

The background features a green printed circuit board (PCB) with intricate gold-colored traces and numerous circular solder pads. A large, semi-transparent white arc curves across the upper portion of the image. In the lower-left corner, a glowing yellow wireframe globe is visible. At the bottom, a horizontal line of bright, out-of-focus light spots in shades of blue and white is present.

***National Research Center  
for Career and Technical  
Education***

**UPDATE**

**Donna Pearson  
Associate Director**

# Disclaimer:

The work reported herein was supported under the National Dissemination for Career and Technical Education, PR/Award (No. VO51A990004) and /or under the National Research Center for Career and Technical Education, PR/Award (No. VO51A990006) as administered by the Office of Vocational and Adult Education, U. S. Department of Education.

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# Located at the University of Louisville College of Education and Human Development



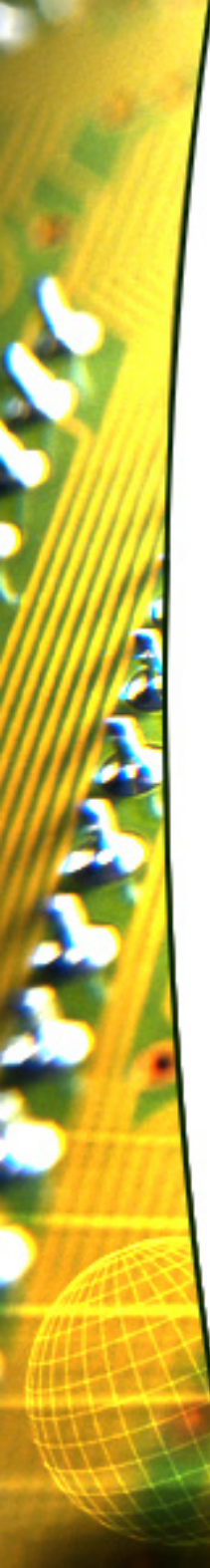
# NRC CTE

National Research Center for  
Career and Technical Education



The background is a vibrant green and yellow digital landscape. It features a close-up of a green printed circuit board (PCB) with intricate gold-colored traces and numerous circular pads. A large, semi-transparent sphere with a fine grid pattern is positioned in the upper right. In the lower left, a smaller, glowing wireframe globe is visible. A series of bright, glowing points are arranged in a horizontal line at the bottom, with green laser-like beams extending upwards from them. The overall aesthetic is high-tech and futuristic.

# Mission



The National Center will improve the ***engagement, achievement, and transition of high school and postsecondary CTE students*** through technical assistance to states, professional development for CTE practitioners, and dissemination of knowledge derived from scientifically-based research.

# Our Many Challenges . . .

- A high and rising drop out rate of secondary students
- Students who graduate are lacking in basic math and science skills
- Most students think they are going to college but do not prepare for it or any other possible future
- Extraordinarily high remediation rates for two-year college applicants



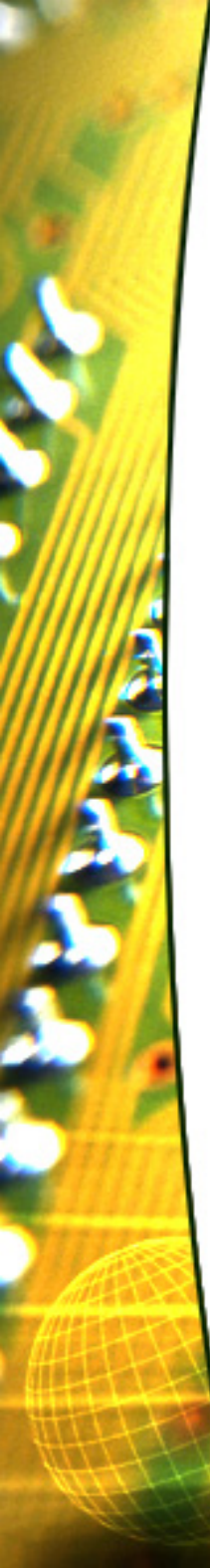
Arriving in your mailbox soon...

***“Major Research Findings 2000-2007”***

- ***Engagement*** – Completing high school, completing PS programs
- ***Achievement*** – technical and academic; acquisition of industry credentials
- ***Transition*** – to continued formal learning without the need for remediation; and to the workplace

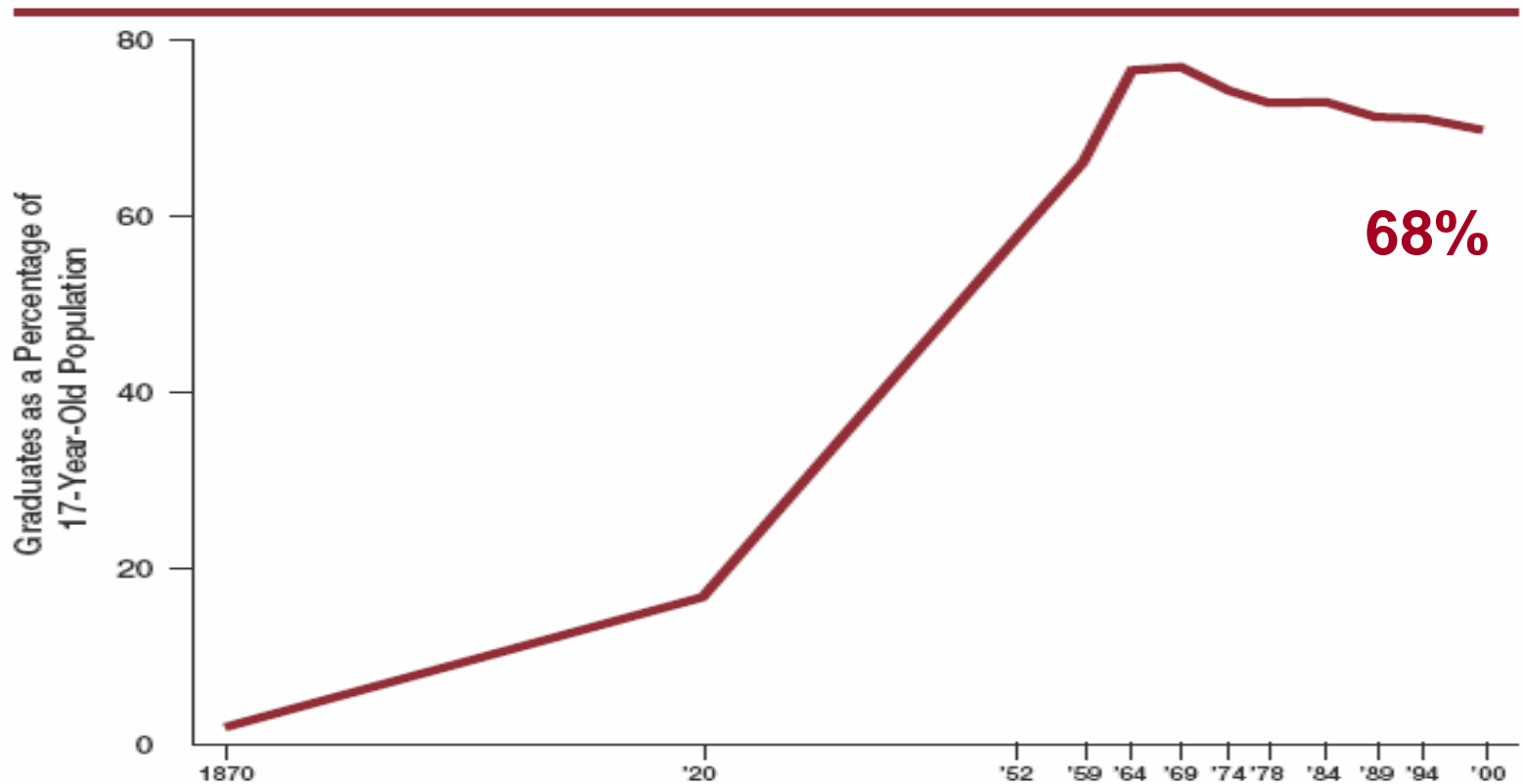
The background is a vibrant, futuristic digital scene. It features a green circuit board with intricate gold-colored traces and components. A large, semi-transparent sphere with a grid pattern is positioned in the upper right. In the lower left, a smaller, glowing wireframe globe is visible. The overall color palette is dominated by greens, yellows, and blues, with bright light effects and lens flares creating a sense of depth and technology.

# Engagement



According to the National Assessment of Educational Progress, a majority of ninth-graders in low-performing high schools begin their freshman year with significant reading difficulties. Poor reading ability is a key *predictor* of academic disengagement and, ultimately, dropping out.

# % of 9<sup>th</sup> Graders who complete High School



Note: Graduates are of regular day school programs.  
Source: U.S. Department of Education, National Center for Education Statistics.

Source: *One-Third of a Nation* (ETS, 2005)

# Recent NRC Research

Convergent findings from multiple studies:

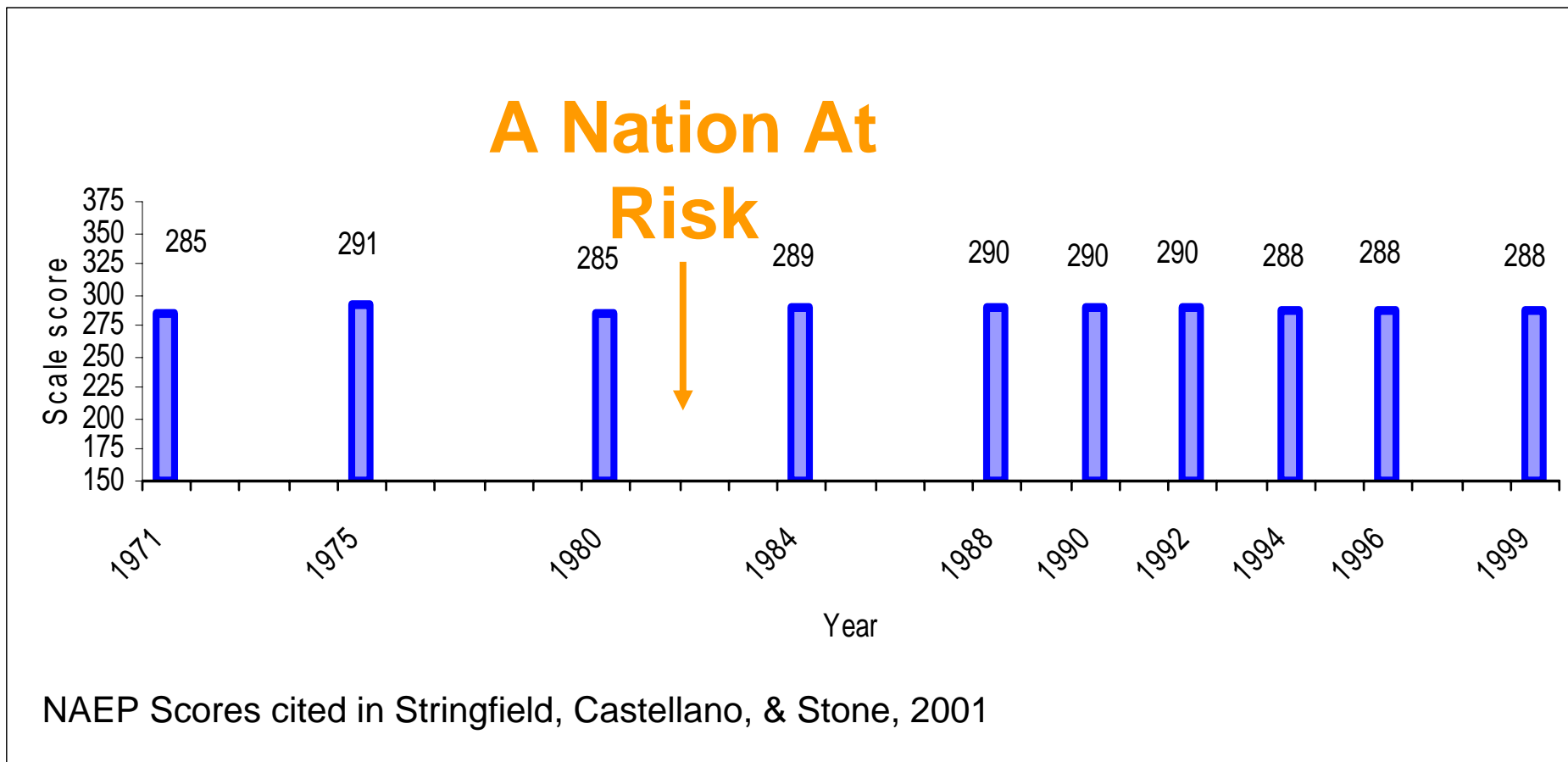
- As participation in CTE courses increases, the graduation rates increase
- Ratio 1:2 is optimal
- For over-age students already at risk for not graduating, merely enrolling in more CTE courses will not keep them in school.

The image features a green printed circuit board (PCB) with intricate gold-colored traces and numerous circular pads. A large, semi-transparent circular lens or magnifying glass is positioned over the center of the board. In the lower-left corner, a glowing, wireframe globe is visible, emitting a bright yellow light. A series of small, bright blue and white light sources are arranged in a horizontal line at the bottom of the frame, with green laser-like beams extending from them across the board. The overall color palette is dominated by green, yellow, and blue, creating a high-tech, futuristic atmosphere.

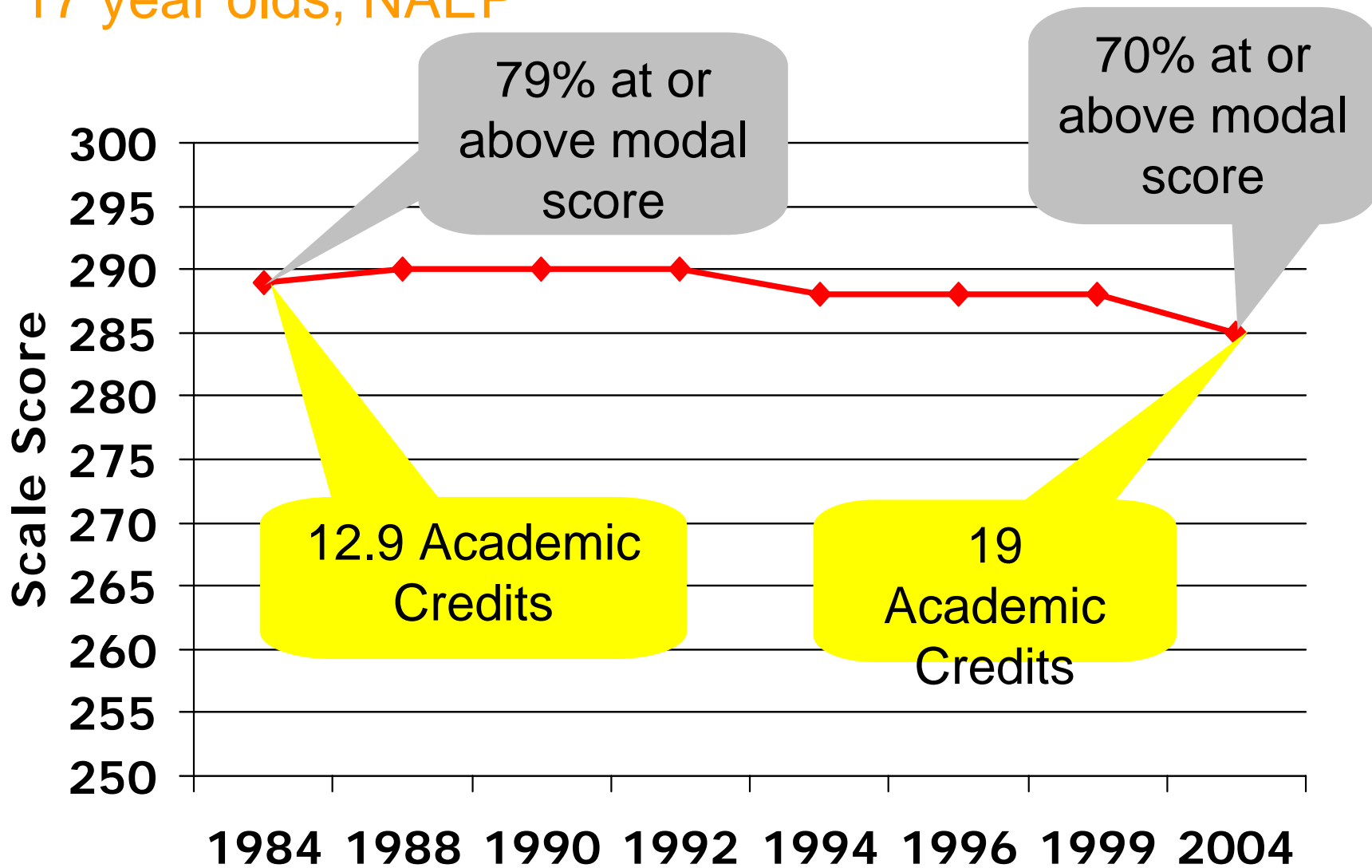
Achievement

# Reading Performance

17 year olds

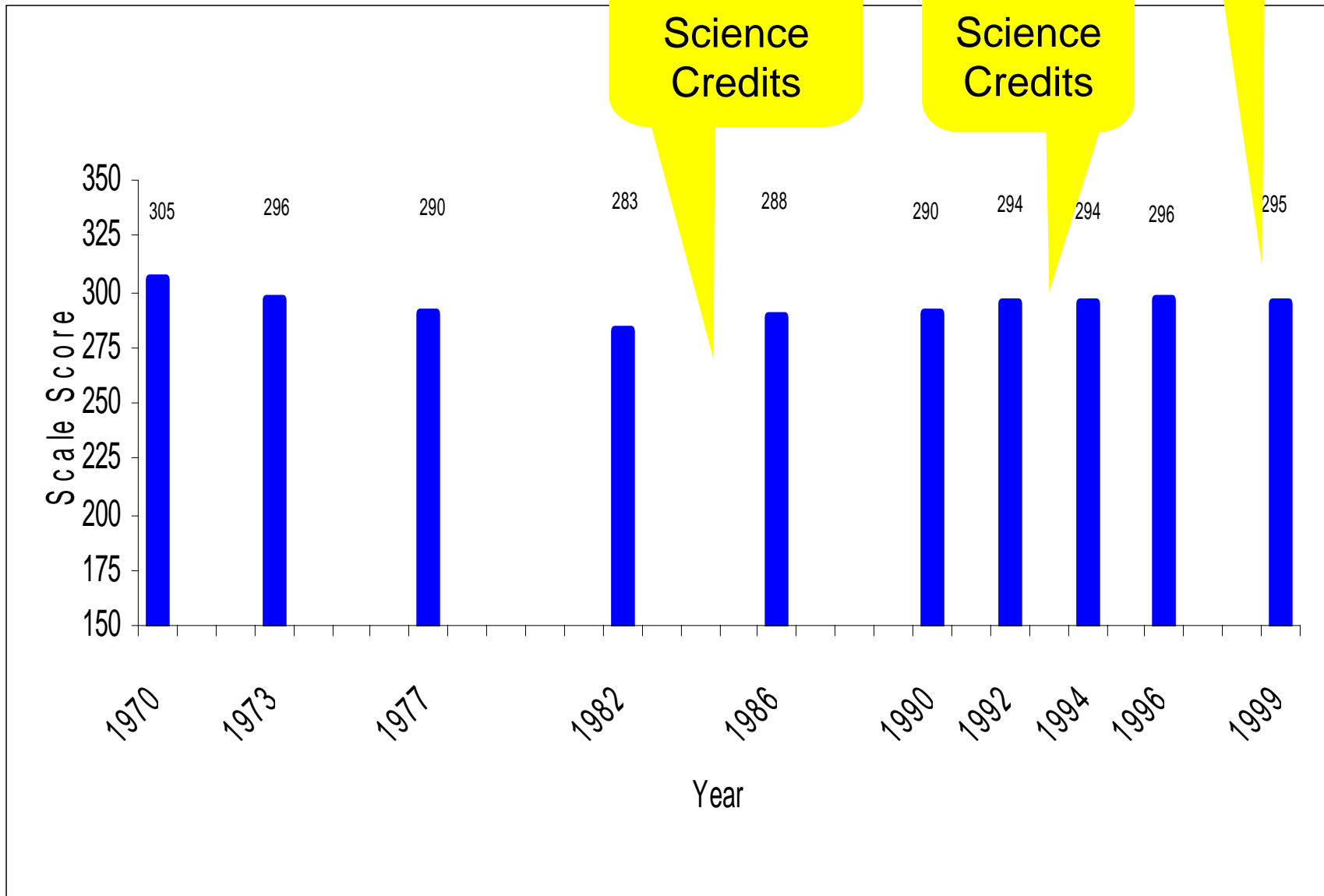


## Achievement Flat or Declining in Reading, 17 year olds, NAEP



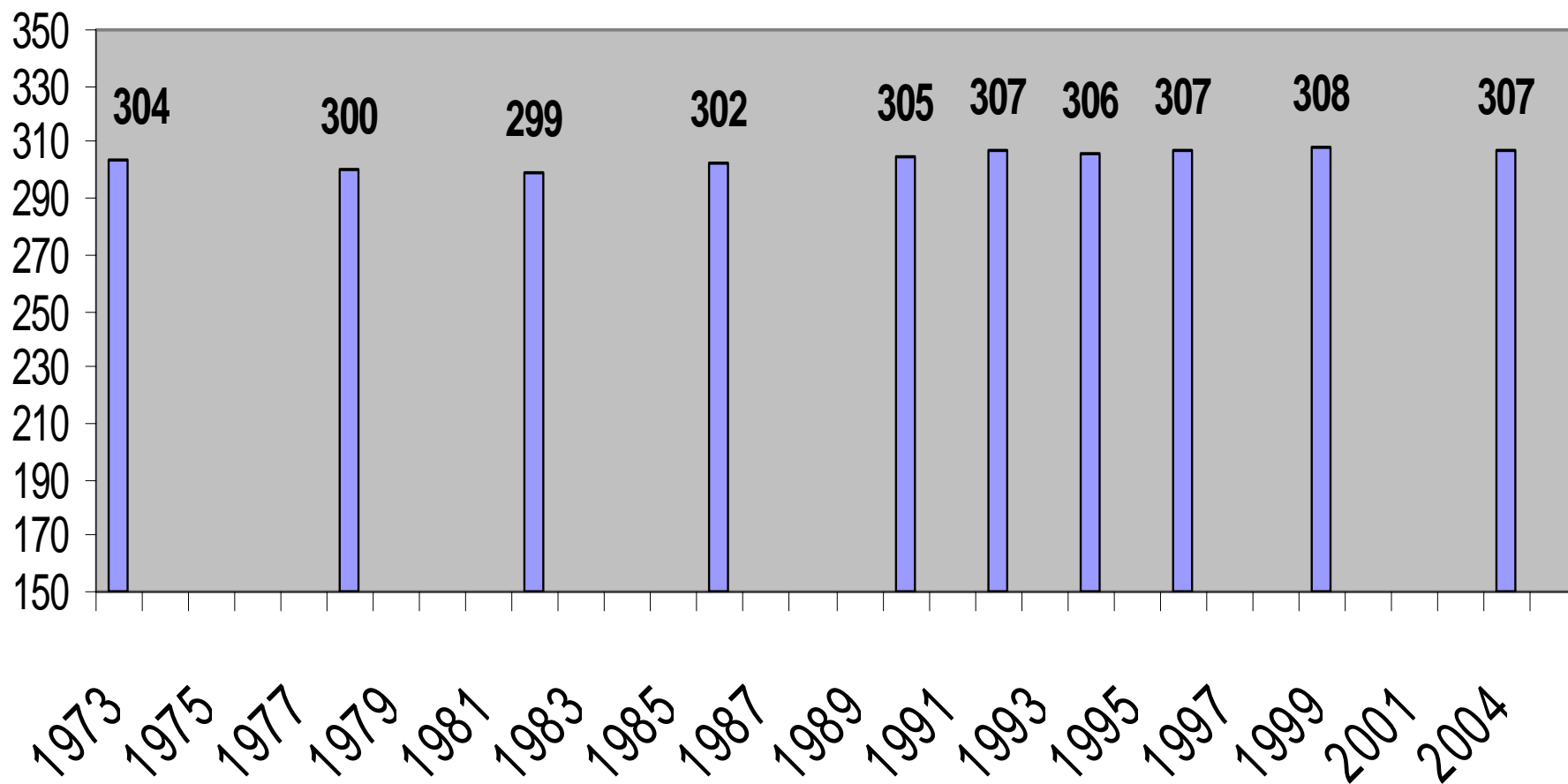
Note: Long-Term Trends NAEP

# NAEP Science Scores 17 Year Olds

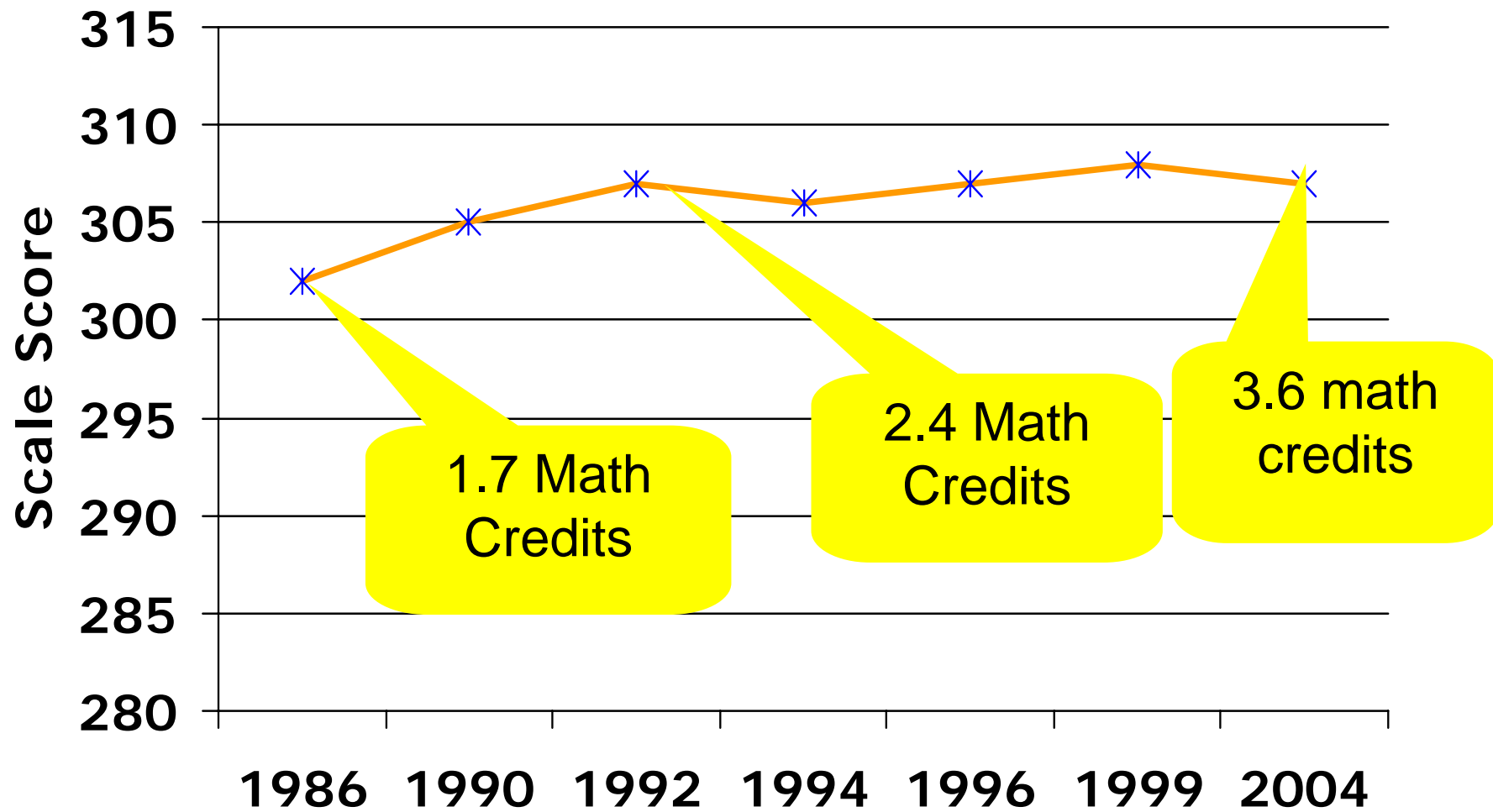


# Math Performance Of American Youth

## NAEP Scores for 17 Year olds



# HS Achievement In Math

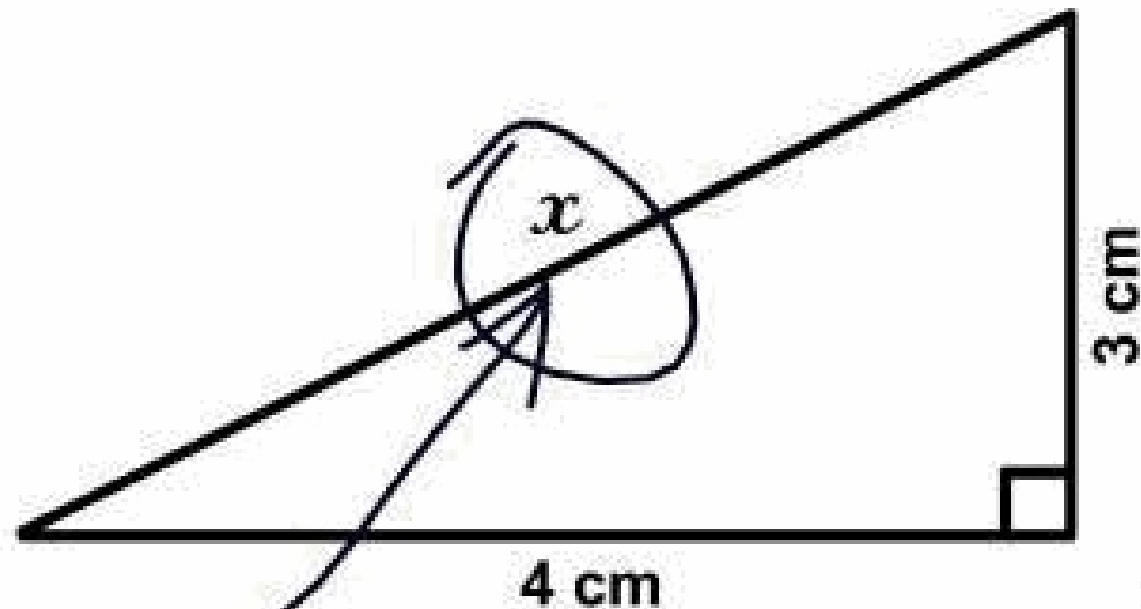


Note: Long-Term Trends NAEP

**Source:** NAEP 2004 Trends in Academic Progress and NAEP 1999 Trends in Academic Progress.

# Evidence of Personal Issues with Mathematics:

**3. Find  $x$ .**

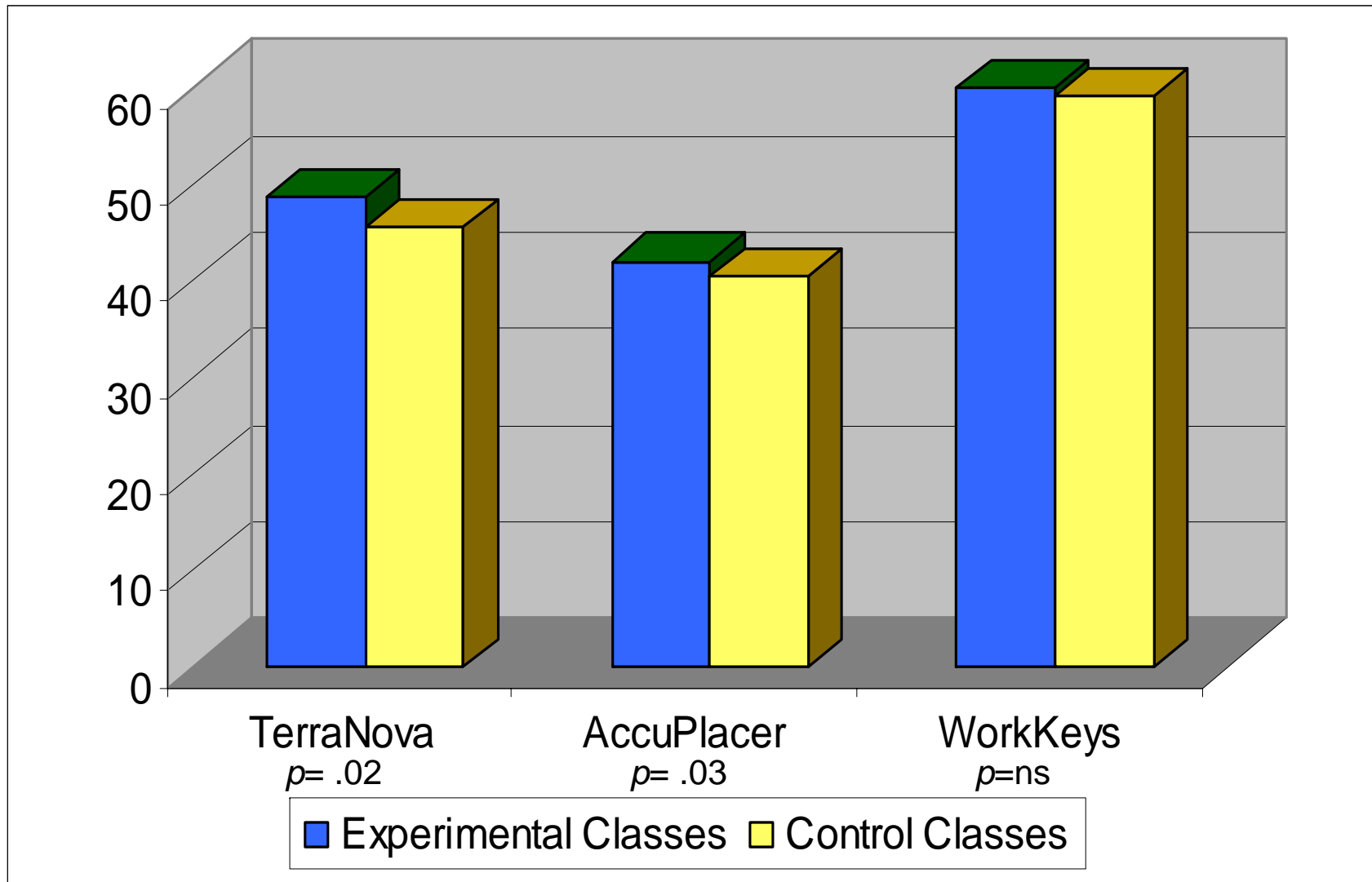


*Here it is*



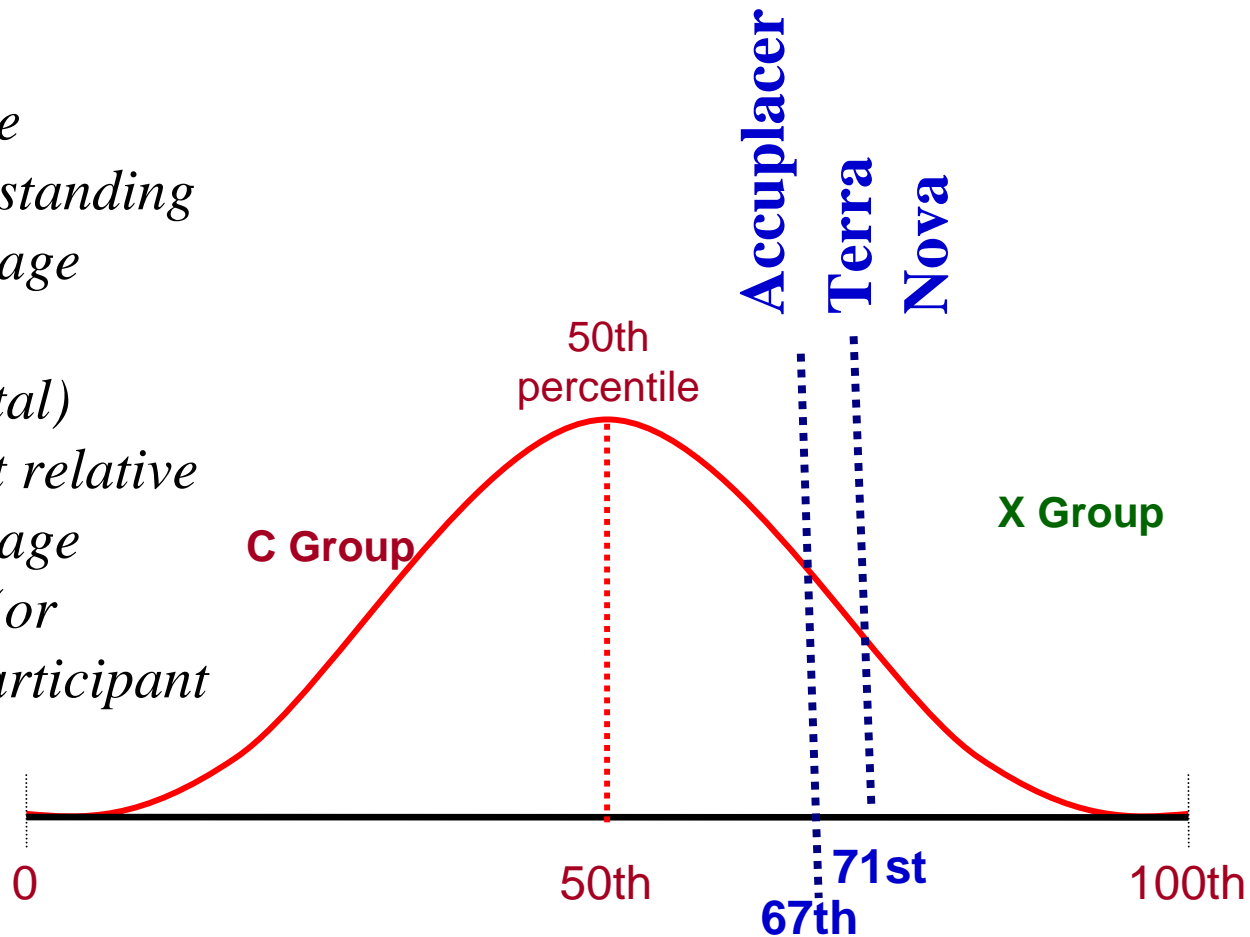
# NRC Math-in-CTE Study

Post test % correct controlling for pre-test

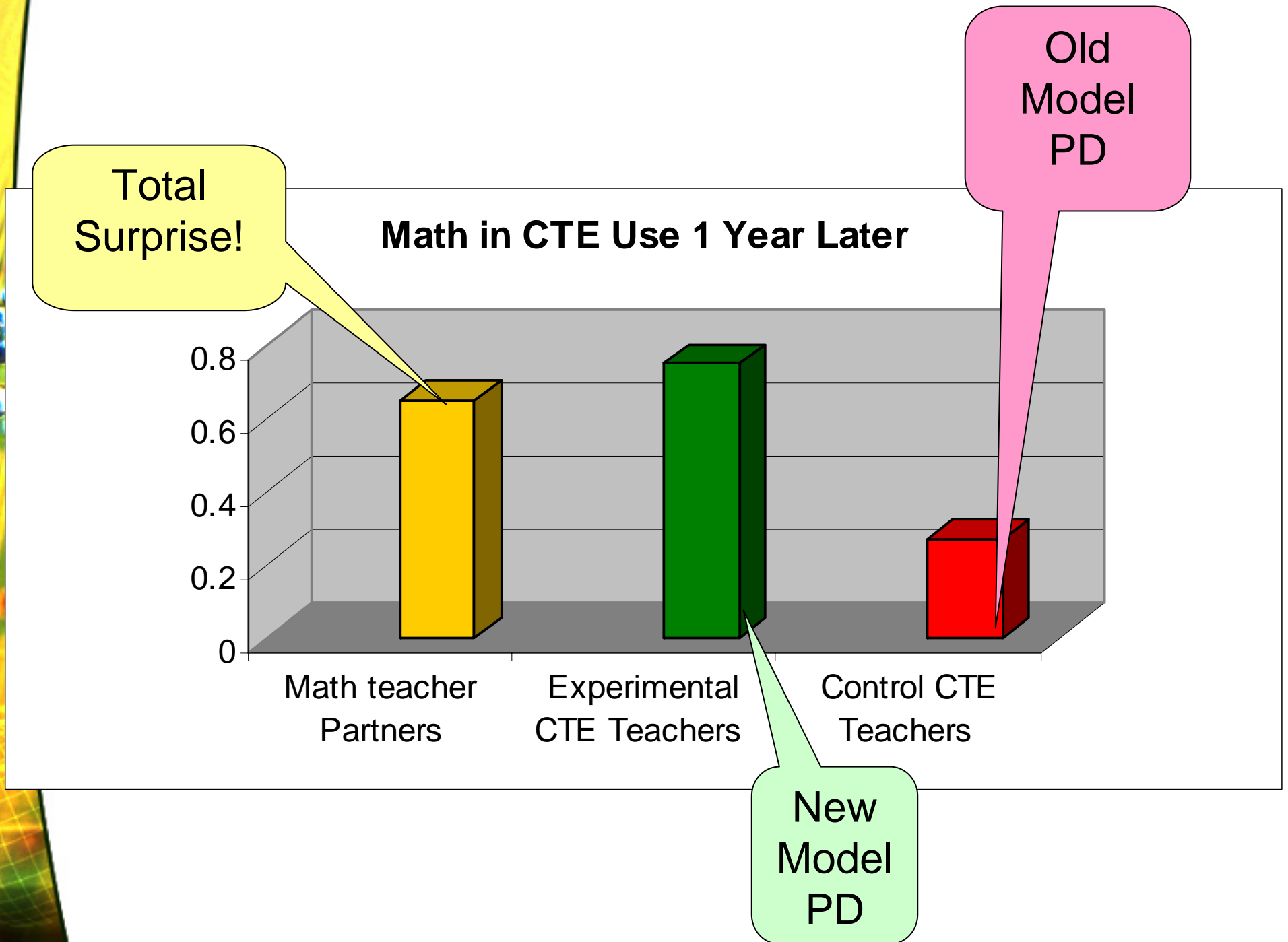


# Math-in-CTE: Magnitude of Treatment Effect

*the average percentile standing of the average treated (or experimental) participant relative to the average untreated (or control) participant*



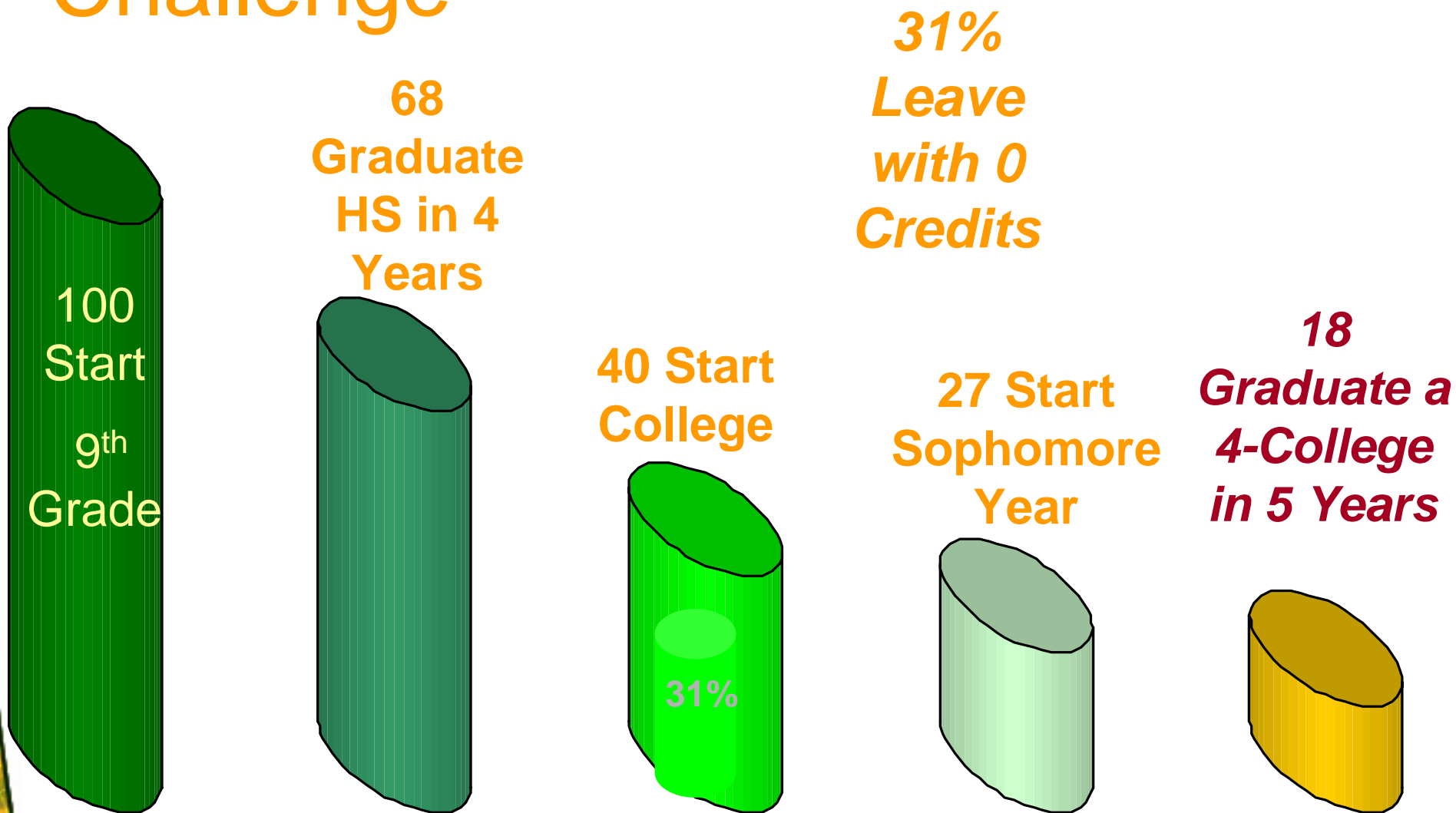
# Math-in-CTE:Sustainable



The image features a green printed circuit board (PCB) as the background, with intricate gold-colored traces and numerous circular vias. A large, semi-transparent circular grid is superimposed over the right side of the board. In the lower-left corner, a glowing, wireframe globe is visible. A series of bright, glowing points are arranged in a horizontal line across the bottom of the image, with green laser-like beams extending upwards from them. The overall color palette is dominated by green, gold, and yellow, with a dark background in the lower right.

**Transition**

# Transition to college: The Challenge

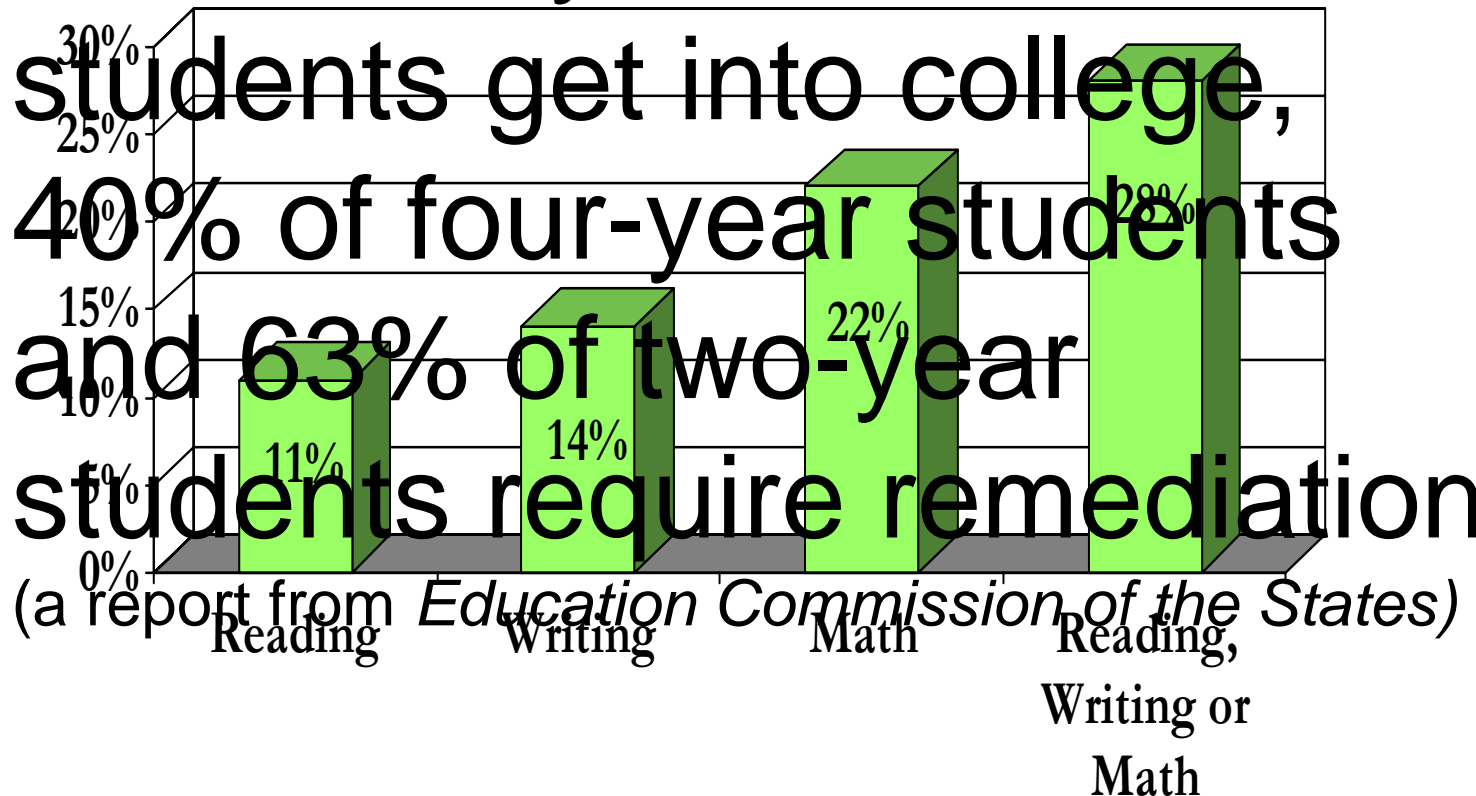


Source: Education Weekly March 2005

# Remediation

Nearly 30% of HS Graduates Require Some Remediation

Once many of these same students get into college, 40% of four-year students and 63% of two-year students require remediation.



Source: NCES (2003), *Remedial Education at Degree Granting PS Institutions in fall 2000*

# NRCCTE research thus far...

- No significant findings that career-related activities contributed to postsecondary enrollment (tech prep, WBL, cooperative education, career major)
- CTE courses do help students think about/plan their futures
- Students still need remediation in postsecondary
- Implies need for increased academic rigor in secondary CTE courses

# Improving CTE: Three foci for the New Center

- ***Engagement*** – Completing high school, completing PS programs
- ***Achievement*** – technical and academic; acquisition of industry credentials
- ***Transition*** – to continued formal learning without the need for remediation; and to the workplace

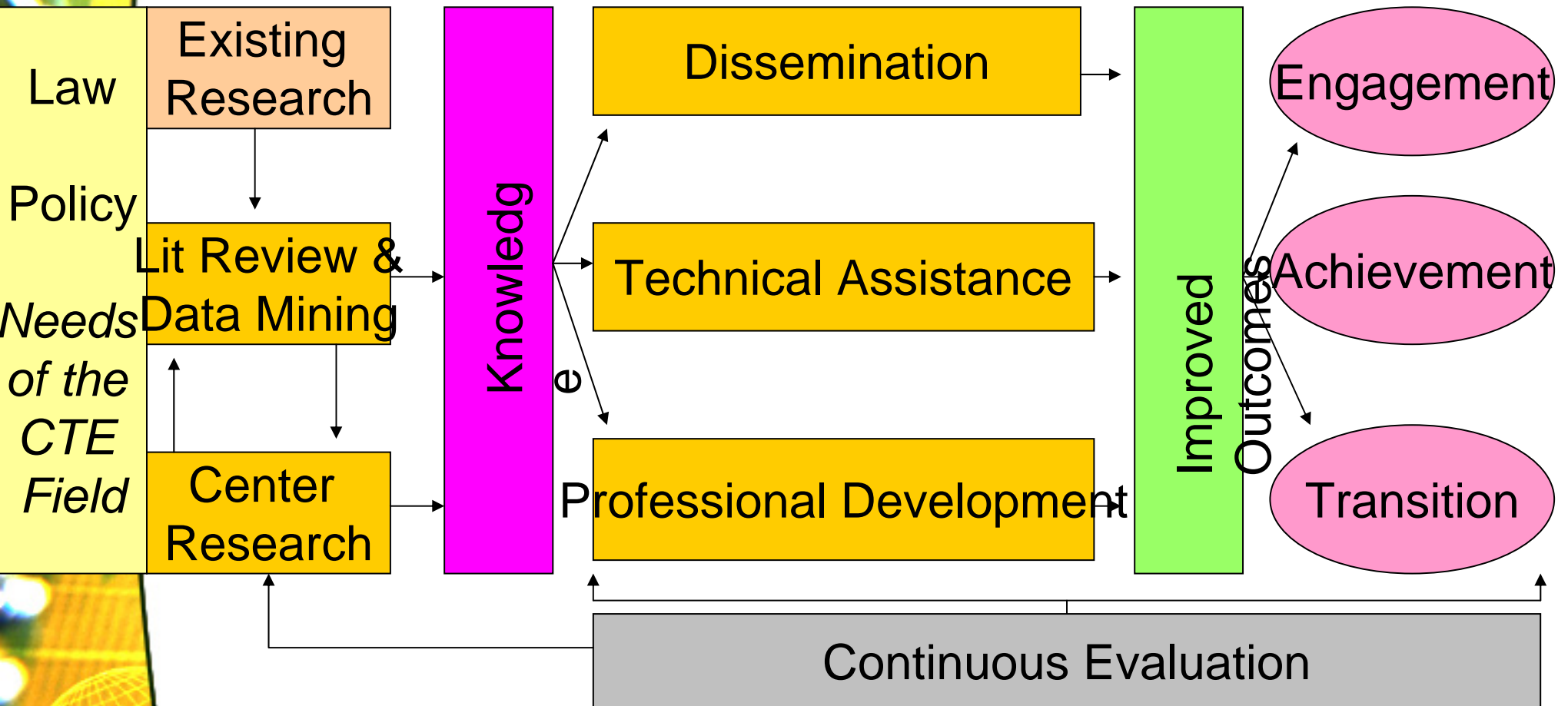
# Three Strands

- Develop and improve methods of instruction (Classroom, CTSO, WBL)
- Increase the effectiveness of programs
- Improve the development of CTE professionals  
(secondary and postsecondary)

# Four Main Activities

- Research
- Dissemination
- Technical Assistance
- Professional Development

# The New NRC<sup>cte</sup>



The background features a green printed circuit board (PCB) with intricate gold-colored traces and numerous circular vias. A large, semi-transparent circular graphic is centered on the board. In the lower-left corner, a wireframe globe is visible, glowing with yellow and green light. A series of bright, glowing points are arranged in a horizontal line across the bottom of the image, with green laser-like beams extending upwards from them. The overall color palette is dominated by green, yellow, and gold, creating a high-tech, futuristic atmosphere.

Research

*Moving forward...*

# *Programs of Study: A Longitudinal Analysis*

Alfeld and Charner, AED

- A look at “mature” Programs of Study
- What are the key “ingredients” of success?
- Does it incorporate all of the components for POS identified by Perkins?
- Are there other components leading to success?
- What are the student outcomes?
- *Longitudinal*

# ***Rigorous Test of Student Outcomes in CTE Programs of Study*** Castellano and Sundell

- Assess the effectiveness of POS in three states
- Three randomized controlled trials, one in each state
- Does the program of study lead to improved student outcomes as compared to outcomes at comparison group schools?
- Effectiveness measured in ways consistent with the Perkins IV legislation
  - academic achievement
  - technical skills achievement
  - high school completion
  - placement in postsecondary education, work, or the military
  - program participation and completion by nontraditional students
  - program participation and completion by students from special populations as defined by Perkins IV

# ***Longitudinal Study of South Carolina's Personal Pathways to Success***

*Smink and Drew, Clemson*

- Examine the impact of a statewide implementation of a Perkins IV type intervention and program of study policy on school and student outcomes.
- To what extent are integrated, career-focused programs of study developed through the implementation of state policy?
- What impact has the implementation of this state policy had on student high school outcomes, postsecondary employment and education/training outcomes?
- Which aspects of this state policy, or other program elements, have been most instrumental in the development of integrated, career-focused programs of study?



# ***Relative Impact of Interventions to Improve Achievement and Retention in Postsecondary Occupational Programs***

Bremer and Johnson      University of Minnesota

Castellano and Hirschy      University of Louisville

- Assess the impact of existing postsecondary interventions for improving achievement and retention for community college occupational students
- Short-term analysis of the impact of interventions
- Longitudinal study of selected interventions in four community colleges

# ***Harvesting State Postsecondary CTE Administrative Record Data to Assess Student Performance***

*Stone, University of Louisville*

*Kotamraju, MNSCU*

*Klein, MPR*

*How can data from different state postsecondary systems be interpreted through a common data framework?*

- Recruit working group of states that have postsecondary data system
- Collect, aggregate and analyze state data
- Develop a “Common Data Dictionary”
- Assess potential to aggregate data.

# ***Authentic Literacy Applications in CTE: Helping All Students Learn***

*Park, Cornell*

## *Curriculum integration study*

What authentic literacy experiences occur in CTE which may provide a context and opportunity for engaging students in reading and literacy?

Quasi-experimental design, using three models:

- disciplinary literacy strategy with PD
- disciplinary literacy strategy approach without PD
- MAX teaching model (HSTW)
- control group

# ***Science-in-CTE***

*University of Louisville*

Moving from Year 1 into Year 2:

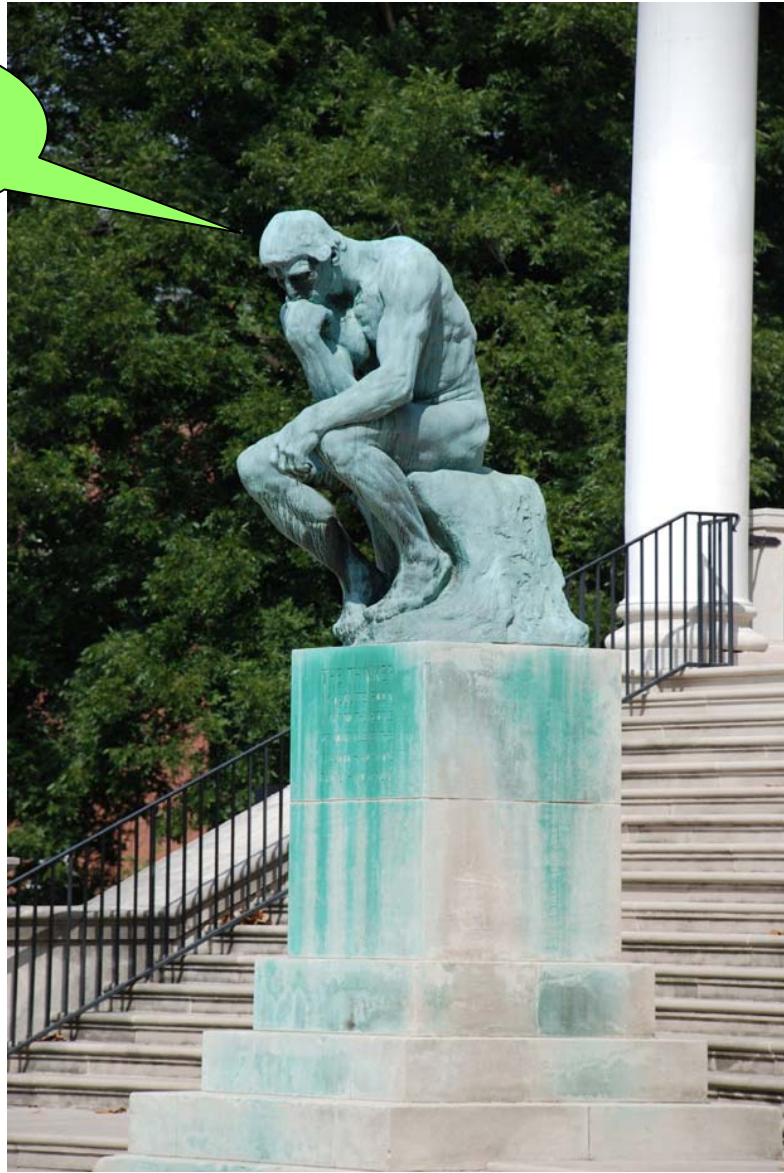
- Literature review
- Preliminary analysis of science concepts in CTE content areas
- Identification of available testing instruments
- Identification of characteristics required of testing sites

# *Professional Development for Educators in the Use of Assessment Data*

*Foster, Pritz, Kelley, NOCTI*

- Descriptive survey study
- How secondary CTE educators use technical assessment data to improve program curriculum and identify individual and group instructional needs
- Basis for professional development that can be provided in response to technical assistance requests from states

Whew!



# OVAE initiated studies

- Access and affordability
- State use of UI wage data for Perkins accountability
- Developing a technical assistance program for Programs of Study
- Distance learning in CC (pending)

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# Dissemination

# ***Systematic Reviews of Research in Career and Technical Education***

*Valentine, University of Louisville*

Critical systematic reviews of literature identify:

- what is known
- what needs to be investigated rigorously
- what hasn't been investigated at all

Systematic literature review methodology involves:

- thorough and unbiased literature search
- a detailed and tested coding protocol
- assessment of study quality
- synthesis of study results

Foci:

- transition from secondary to postsecondary for at risk youth
- PD for PS CTE instructors

# ***Dissemination Activities***

*underway*

- Best, Promising & Practitioner Wisdom Practices (ACTE)
- Web/Pod Casts (ACTE)
- Information Services (NRCCTE)
- Web Site (NRCCTE)

# Coming soon...



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CENTER PRIORITIES	Engagement	Achievement	Transition
			Program of Study
			Curriculum Integration
			Math in CTE
			<b>Dual Enrollment</b>
			Professional Development
			Dropout
			Accountability
			xxxxxxx
			xxxxxxx
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### Latest NRCCTE Reports

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Phone 502.852.4727 Fax 502.852.xxxx Toll-Free 877.372.2283 Email nrccte@louisville.edu

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# Technical Assistance and Professional Development

# *National CTE Technical Assistance Academy*

*Charner , AED*

- Annual academy
- Addressing issues and themes identified by states
- Content expert sessions
- Peer-to-peer discussions
- Follow-up at conferences (ACTE 08)
- *Year 1: Non-trad (June 08)*
- *Anticipated for Year 2: Programs of Study*

# ***Curriculum Integration: Technical Assistance and Professional Development Project***

*Pearson, University of Louisville*

- Ongoing support for states' adoption of tested models of curriculum integration
- Grounded in scientifically-based research
- Two-fold purpose:
  - build capacity of states to implement models of curriculum integration;
  - provide high quality, sustained professional development as called for in the Perkins IV legislation.
- Three levels of technical assistance:
  - Introductory presentations and workshops
  - Jump-Start initiatives
  - Full implementations

# ***Alternative Licensure Career/Technical Teacher Induction Model***

*Bottoms, Presson, Sass, SREB*

Development of a fast-track induction program for teachers pursuing an alternative route to certification.

Key aspects:

- Sustained professional development
- Communities of practice
- Coaching and mentoring on site
- Evaluation and refinement of the model using feedback and rigorous research methods.

A testable model

# Our Center Staff





[www.nccte.org](http://www.nccte.org)

donna.pearson@louisville.edu



# Career Academies

*Manpower Development Research Corporation*

- Random assignment design, launched in 1993. Nine academies in a mix of community types.
- <http://www.mdrc.org/publications/482/overview.html>

# Career Academies — Update (2008)

- Produced sustained earnings gains concentrated among young men, a group that has experienced a severe decline in real earnings in recent years. Through a combination of increased wages, hours worked, and employment stability, real earnings for young men in the Academy group increased by \$3,731 (17 percent) per year — or nearly \$30,000 over eight years.
- Viable pathways to a range of postsecondary education opportunities, but no more effective than options available to the non-Academy group. More than 90 percent of both groups graduated from high school and half completed a postsecondary credential.
- Produced an increase in the percentage of young people living independently with children and a spouse or partner. Young men also experienced positive impacts on marriage and being custodial parents.

# Two Recent Federal Reports

- The Condition of Education 2007 (NCES) (CTE enrollment). Multiple data sources for comparisons (e.g. NAEP, transcript surveys)
- Career and Technical Education in the United States:1990-2005 (NCES-CTES)
  - NOTES:
    1. Summary statistics, limited analysis
    2. Rely on national data: transcript surveys; ELS 2002, NELS88, School & Staffing Survey, BPS 1996-2001, IPEDS, NPSAS, NSOPF 2004, The National Household Education Surveys Program (NHES) 2003 & 2005

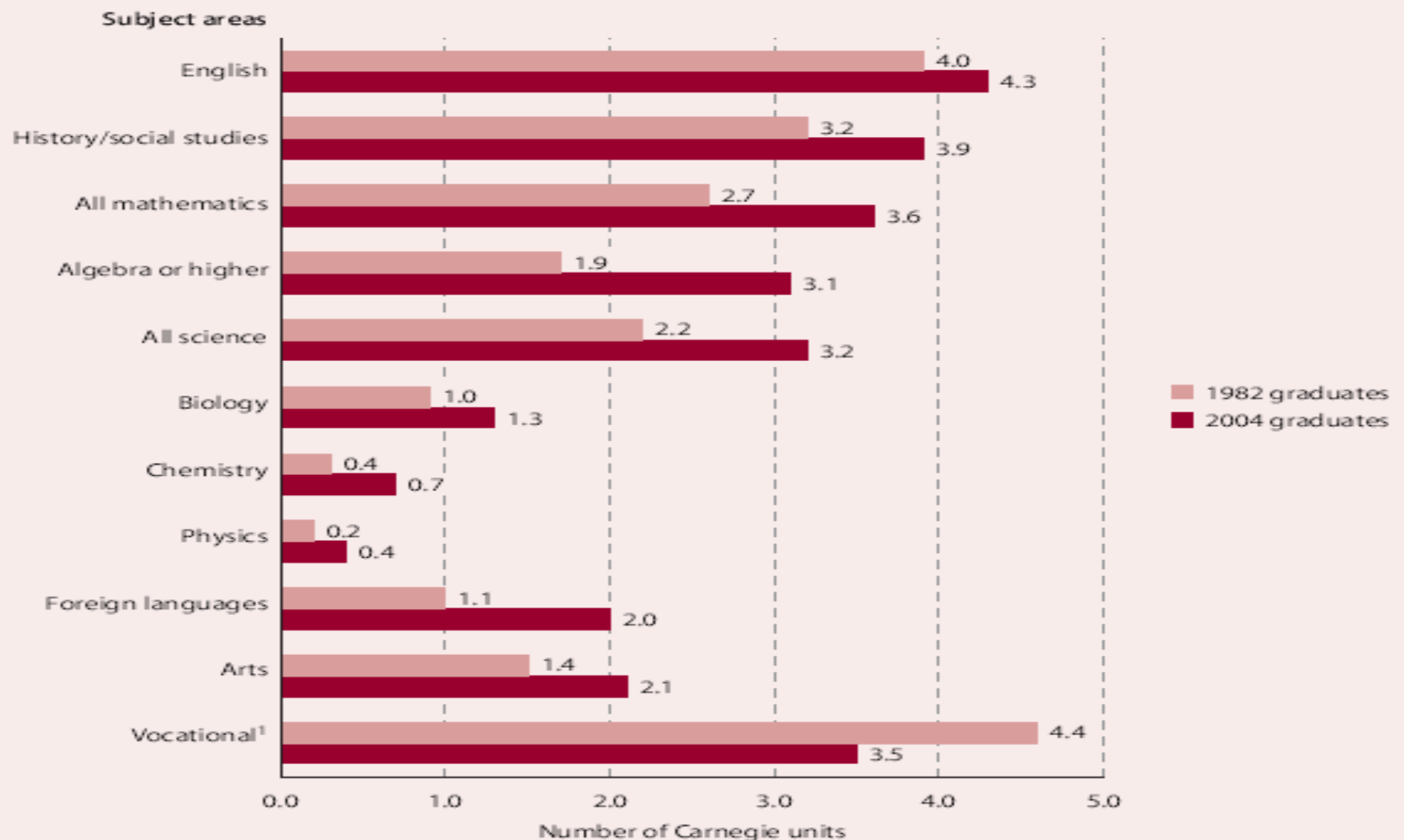
# CTE Enrollment: CTES Report

**Table 2.17. Average credits earned during high school by public high school graduates, by curricular area: 1990, 2000, and 2005**

Curricular area	1990	2000	2005
All curricular areas	23.53	25.93	26.67
Academic total	16.66	18.83	19.44
Core academics total	13.57	14.89	15.42
English	4.19	4.38	4.42
Mathematics	3.15	3.50	3.67
Social studies	3.47	3.82	3.98
Science	2.75	3.20	3.34
Fine arts	1.55	2.03	2.05
Foreign languages	1.54	1.91	1.97
Enrichment/other	2.68	2.89	3.23
CTE total	4.19	4.20	4.01

# CTE Enrollment: Condition of Education Report

Figure 3. Average number of Carnegie units earned by high school graduates in various subject areas: 1982 and 2004



# Enrollment Trends: Combined Reports

