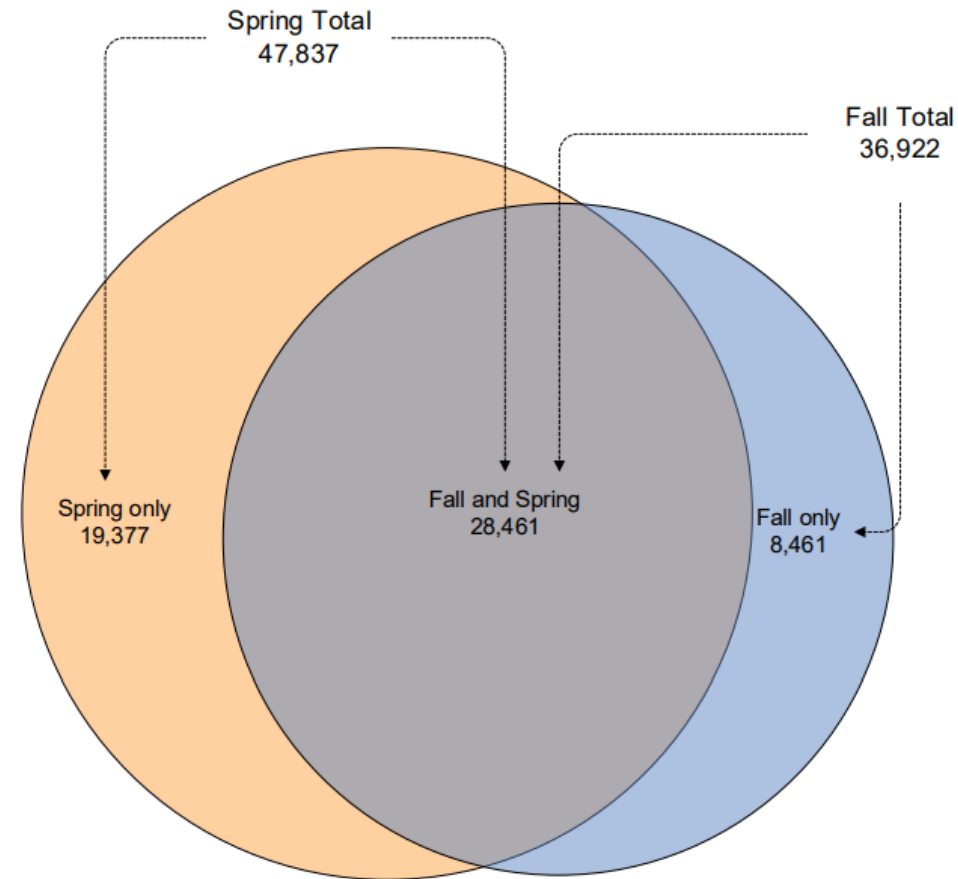| Composite	English	Math	Reading	Science
1.14	1.66	0.86	1.14	0.91
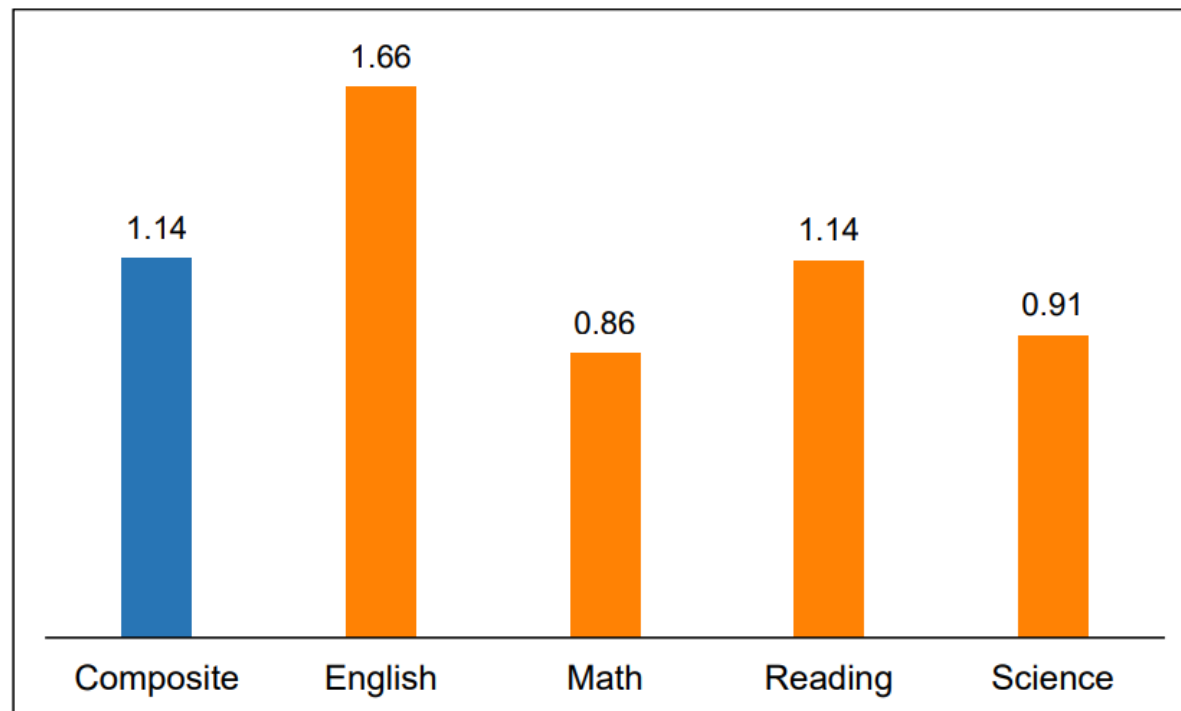
Things you should know about Retesting

School day senior retakes

The overall percent increase in the number of students meeting the Benchmarks—qualifying scores for remediation exemptions—was 17% for English, 24% for math, and 23% for reading and science. Schools with higher retest rates had larger increases.

For schools with retest rates of at least 75%, the number of students avoiding remediation in math, reading, and science increased by over 25%, underscoring the value of offering a retest to all students and encouraging them to participate.

Figure 3. Number of Students Achieving ACT Composite Score of 21 or Higher

Spring Total
47,837

Fall Total
36,922

Spring only
19,377

Fall and Spring
28,461

Fall only
8,461

Examining Benefits of School-Day ACT Senior Retesting

ACT®

Nebraska Discount Rate for Senior Retakes

Online: ACT District Base Price and FRLP Tier Pricing	The ACT no writing	The ACT with writing
FRLP Tier 1 Price	$53.25	$68.00
FRLP Tier 2 Price	$51.25	$67.00
FRLP Tier 3 price	$49.25	$65.00

FRLP Tiers: Tier1= 0-49%, Tier 2= 50-74%, Tier 3= 75-100%

Note: Option for $1 Discount on PreACT or PreACT 8/9 with purchase of ACT District Testing

Nebraska schools can register for Senior Retakes for $43 per student (public and private)

ACT®

Teacher Prep is student prep

A consistent finding is that the best prep for the ACT happens when students engage with rigorous, standards aligned coursework
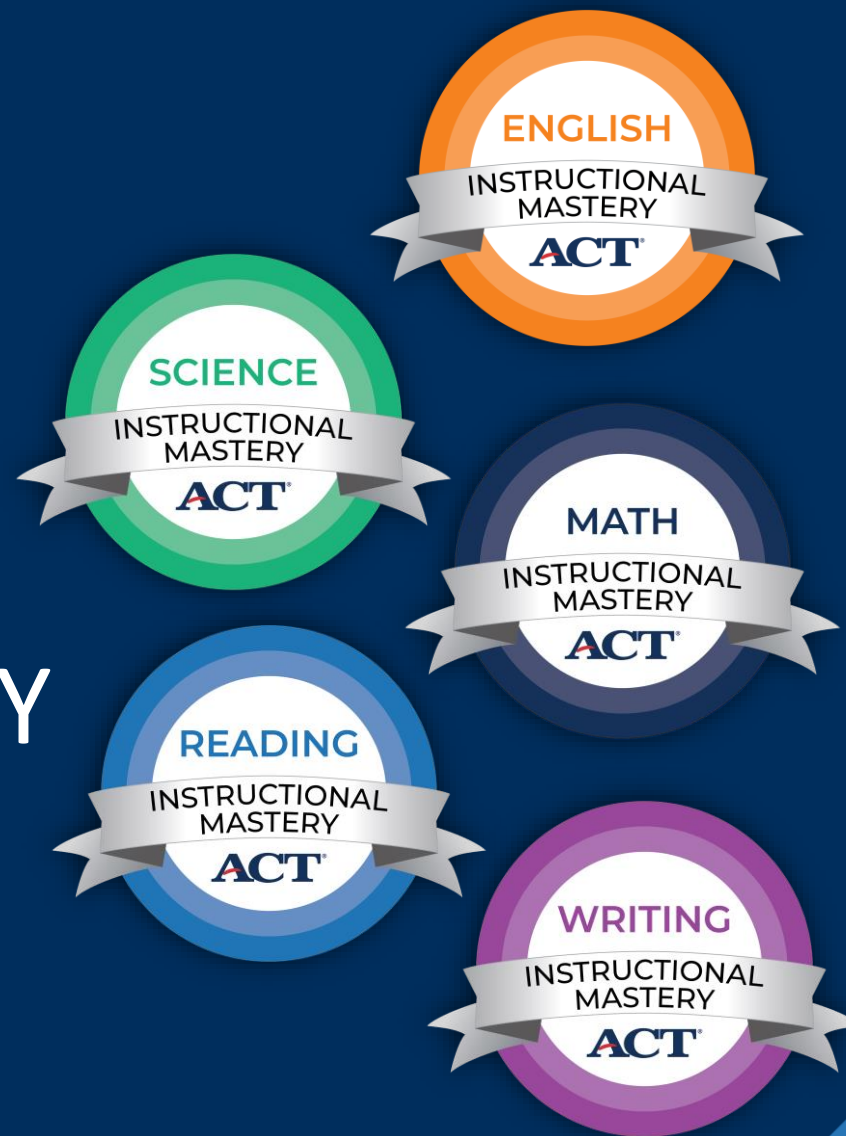
ACT®

Learning To Improve Teaching Is Ongoing!

Professional support. ACT Professional Learning has multiple programs.

- The ACT and PreACT: Data Interpretation, ACT Subject Content, and ACT Standards Analysis workshops

- ACT Instructional Mastery (AIM)

- Social and Emotional Learning (SEL)

- Teaching and Learning Best Practices

ACT INSTRUCTIONAL MASTERY

AIM

ACT INSTRUCTIONAL MASTERY (AIM)

For secondary school teachers preparing students to take the ACT test; also offered to schools, school systems, and educator organizations

- Topics: Courses in each of the ACT subject tests (English, math, reading, science, and writing)

- Time: A 12-hour program per course, presented live by an ACT expert; typically delivered over two six-hour days

- Format options: Online/virtual and onsite/in-person formats, with a maximum of 30 participants for each the course

- Key learning objective: Providing educators with the skills most critical for successful student preparation for the ACT test

ACT CCRW
Workbook Page
16

ACT®
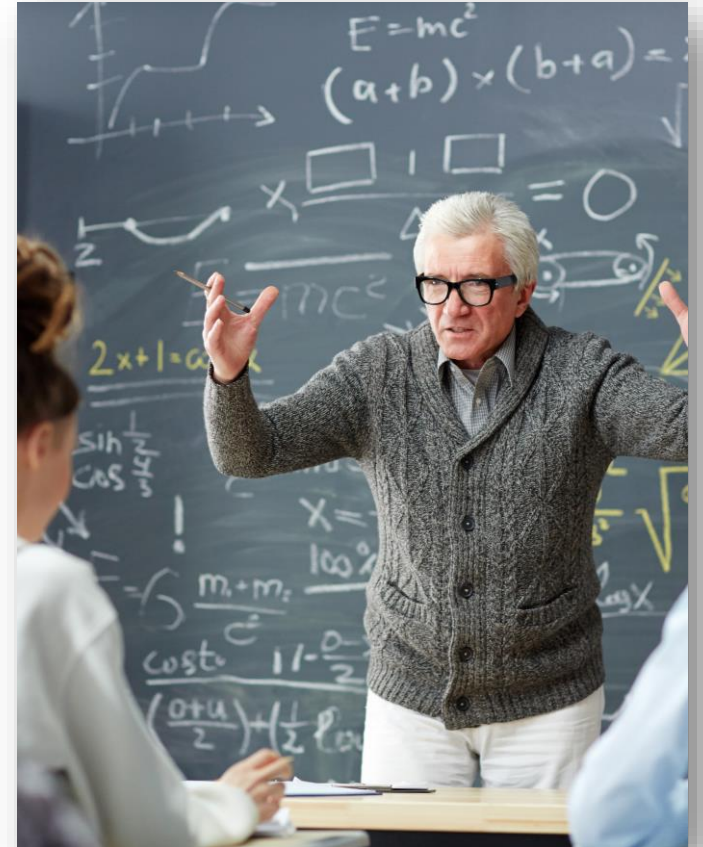
AIM Participants Speak…
95% of more than 500 participants say "Yes, I would recommend this workshop to other educators"

It was much more engaging and interactive than I expected, so I retained a lot of what was said and reviewed

I liked when it discussed the mistakes and how to avoid them

Good mix of whole group, small group, individual activities

I did not realize how much I did not know about the English section of the test

It brought the test to life instead of just pages of script. Collaboration was very beneficial as the test was analyzed

I actually altered what I left for my sub this morning based on what I learned yesterday about the types of grammar concepts

ACT®

Summary of Findings

Using Research Effectively

Start by identifying a problem

1. Covid Learning Loss

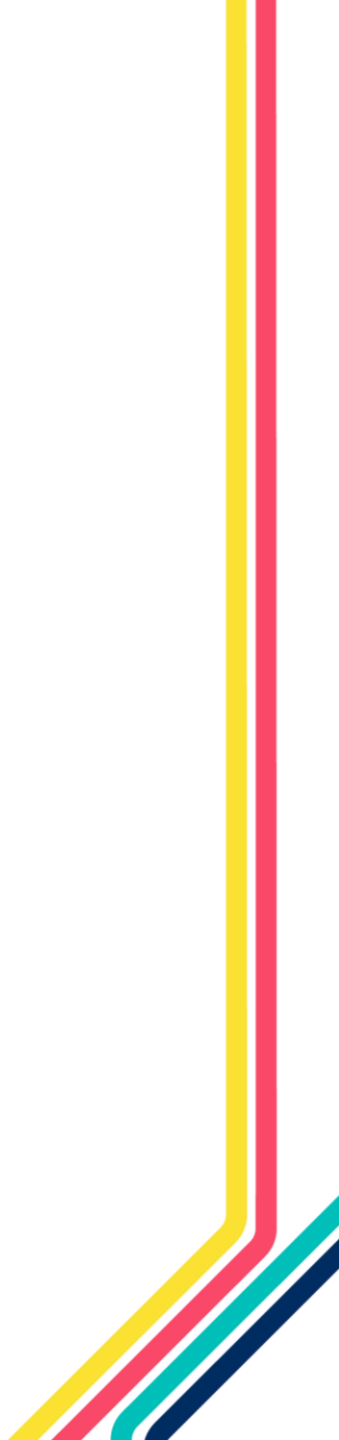2. Equity concerns in access to learning and assessment opportunities

Constructing a plan

1. Curriculum Review

2. Student intervention

3. Increasing access

Measure your growth

1. Find reliable, valid, consistent methods to monitor growth

Please complete this short survey!

Agents of Student Growth

Dominic Iannone

ACT Senior Account Executive

Dominic.Iannone@act.org

928.486.1051

ACT®

Drilling Down

Tools for using data and assessing curriculum

MATH

Table 2. ACT Mathematics Reporting Categories

Reporting Category Labels and Descriptions	Target Ranges	
	Number of Items	Percentage of Test
Preparing for Higher Math	34-36	57-60%
Number & Quantity • Demonstrate knowledge of real and complex number systems • Understand and reason with numerical quantities in many forms, including integer and rational exponents, vectors, and matrices	4-6	7-10%
Algebra • Solve, graph, and model multiple types of expressions • Employ different kinds of equations, for example, linear, polynomial, radical, and exponential • Find solutions to systems of equations, even when represented by simple matrices, and apply their knowledge to applications	7-9	12-15%
Functions • Understand function definition, notation, representation, and application for linear, radical, piecewise, polynomial, logarithmic, and other functions • Manipulate and translate functions • Apply important features of graphs	7-9	12-15%
Geometry • Define and apply knowledge of shapes and solids, such as congruence and similarity relationships or surface area and volume measurement • Understand composition of objects • Solve for missing values in triangles, circles, and other figures, including using trigonometric ratios and equations of conic sections	7-9	12-15%
Statistics & Probability • Describe center and spread of distributions • Apply and analyze data collection methods • Understand and model relationships in bivariate data • Calculate probabilities including the related sample spaces	5-7	8-12%

Integrating Essential Skills
• Use essential skills (i.e., concepts typically learned before 8th grade, for example, rates, percentages, proportional relationships, area, surface area, volume, average, median, etc.) to…
  ○ Solve problems of increasing complexity
  ○ Combine skills in a longer chain of steps
  ○ Apply skills in more varied contexts
  ○ Understand more connections
  ○ Become more fluent
	24-26	40-43%

Modeling* • Produce, interpret, understand, evaluate, and improve models	≥ 16	≥27%
TOTAL	60	100%

*Each modeling item is also included in another reporting category.

ACT®

Table 3. ACT Reading Reporting Categories

Reporting Category Labels and Descriptions	Target Ranges	
	Number of Items	Percentage of Test
Key Ideas and Details • Determine central ideas and themes • Summarize information and ideas accurately • Make logical inferences • Understand sequential, comparative, and cause-effect relationships	22-24	55-60%
Craft and Structure • Determine the meaning of words and phrases • Analyze an author's word choice rhetorically • Analyze text structure • Understand authorial purpose and perspective • Analyze characters' points of view • Differentiate between various perspectives and sources of information	10-12	25-30%
Integration of Knowledge and Ideas • Understand authors' claims • Differentiate facts and opinions • Use evidence to make connections between different texts that are related by topic • Analyze how authors construct arguments • Evaluate reasoning and evidence from various sources	6-7	15-18%
TOTAL	**40**	**100%**

Reading

ACT®

SCIENCE

Table 4. ACT Science Reporting Categories

Reporting Category Labels and Descriptions	Target Ranges	
	Number of Items	**Percentage of Test**
Interpretation of Data • Manipulate and analyze scientific data presented in tables, graphs, and diagrams (e.g., recognize trends in data, translate tabular data into graphs, interpolate and extrapolate, and reason mathematically)	18-22	45-55%
Scientific Investigation • Understand experimental tools, procedures, and design (e.g., identify variables and controls) • Compare, extend, and modify experiments (e.g., predict the results of additional trials)	8-12	20-30%
Evaluation of Models, Inferences, and Experimental Results • Judge the validity of scientific information • Formulate conclusions and predictions based on scientific information (e.g., determine which explanation for a scientific phenomenon is supported by new findings)	10-14	25-35%
TOTAL	40	100%

ACT®

ENGLISH

Table 1. ACT English Reporting Categories

Reporting Category Labels and Descriptions	Target Ranges	
	Number of Items	Percentage of Test
Production of Writing • Demonstrate an understanding of, and control over, the rhetorical aspects of texts • Identify purposes of parts of texts • Determine whether a text or parts of text have met the goal • Evaluate the relevance of material in terms of a text's focus • Use various strategies to ensure that a text is logically organized, flows smoothly, and has an effective introduction and conclusion	22-24	29-32%
Knowledge of Language • Demonstrate effective language use through ensuring precision and concision in word choice and maintaining consistency in style and tone	11-13	15-17%
Conventions of Standard English • Apply understanding of relationships between and among clauses, placement of modifiers, and shifts in sentence construction • Edit text to conform to Standard English usage • Edit text to conform to Standard English punctuation	39-41	52-55%
TOTAL	**75**	100%

ACT®

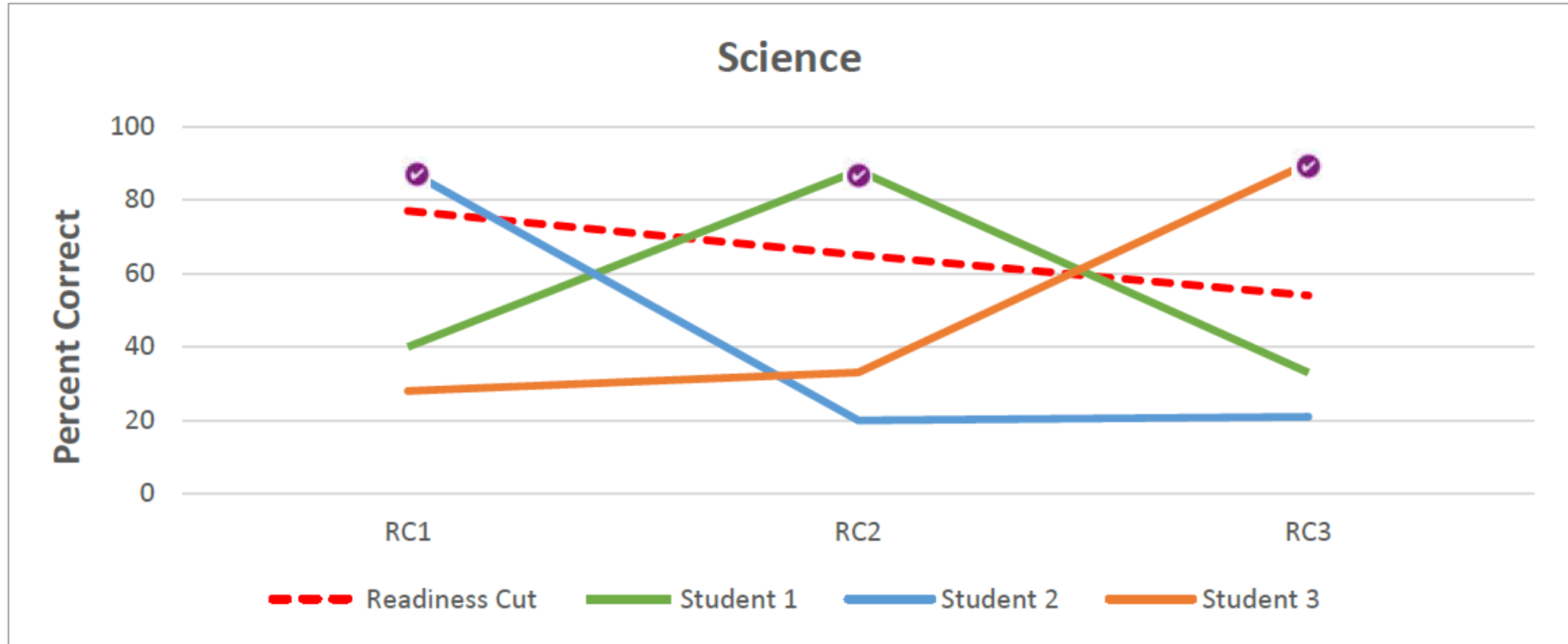# Why are reporting categories important?

Figure 2. Example ACT Science Score Profiles

All Students scored an 18, but how did each student earn the 18?