



# COMPUTER SCIENCE EDUCATION IN NEW MEXICO

PREPARING OUR STUDENTS FOR THE  
FUTURE

STTC

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# INTRODUCTIONS


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# WHAT IS COMPUTER SCIENCE (CS)?

Computer science is a discipline that involves the understanding and design of computers, computational processes, and digital artifacts

**Learning to code/program a computer is part of CS but not the only thing studied in CS.**



# WHAT IS INFORMATION TECHNOLOGY (IT)?

Information Technology (IT) focuses on computer communication, including hardware, software, telecommunications and generally anything involved in the transmittal of information or the systems that facilitate communication.

**Learning to code/program a computer is a growing part of IT and is now part of the curriculum to gain certification in IT.**

# WHAT IS NOT COMPUTER SCIENCE?

CS is **NOT** about *using* computers.

CS education is about preparing our students  
to be *creators* of technology

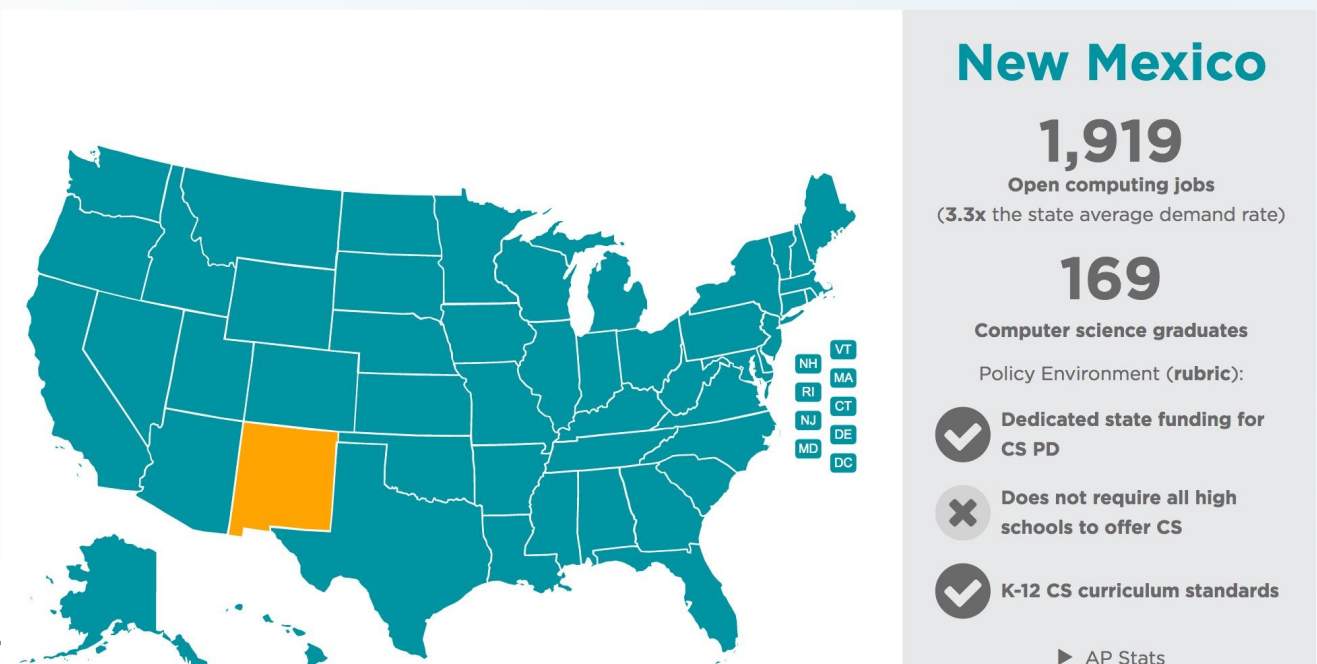


# The Possibilities that Arise from Computer Science



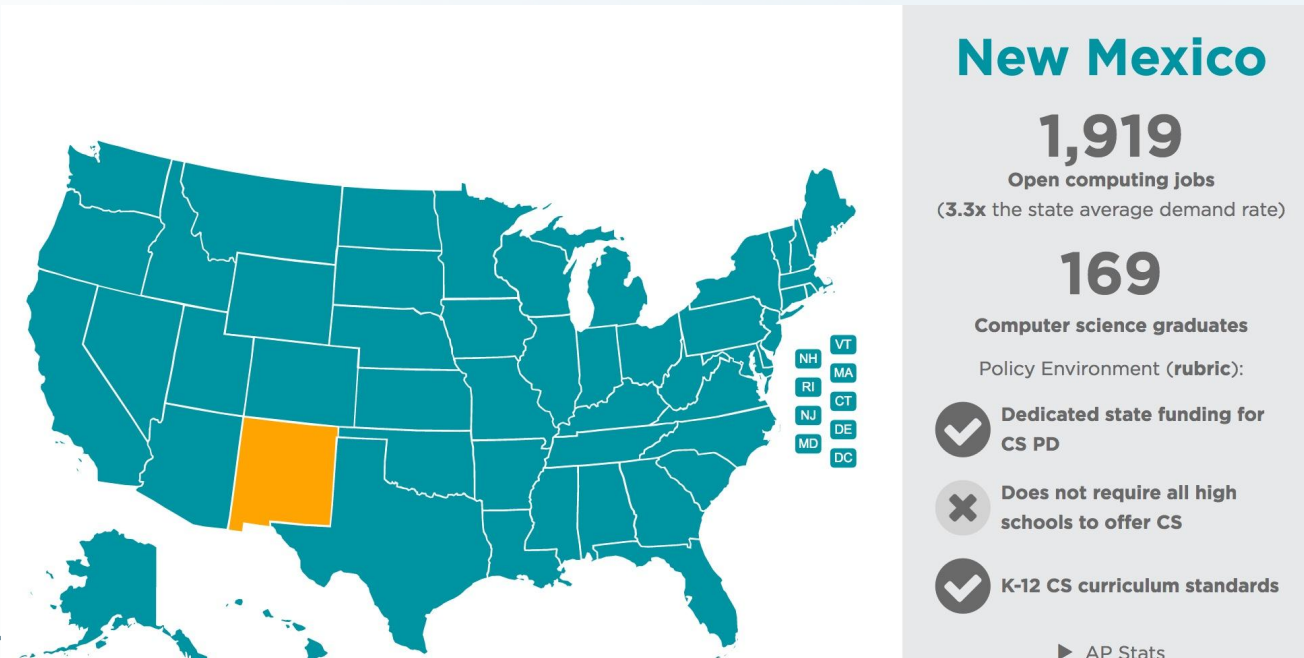
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# NM CS STATS: WE HAVE A **WORKFORCE** ISSUE



- The average salary for a computing occupation in NM is \$80,195, which is significantly higher than the average salary in the state (\$44,840)
- New Mexico had only 169 computer science graduates in 2017; only 19% were female.

# NM CS STATS: WE HAVE A DIVERSITY ISSUE



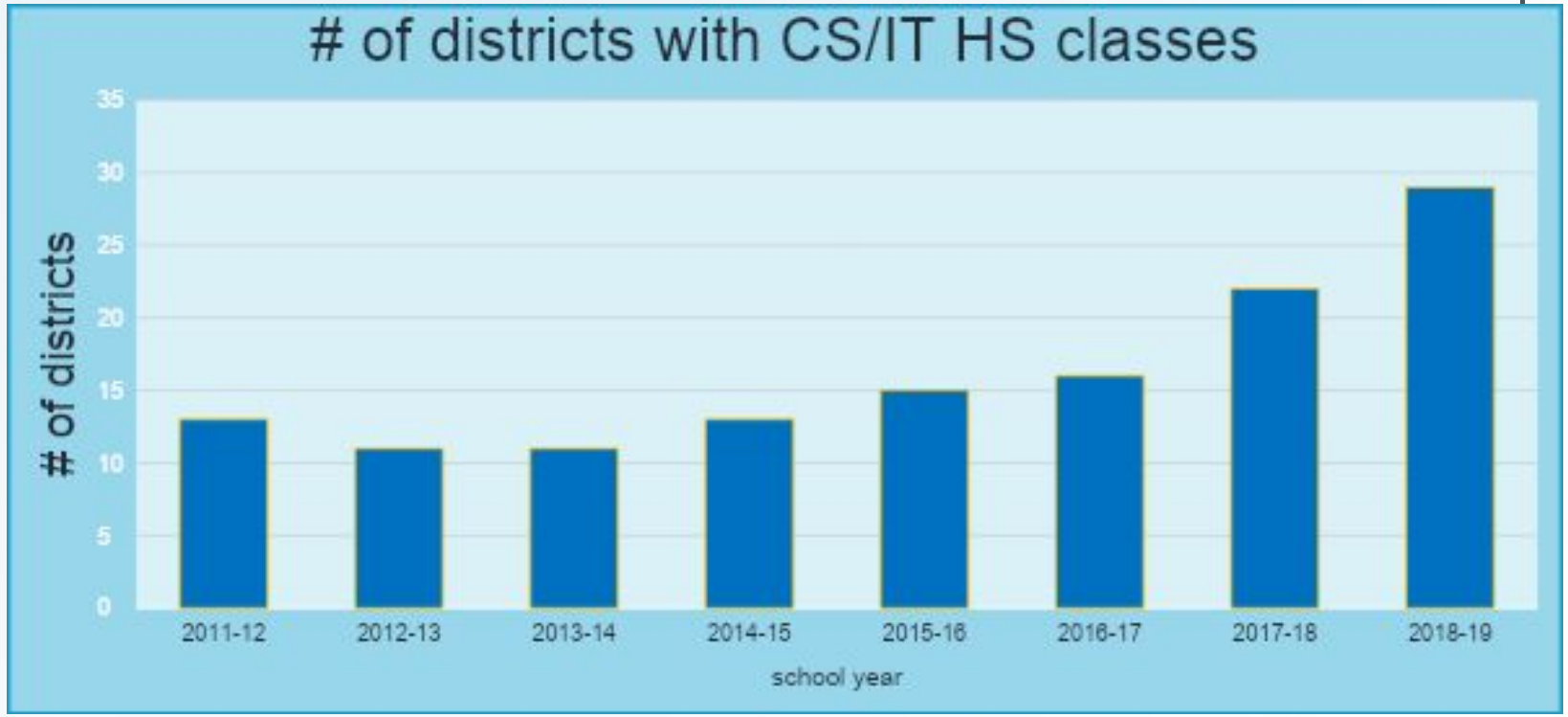
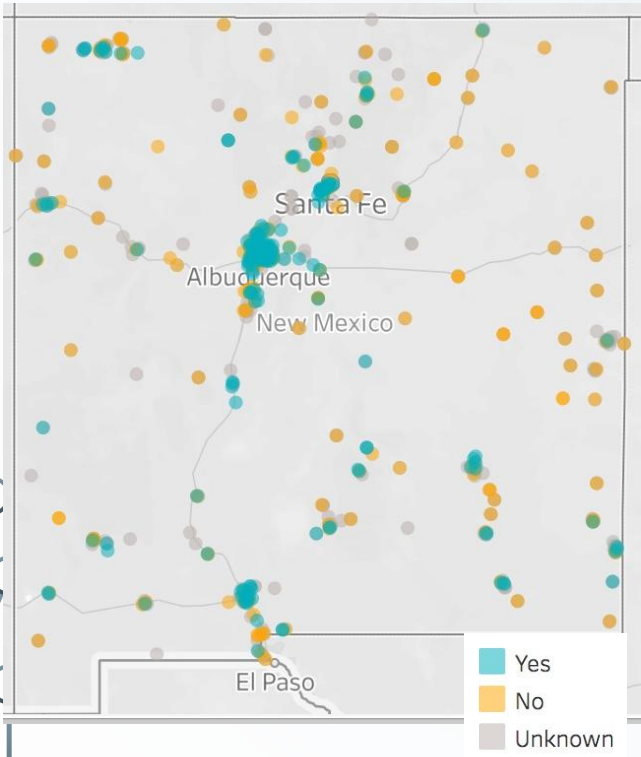
Only **203 exams** were taken in AP CS by high school students in New Mexico in 2018

- Only 22% were female
- only 81 exams were taken by Hispanic or Latino students
- only 4 exams were taken by Black students
- only 12 exams were taken by American Indian or Alaska Native students



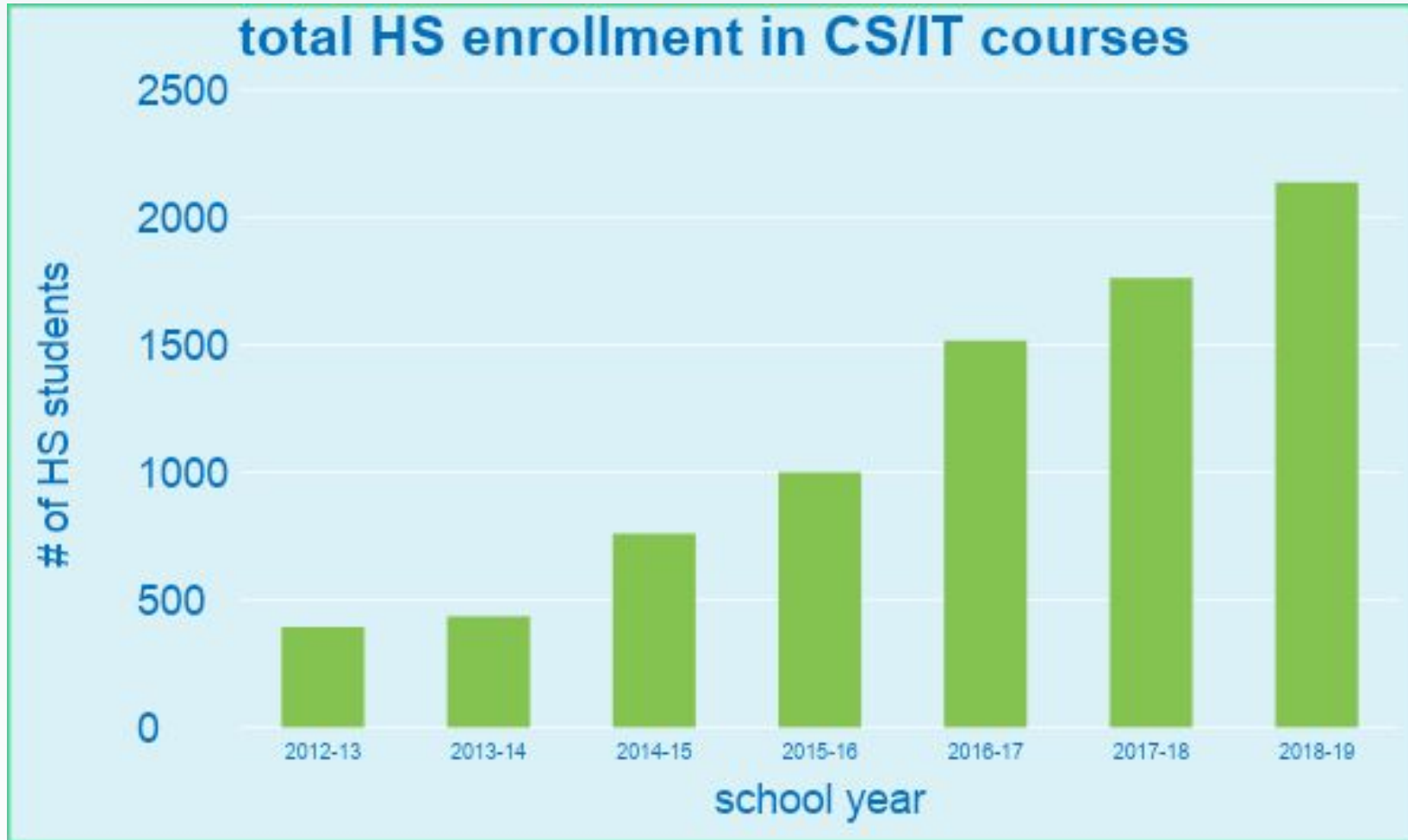
# NM CS STATS: WE HAVE AN ACCESS ISSUE

Where CS education is/isn't happening



- Out of 89 school districts, there are 29 districts that have at least 1 CS/IT class
- 61 out of 203 HS have a CS/IT class (30%)

# NM CS STATS: CS EDUCATION IS GROWING



# NM CS STATS: WE HAVE AN **ACCESS** ISSUE

Districts	2015-16 # of students enrolled	2016-17 # of students enrolled	2017-18 # of students enrolled	2018-19 # of students enrolled	% of HS students enrolled in a CS/IT class 2018-19
Albuquerque	163	178	279	350	<b>1%</b>
Las Cruces	321	375	480	348	<b>5%</b>
Los Alamos	49	61	54	62	<b>5%</b>
Los Lunas	62	142	49	65	<b>3%</b>
Rio Rancho		9	42	67	<b>1%</b>
Santa Fe	19	96	151	206	<b>6%</b>

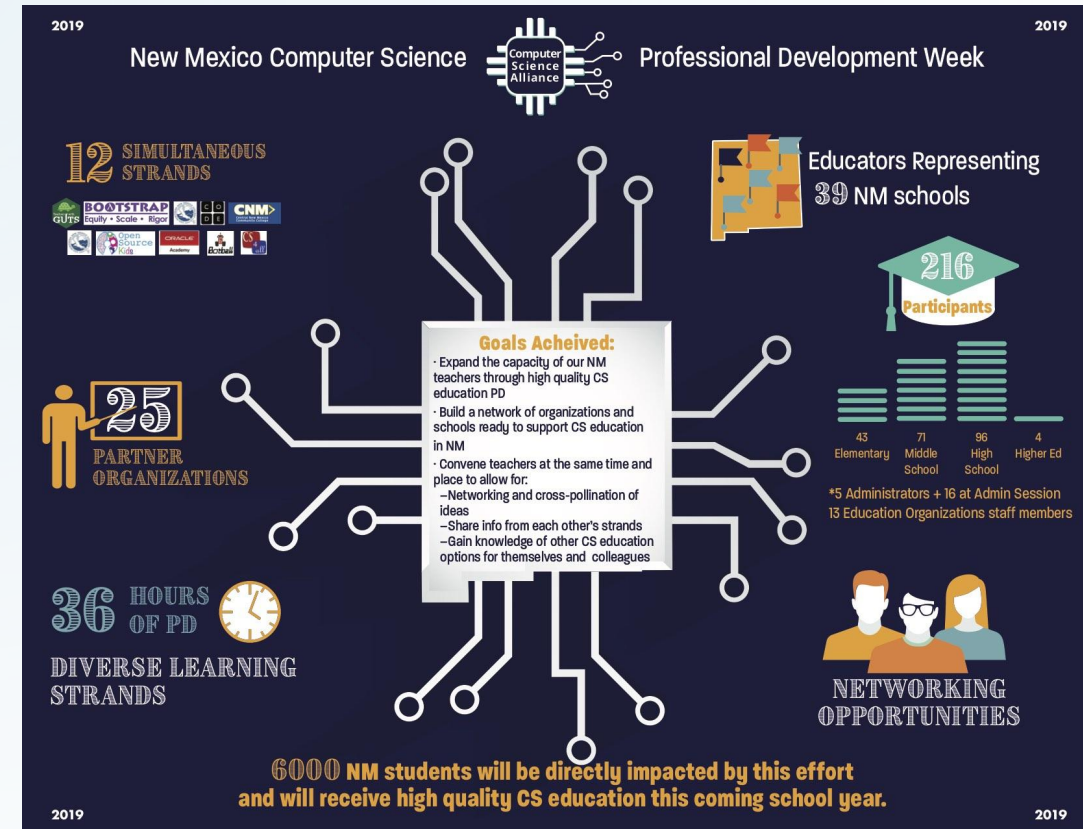
# GROWING CS EDUCATION THROUGH TEACHER PROFESSIONAL DEVELOPMENT

NM CS PD Week- 36 hours of training in  
curriculum

2018- 186 educators

2019- 216 educators

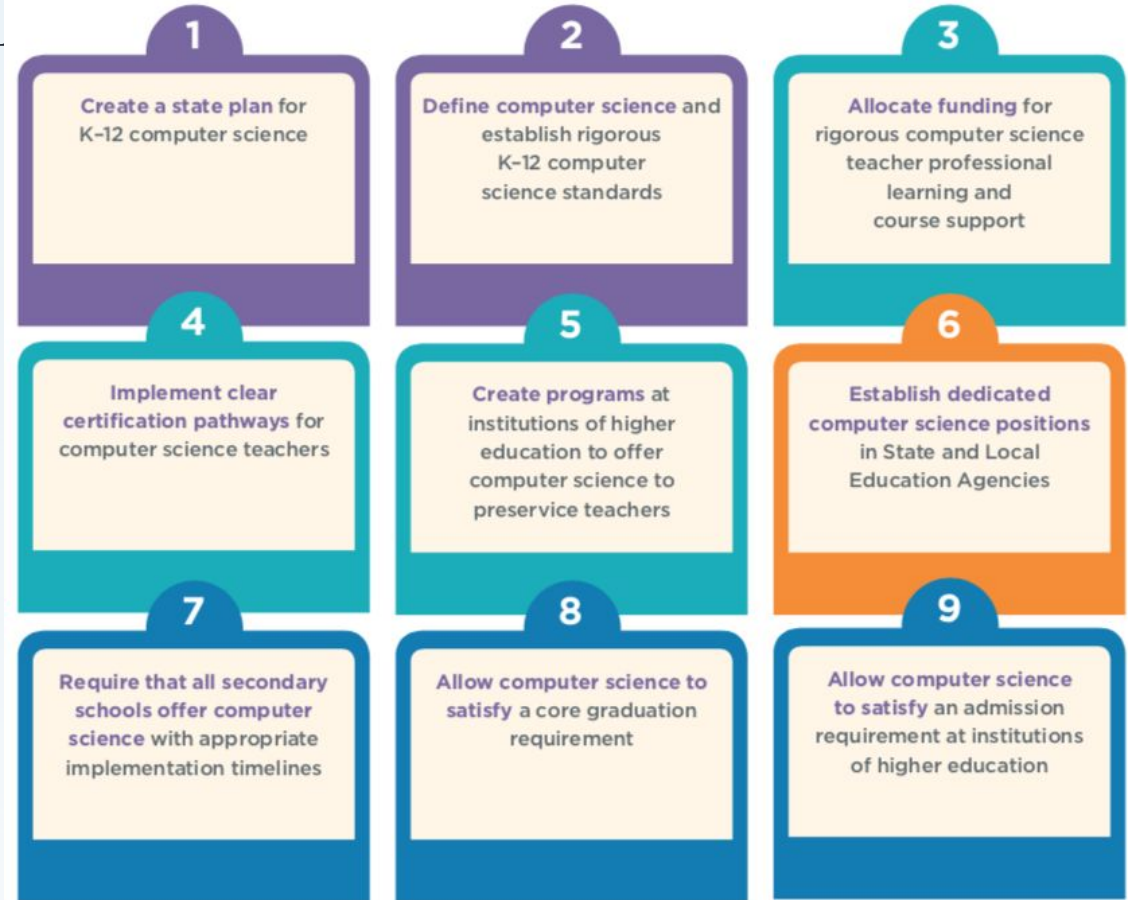
over 6000 NM students K-12 directly  
impacted by this effort



# GROWING CS EDUCATION THROUGH POLICY

9 Policy recommendations from CSTA & Code.org

## Nine Policies to Make Computer Science Fundamental



### Policy Principles

- Clarity
- Capacity
- Leadership
- Sustainability
- Equity and Diversity\*

\*Equity and Diversity is incorporated in each of the nine policies.

# GROWING CS EDUCATION THROUGH POLICY

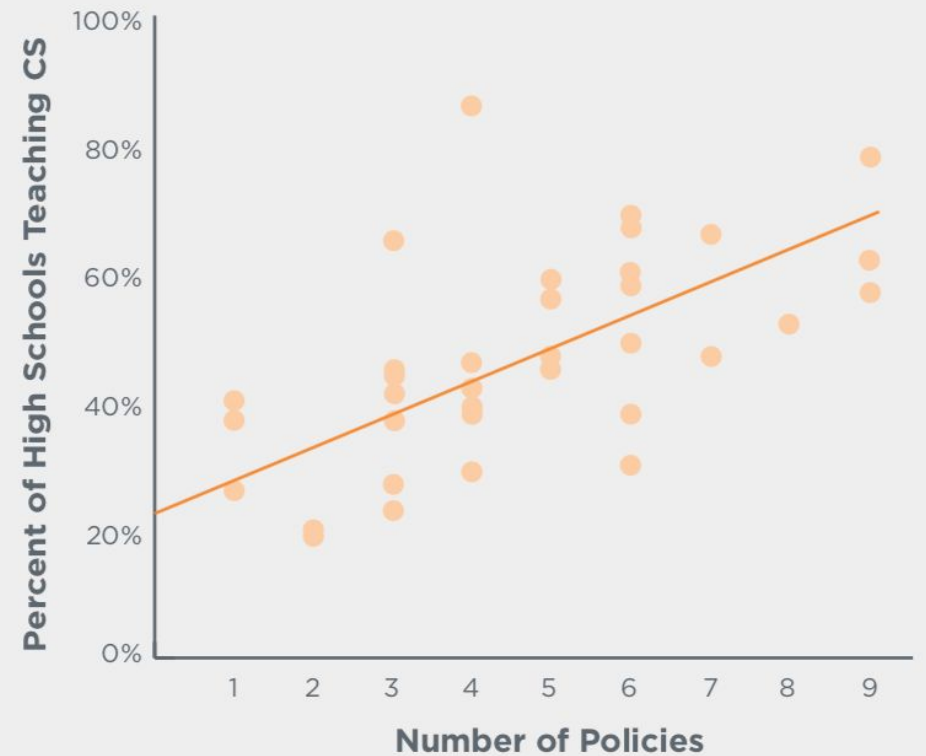
- States with **9 of 9 policies**
  - Arkansas
  - Idaho
  - Indiana
  - Maryland
  - Nevada
- 37 state have passed policy in the past 12 months

• 19 states require all HS to offer CS



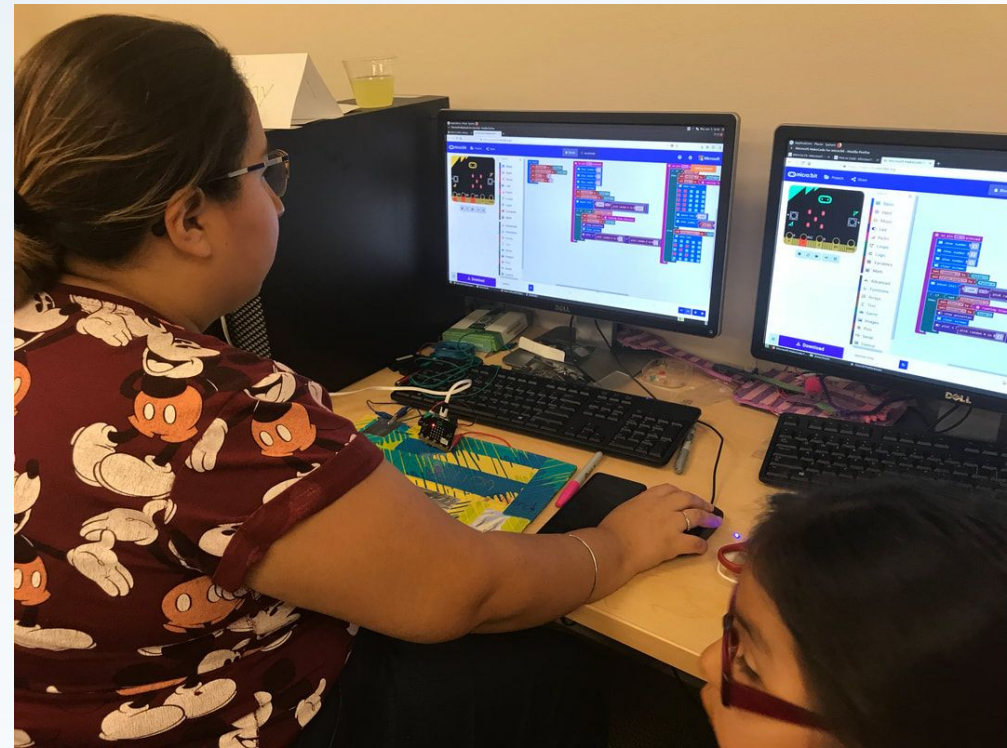
## Trend in Policy Adoption and Access to Computer Science

States that have adopted more of the nine policies have a greater percentage of high schools teaching computer science.



# WHAT CS EDUCATION LOOKS LIKE

- Used to be text-based
- Now, even pre-readers can start to learn concepts
- Some concepts can be taught without computers
- Therefore ALL students at ALL grade levels in ALL NM schools can learn CS



# GROWING CS EDUCATION THROUGH INNOVATIVE APPROACHES

Utilizing expertise in the community

Cisco classes co-taught with IT director

Example: **Cuba High School**

NM CS Professional Development Week, all workshops facilitated by NM professionals.





# GROWING CS EDUCATION THROUGH INNOVATIVE APPROACHES

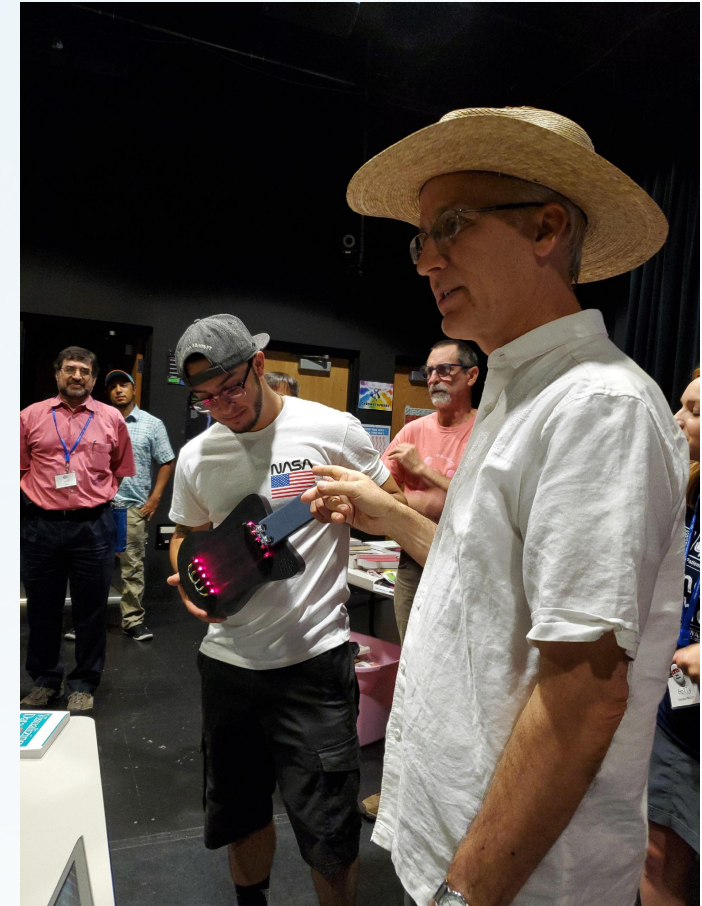
Examples from Higher Ed-

## **NNMC STEM Mentor Collective**

working in classrooms in Pojoaque and Espanola,  
facilitate teacher PDs for schools, MESA & NM CS PD  
Week

## **NMSU's Young Women in Computing**

outreach during the school year, summer camps



# GROWING CS EDUCATION THROUGH INNOVATIVE APPROACHES

School districts creating their own CS Ed plans

SCRIPT workshops with district vertical teams

Process for district teams to evaluate their own ecosystem for CS Ed

Examples- **LCPS & SFPS**



# GROWING CS EDUCATION THROUGH FUNDING & POLICY

Already have CS PD funds now...

## What is needed-

- Funds to support innovative approaches
- Funds to support CS Ecosystems through SCRIPT workshops
- Policy to support growth of CS

