

Xavier University of Louisiana: A Bridge Program Success Story in Minority STEM Education

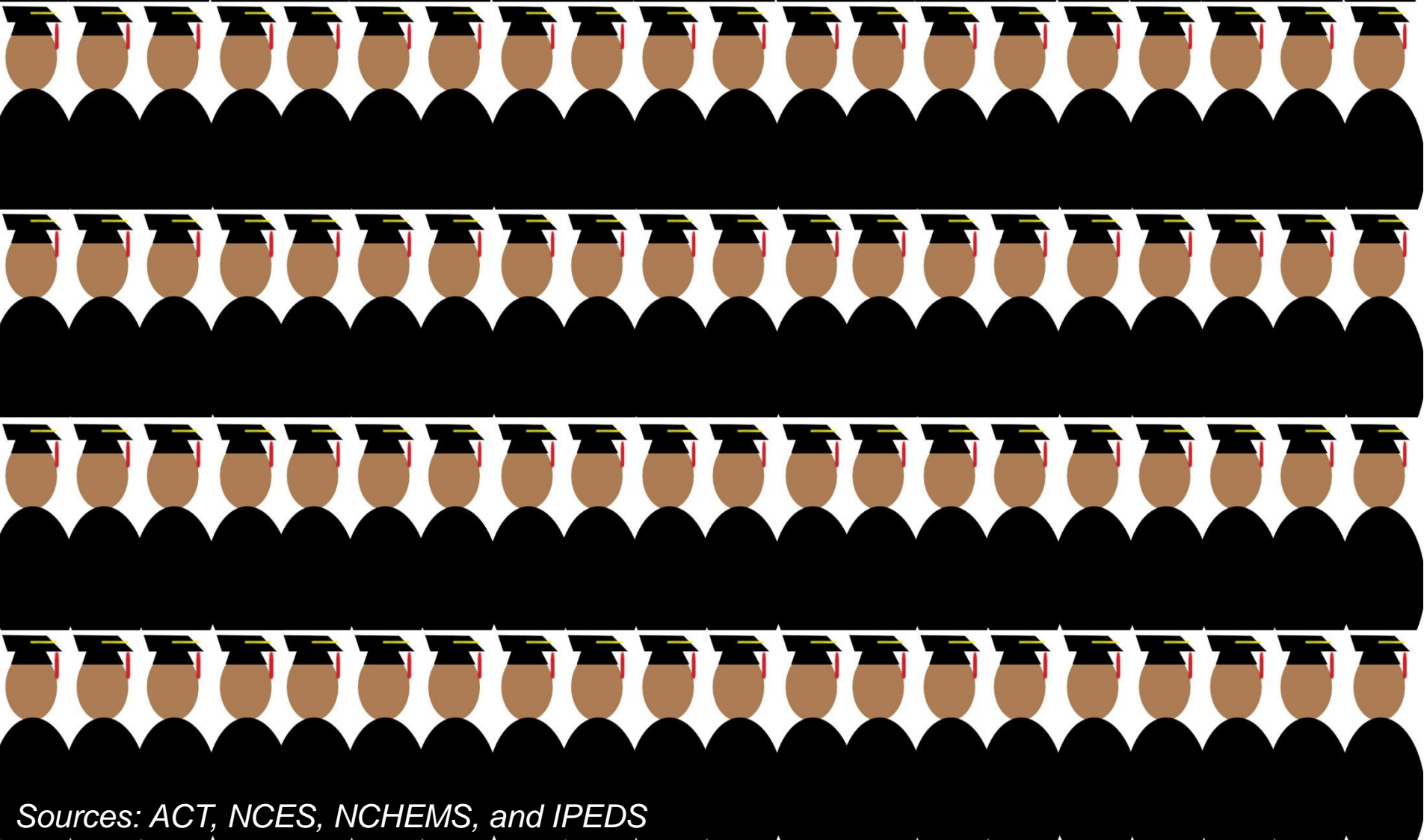


LOREN J. BLANCHARD, PH.D.
SENIOR VICE PRESIDENT
ACADEMIC AFFAIRS
XAVIER UNIVERSITY OF LOUISIANA

**PRESENTATION FOR THE ALLIANCE FOR
EXCELLENT EDUCATION AND MDRC**
MAY 22, 2014

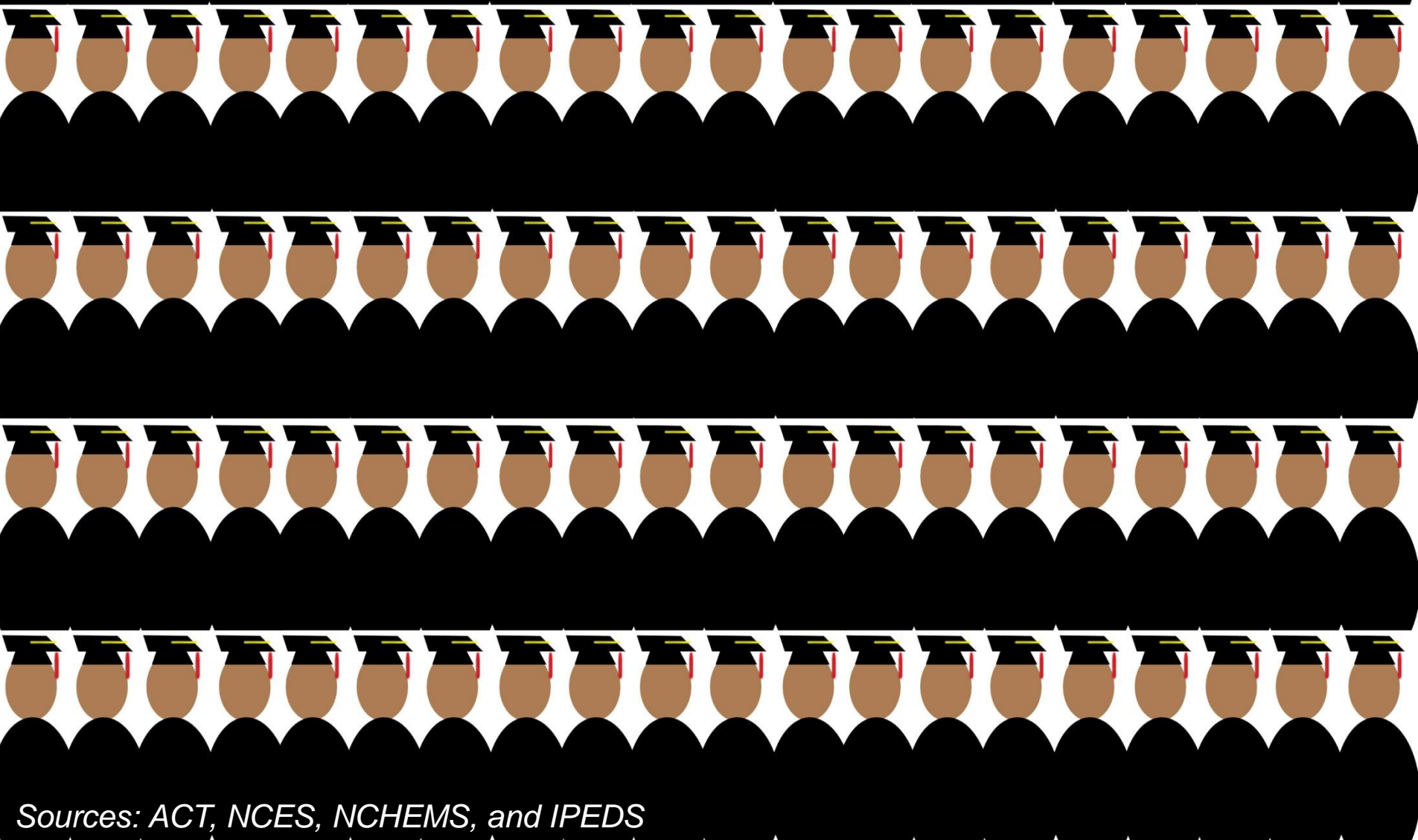


For Every **100** 9th Graders in the
Nation...



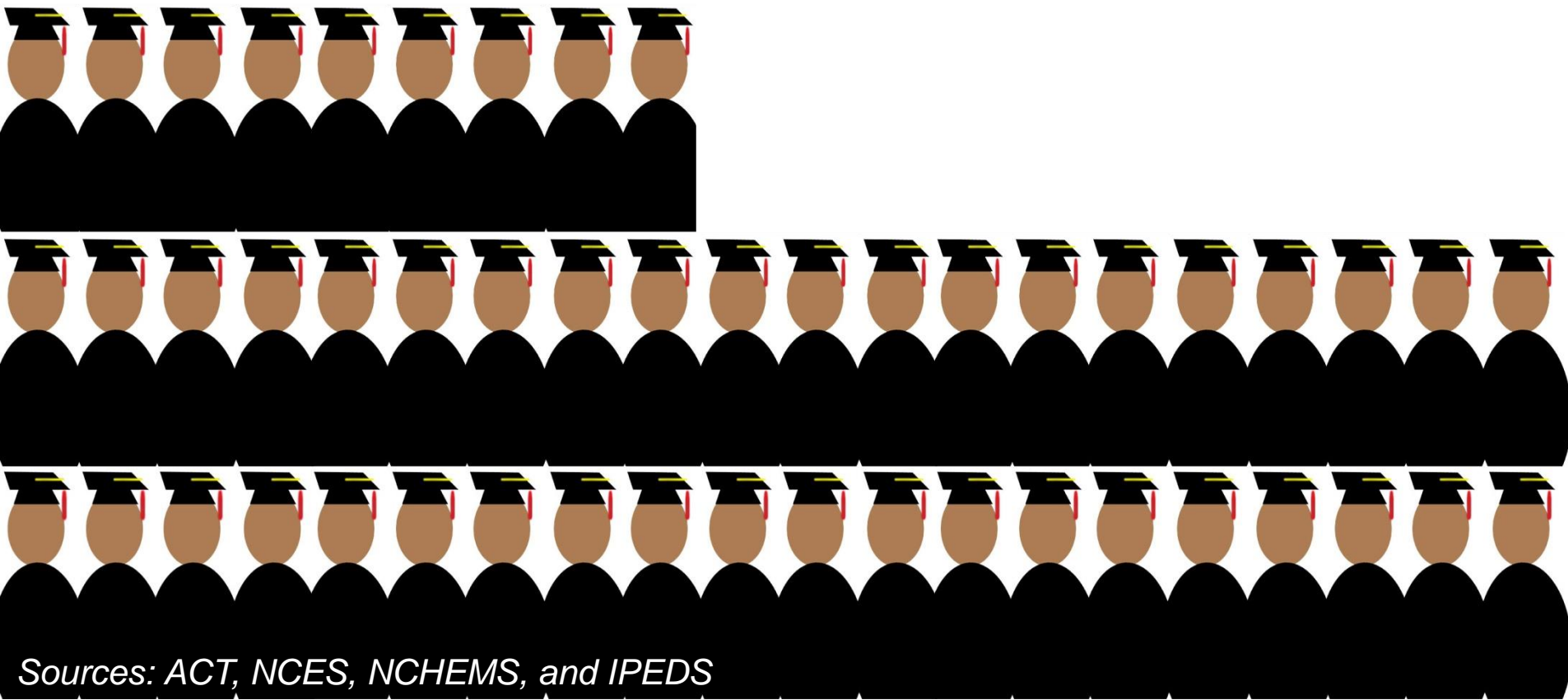
Sources: ACT, NCES, NCHEMS, and IPEDS

78 Students Graduate from High School



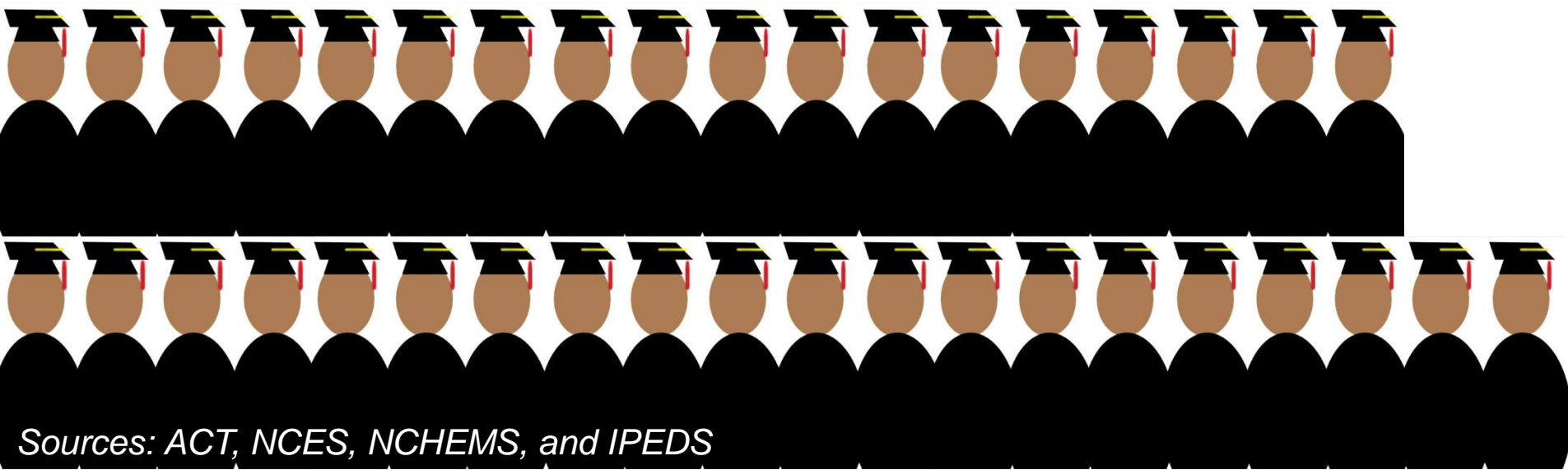
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49 Students Enroll in College the Next Year



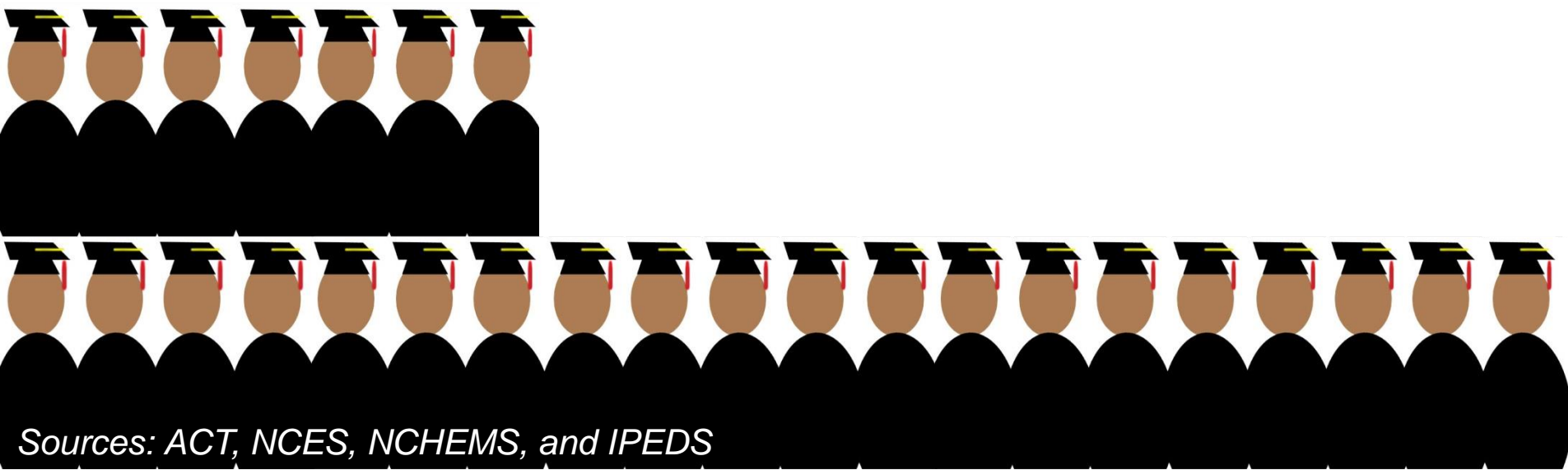
Sources: ACT, NCES, NCHEMS, and IPEDS

38 Are Still Enrolled Their Sophomore Year



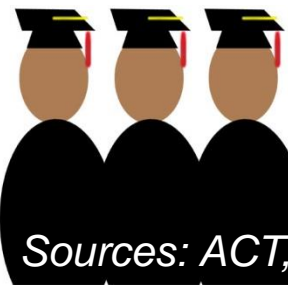
Sources: ACT, NCES, NCHEMS, and IPEDS

27 Students Earn a Degree in Six Years



Sources: ACT, NCES, NCHEMS, and IPEDS

3 African American Students Earn a Degree in Six Years



Sources: ACT,

College Readiness of High School Graduates



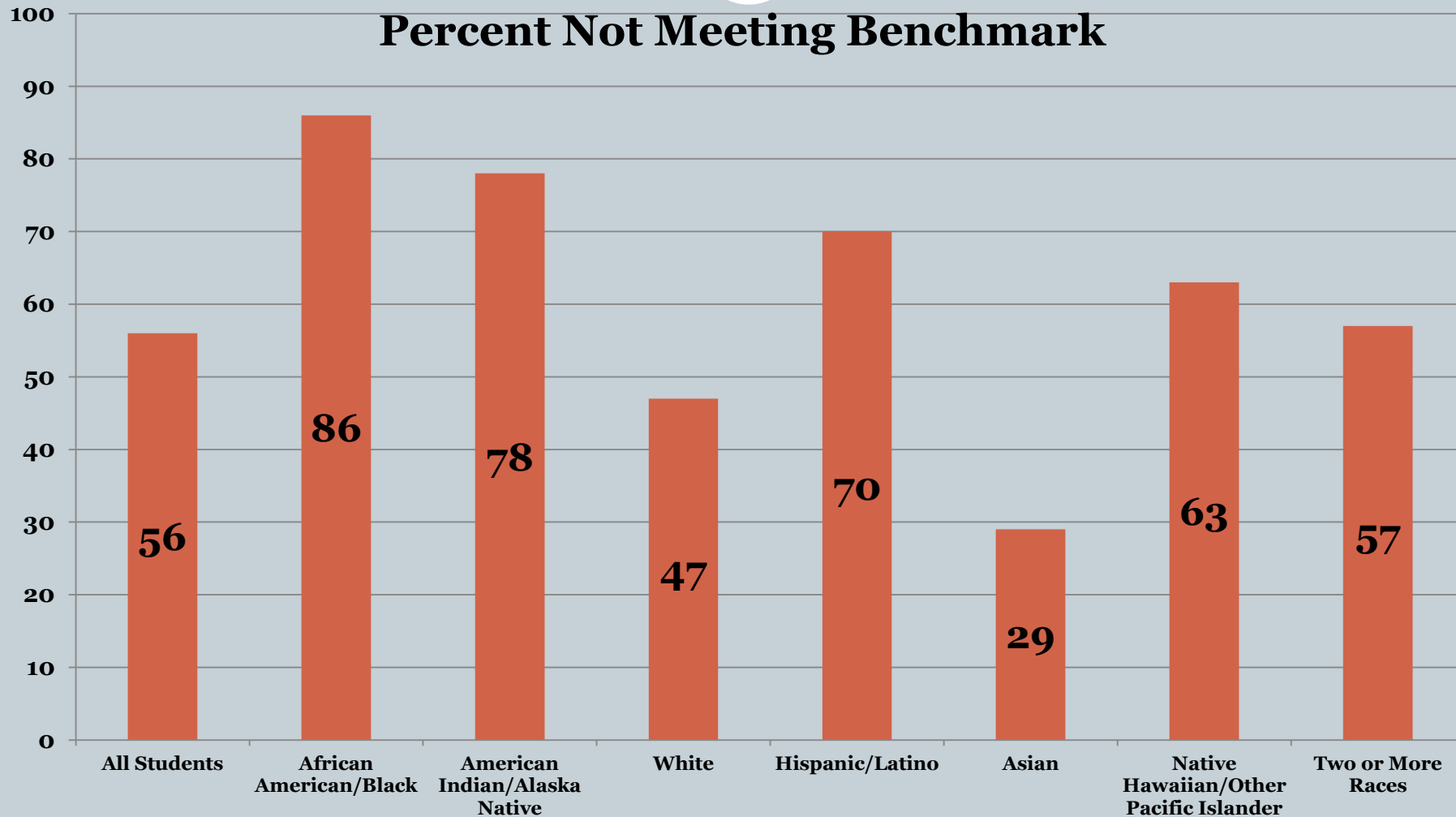
- Many high school graduates are underprepared for college
- Percentage of high school graduates enrolled in at least a minimum core high school curriculum
 - 74% of all 2013 ACT takers
- ACT Benchmarks reached by African Americans
 - 34% met English benchmark
 - 16% met reading benchmark
 - 14% met mathematics benchmark
 - 7% met science benchmark
 - 5% met all four benchmarks



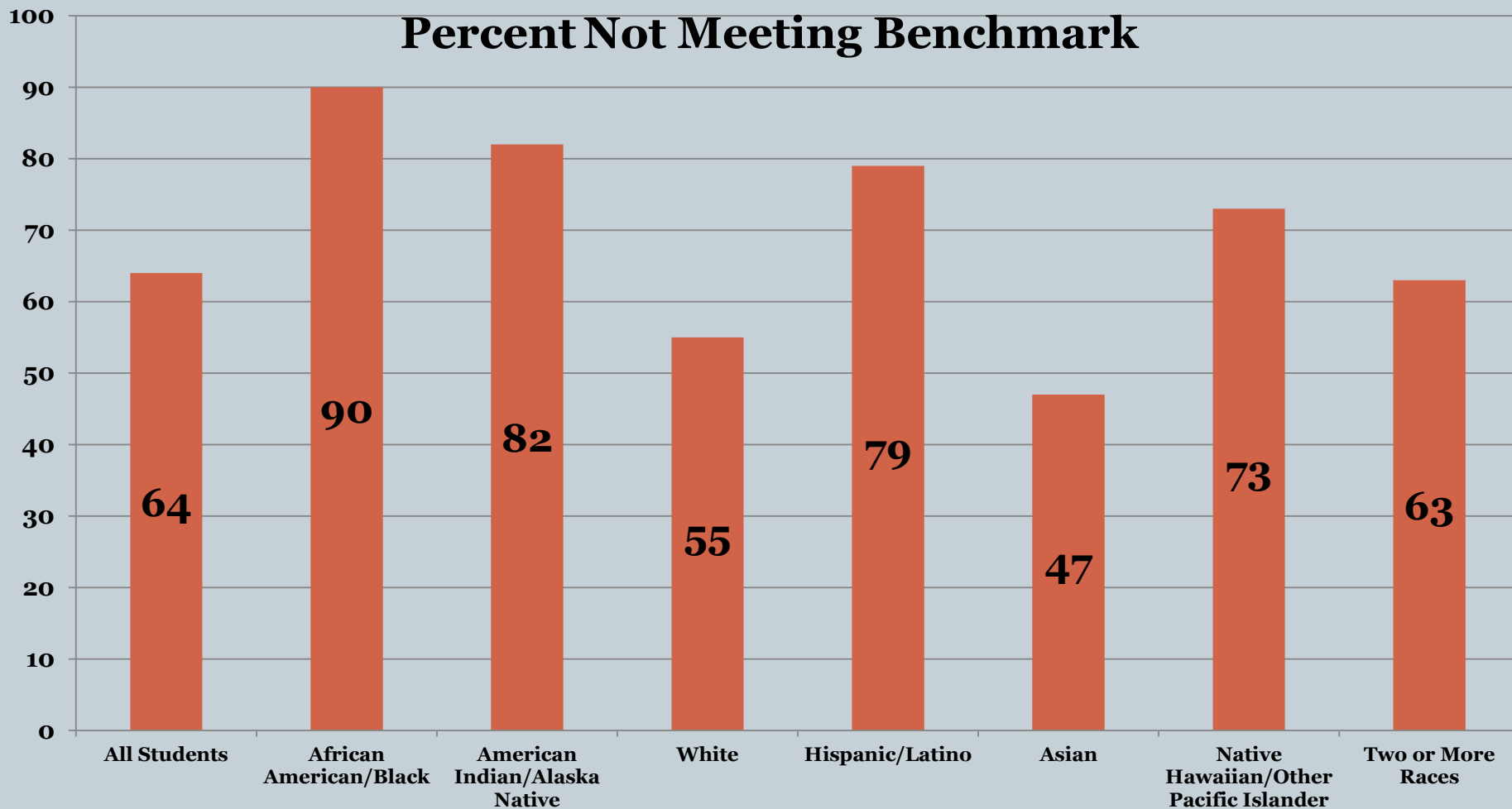
College Readiness – Mathematics



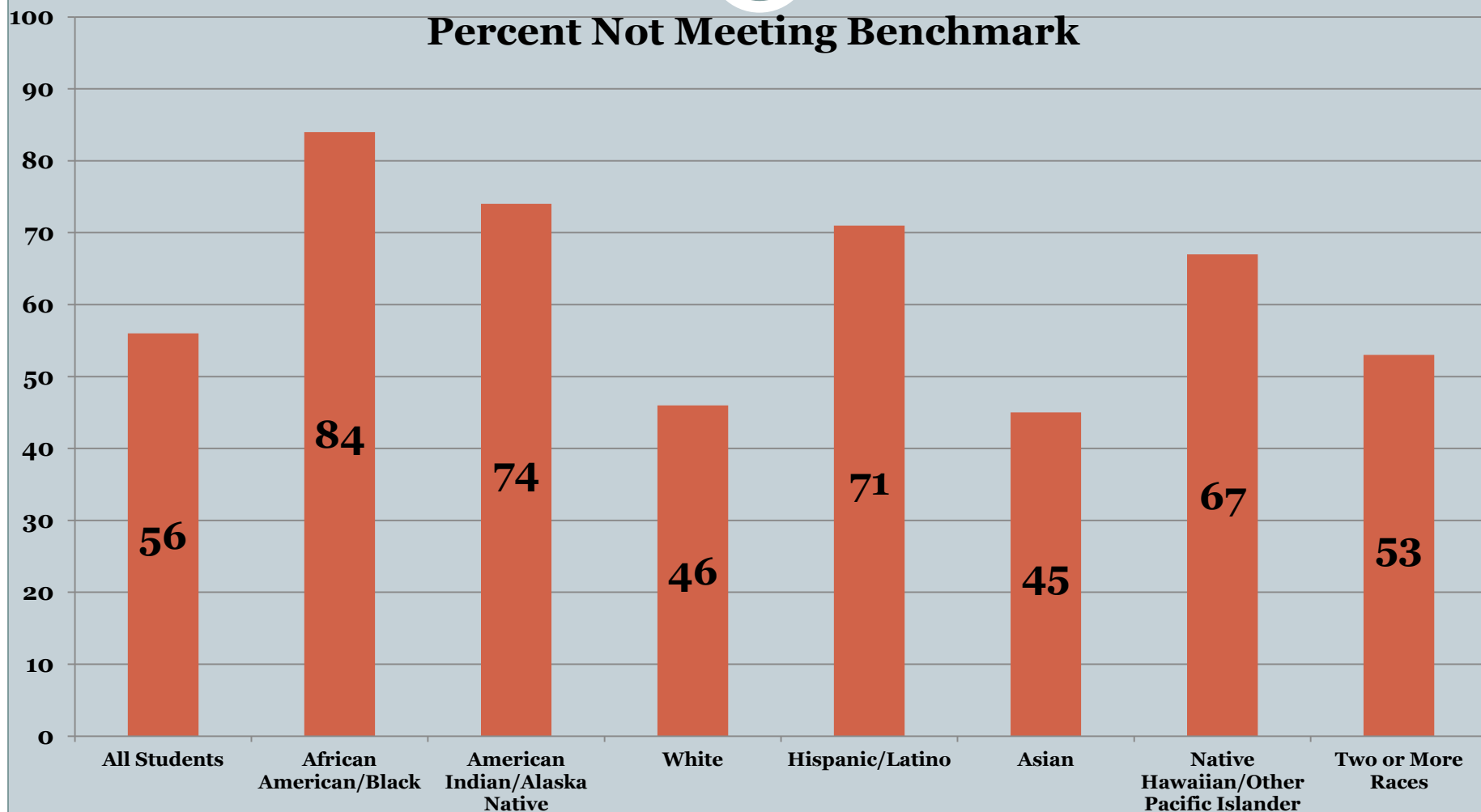
Percent Not Meeting Benchmark



College Readiness – Science

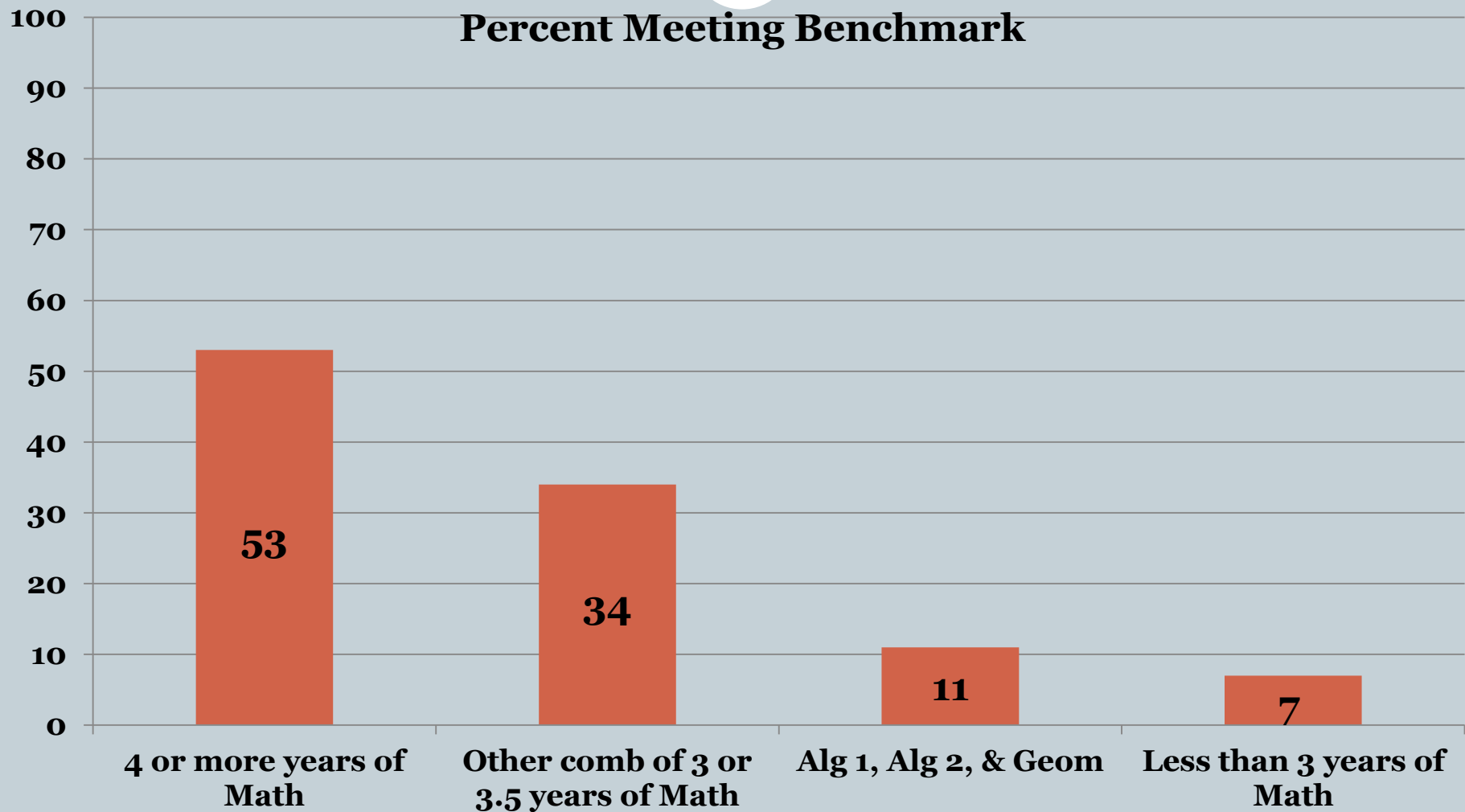


College Readiness – Reading



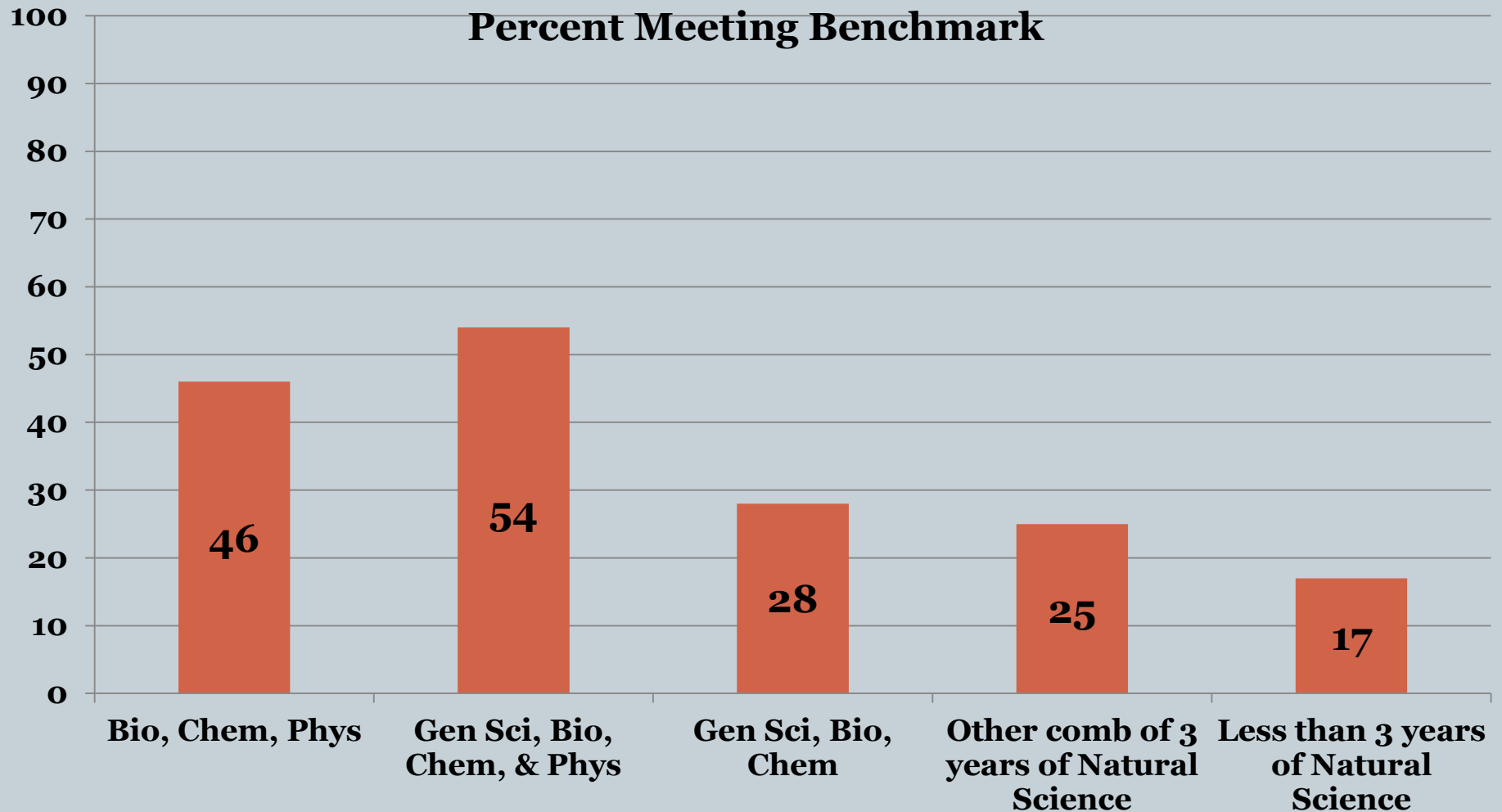
College Readiness – Mathematics

High School Courses Taken



Source: ACT Profile Report – National, Graduating Class 2013, page 24. Science and Engineering Indicators 2012; National Science Board; <http://www.nsf.gov>.

College Readiness – Science High School Courses Taken



Student and Teacher Preparation for STEM



- Preparation gap of minority students in mathematics and science is consistent across grade levels
- Preparation gap of female students widens
 - Between 8th and 12th grades in mathematics
 - Between 4th and 8th grades in science
- Teacher Preparation and Experience
 - Minority population of students
 - Level of poverty of students



Scientific Literacy and Success in STEM Disciplines



- If you are scientifically literate, you can:
 - Read and understand articles about science
 - Evaluate evidence-based arguments and draw conclusions
 - Identify scientific issues and express scientifically-informed positions
- Success in STEM disciplines requires the ability to:
 - Engage in analytical reading
 - Engage in critical thinking
 - Understand mathematics
 - Communicate effectively



Source: Supporting Students in Developing Literacy in Science; Krajcik, and Sutherland; *Science*; 23 April 2010: 328 (5977); pps. 456-459. Reading: The Key to STEM Success; Harvey; *Reading Today*; April-May 2010; pp 18. Harvard University (2007, July 29); College Science Success Linked To Math And Same-Subject Preparation; *ScienceDaily*; Retrieved May 9, 2013 from <http://www.sciencedaily.com/releases/2007/07/070726142017.htm>. National Science Education Standards, Board on Science Education, 1996, pages 22; Retrieved May 14, 2013 from <http://www.nap.edu/openbook.php?isbn=0309053269&page=22>.

Higher Education Impact

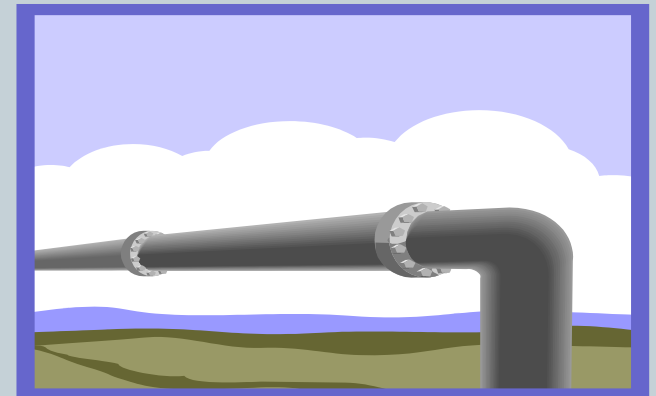


- Need for higher educational institutions to develop pipeline programs for students interested in STEM disciplines
- Need for higher educational institutions to provide academic support systems for student success

The Xavier Pipeline – Pre-College



- Summer Science Academy
 - MathStar
 - BioStar
 - ChemStar
 - Stress On Analytical Reasoning (SOAR)
- Louisiana Engineering Enhancement's Summer Scholars Program
- Biomedical Scholars
- STEM Scholars



The Xavier Pipeline – First Year Experience



- Course Placement
- Freshman Seminar
- Student Success Academy
 - Linked with Freshman Seminar
 - Faculty serve as mentors to the students
 - Meet with students outside of class depending on need
 - Students required to attend tutoring and/or counseling
- Academic support labs

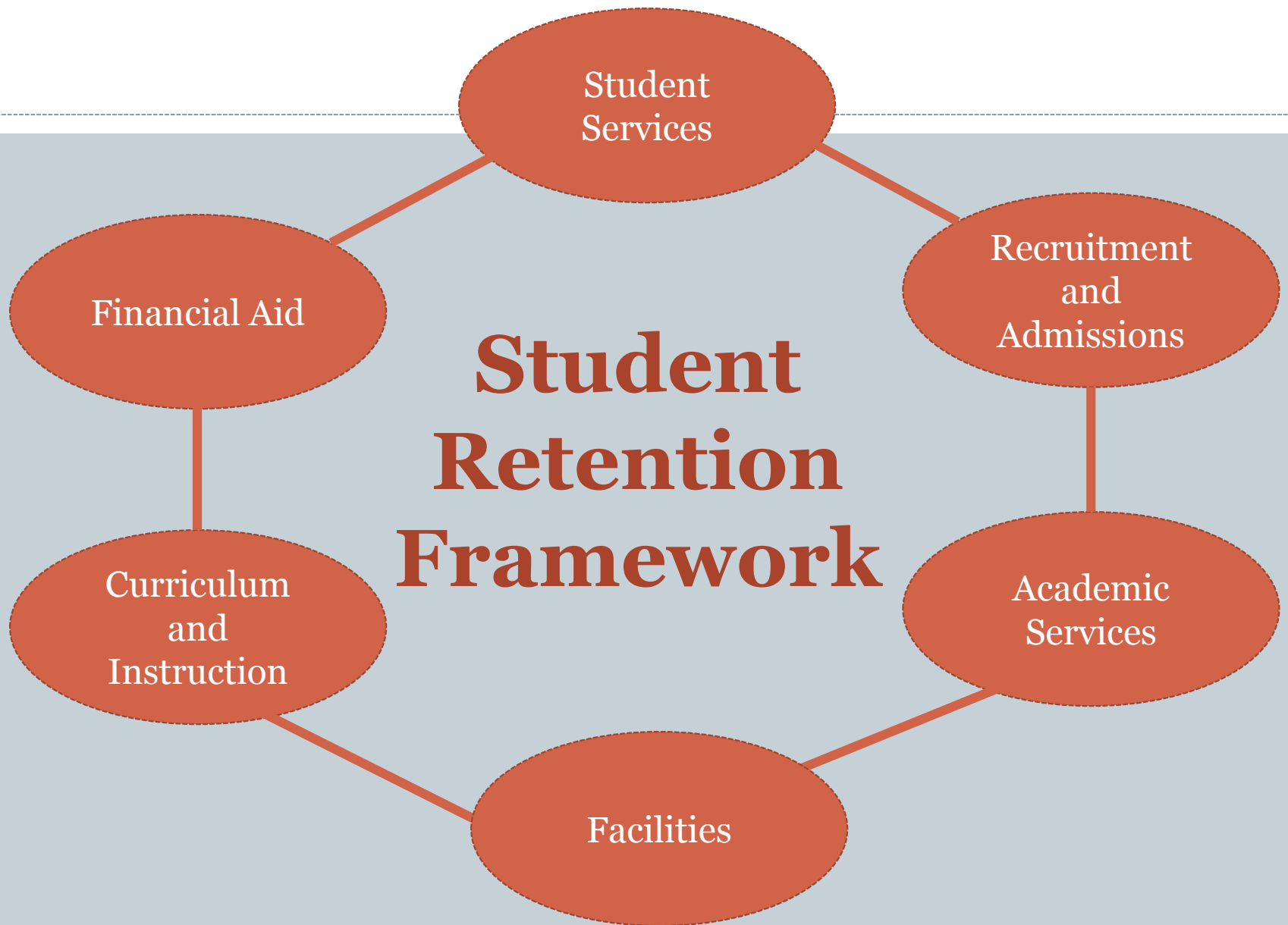


The Xavier Pipeline – Beyond the Freshman Year



- Continuation of academic support
 - Fundamental academic support labs continue to be available
 - STEM areas identify bottleneck courses and offer specialized tutoring
- Strong academic advising system
- Student Academic Success Office
- Center for Undergraduate Research
 - Faculty-student mini-grants
 - Festival of Scholars
 - XULAnEXUS
- Summer research opportunities
- Center for Intercultural and International Programs
- GradStar Program





Xavier STEM Achievements



- First in the nation in:
 - Number of African American Xavier graduates who complete medical school
 - Number of African American students earning undergraduate degrees in biology, chemistry, physics, and the physical sciences
 - Producing African Americans who earn the PhD in the life sciences (5th in nation for science and mathematics PhDs)
- 3rd in nation in producing African Americans who earn the PharmD
- 6th in HHS funding for HBCUs
- Top 16% in overall HHS funding
- Top 26% in overall NSF funding



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lblancha@xula.edu