



# The Technology Pipeline

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## Where the girls are...

- 56% of Advanced Placement (AP) test-takers in 2008 were female
- 65% of 2008 Intel ISEF finalists in Biochemistry were female
- 57% of 2008 undergraduate degree recipients were female
- 57% of professional occupations are held by women

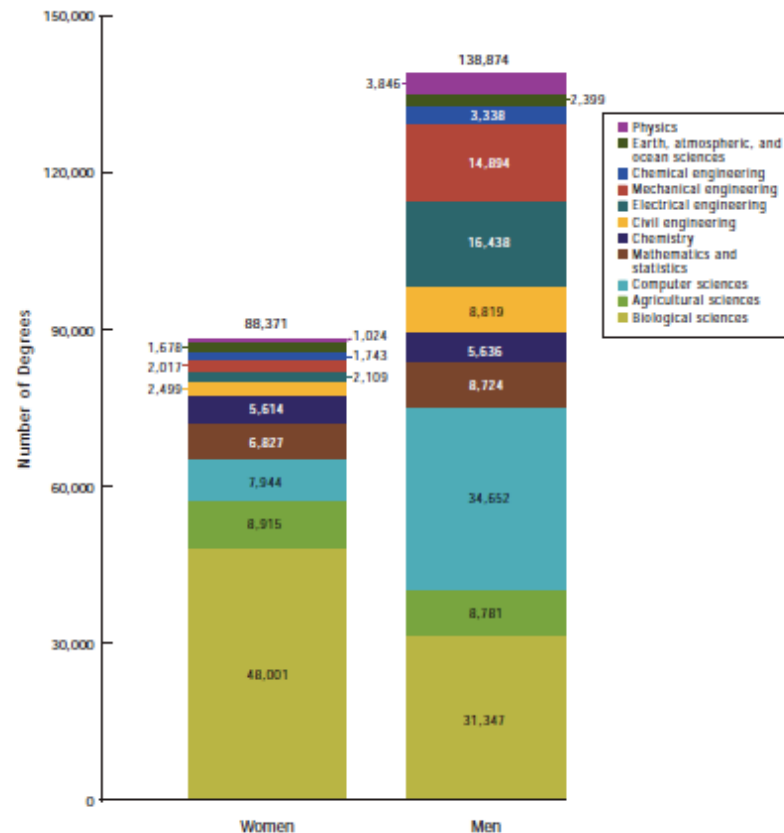


## Where the girls aren't...

Yet, males vastly outnumber females in virtually every STEM discipline except:

- Mathematics & Statistics
- Biological Sciences
- Agricultural Sciences

Figure 7. Bachelor's Degrees Earned in Selected Science and Engineering Fields, by Gender, 2007



Source: National Science Foundation, Division of Science Resources Statistics, 2009, Women, minorities, and persons with disabilities in science and engineering: 2009 (NSF 09-305) (Arlington, VA), Tables C-4 and C-5.



1.4 Million  
number of new  
technology jobs  
projected by 2018



29

% of these jobs we  
can fill with current  
pipeline



4.8

# of American job  
seekers for every 1  
available job



2.5

# of computing/tech  
jobs for every  
qualified applicant



27

% of US schools  
offering rigorous  
computer science in  
2009



## Community Snapshot: Texas District 16

***5*** of the fastest-growing occupations in the region are computing-related.

***The 3*** fastest-growing computing professions (computer software engineers, computer systems analysts, and computer and information systems managers) are expected to grow between ***35-50%*** by 2016.

***Overall, computing related occupations are growing at a rate of 30% and are expected to add 1,400 jobs in the Upper Rio Grande region alone by 2016.***

***The top 5*** highest paying jobs with an undergrad degree require a computer science education.

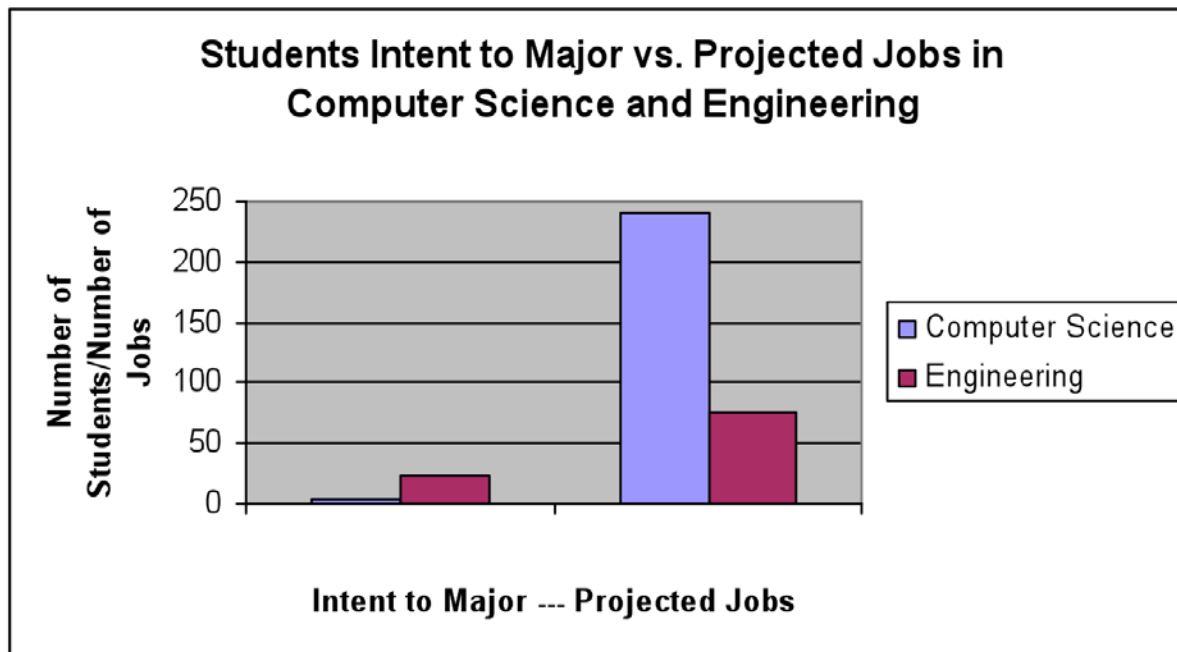


Although more than **147,000** Texas students took AP exams, only **2%** of these students (**2,951**) took the Computer Science AP exam.

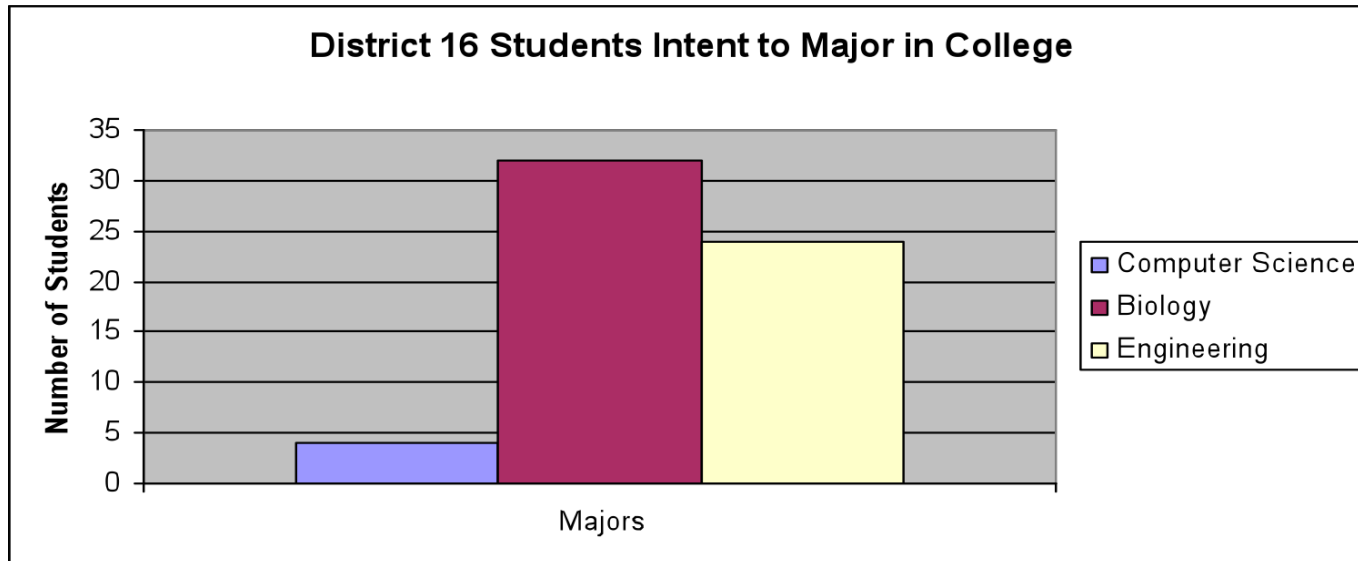
In District 16, only **19** students took a Computer Science AP exam, compared to **660** District 16 students who took a Calculus AP exam in 2009.

There are approximately **240** new computing-related jobs each year in the Upper Rio Grande area.

Yet in 2008, only **29** students completed bachelor's degrees in Computer and Information Sciences in District 16 colleges and universities. When considering associate (**64**) and graduate degrees (**39**), this number climbs to **132** – still not enough to fill **50%** of the available jobs in the Upper Rio Grande region.



In 2007-08, only **4** students in District 16 and only **593** students in all of Texas intended to major in Computer Science



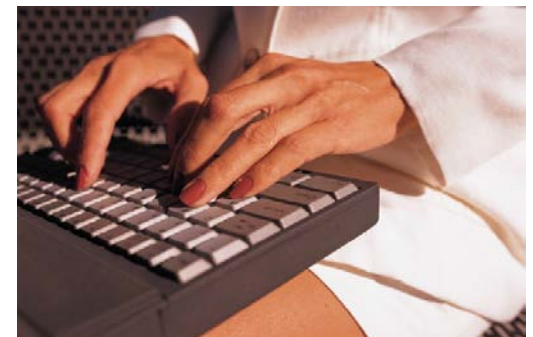
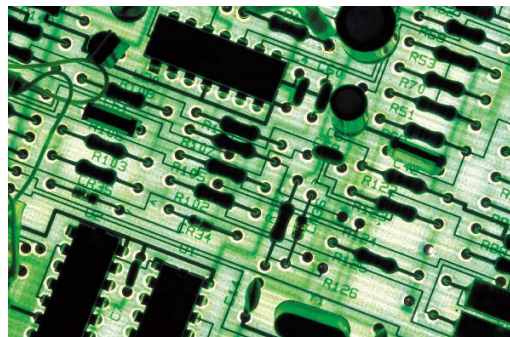
**Each year, computing related professions will have 3 times as many job openings as engineering in the Upper Rio Grand region. Yet 4 times as many District 16 students intend to major in engineering as in computer science.**



# The Big Picture

- » Computing & IT jobs are plentiful, growing & pay well
- » Not enough students are in the computing/IT pipeline

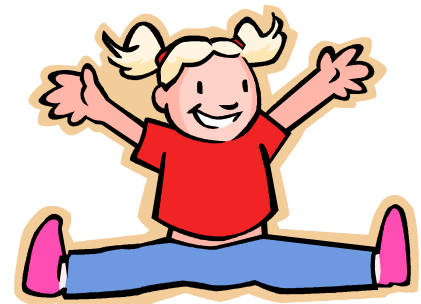
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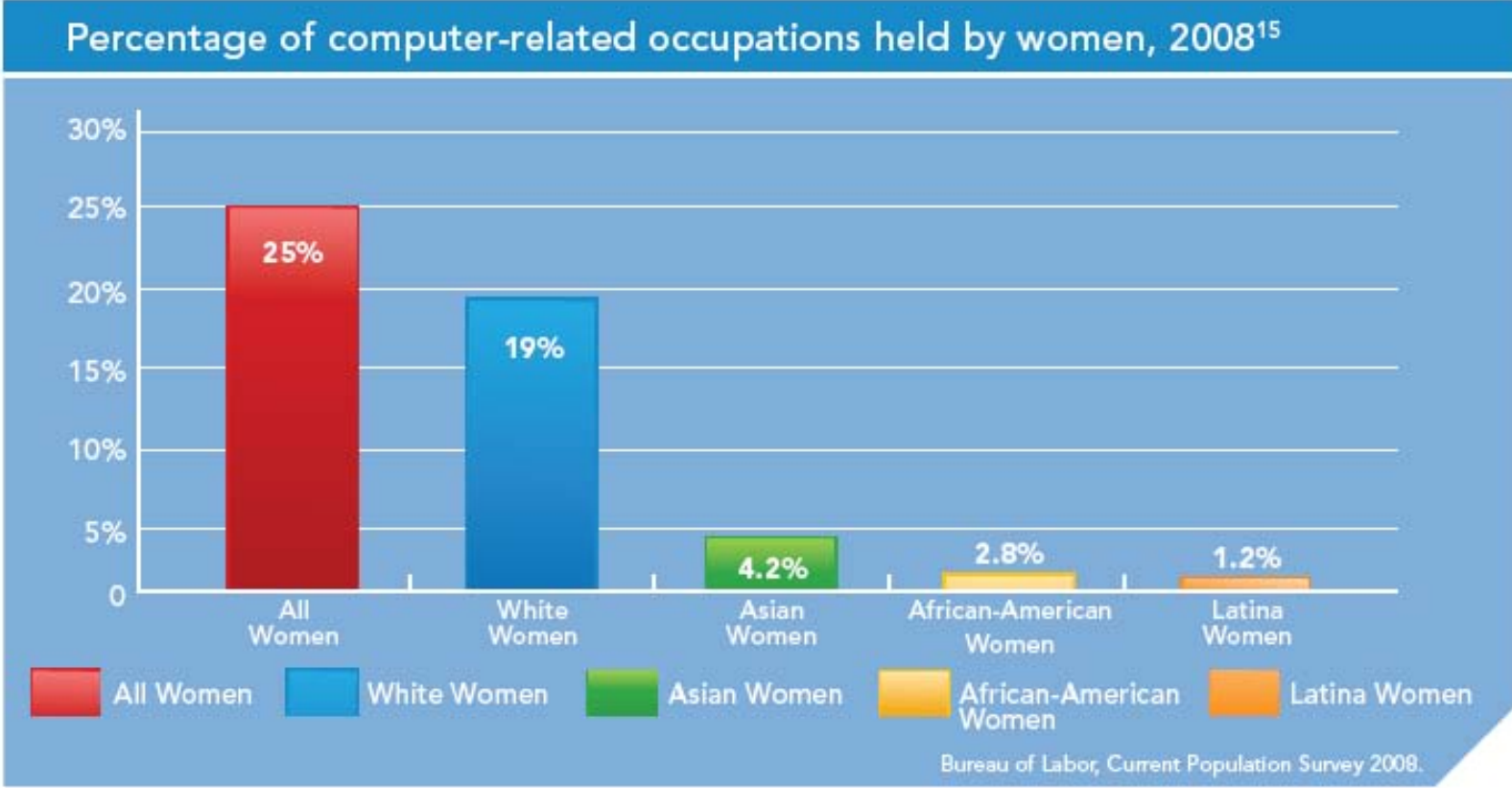
## What are we doing about it?

- » Building a national infrastructure to support reform across the entire pipeline. Nearly 200 organizations including Intel, Girl Scouts, CSTA, universities and more.
- » Reaching out to the largest untapped pool of students to fill these jobs – young women.
- » Identifying and disseminating promising practices for recruiting, retaining and advancing women in computing and IT





# Women and Minorities Are an Untapped Resource for Filling U.S. Computing Jobs





# What Can Your Schools to Successfully Incorporate Computer Science Education?

- » Provide rigorous and relevant computer science courses.
- » Recruit underrepresented students in to computer science courses.
- » Allow computer science to count toward graduation, as a math or science graduation credit.
- » Improve teacher preparation and professional development.
- » Expand teacher certification requirements to include computer science.



## Some ideas....

*Recognize girls and minorities who are aspiring in computing & IT! Encourage them to stay the course.*

*Invite girls and minorities to take your classes. It works!*

*Ask for help! NCWIT offers free online resources aimed at educators, students, and school administrators.*



## Resources for You



### NCWIT Talking Points Cards

- » What to say to a young person about a career in IT?
- » What to say to curriculum decision-makers about CS education?
- » Offering Computing Workshops & Camps

### NCWIT Programs in a Box for K-12

- » CS Unplugged
- » Outreach in a Box





## Resources for You

### NCWIT Award for Aspirations in Computing

- » Encourage young women to apply! [www.ncwit.org/award](http://www.ncwit.org/award)
- » Host an award in your community. See me!



### Other Resources

- » National Lab Day – submit a project, there are ZERO computer science projects to date. <http://www.nationallabday.org/>
- » Computer Science Education Week – get involved! <http://www.csedweek.org/>
- » Gotta Have IT [www.ncwit.org/GHIT](http://www.ncwit.org/GHIT)

**National Lab Day**