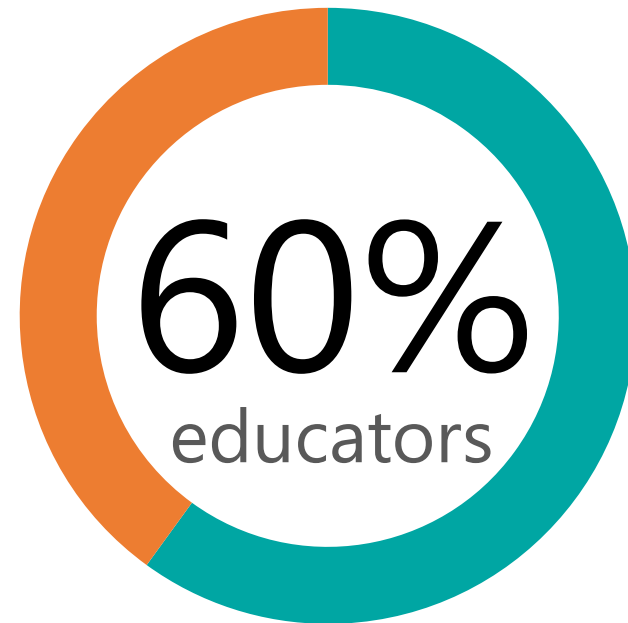
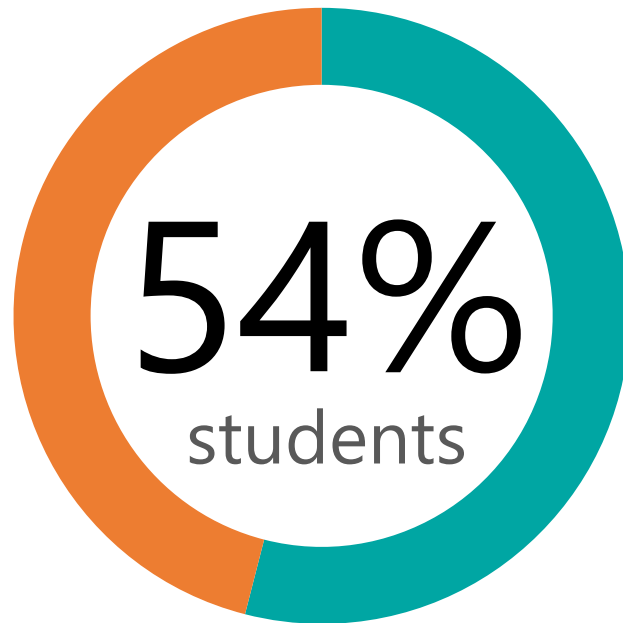
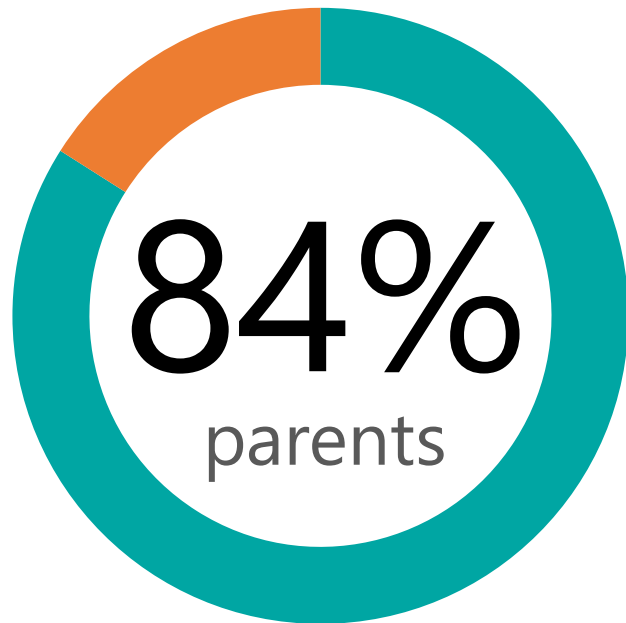


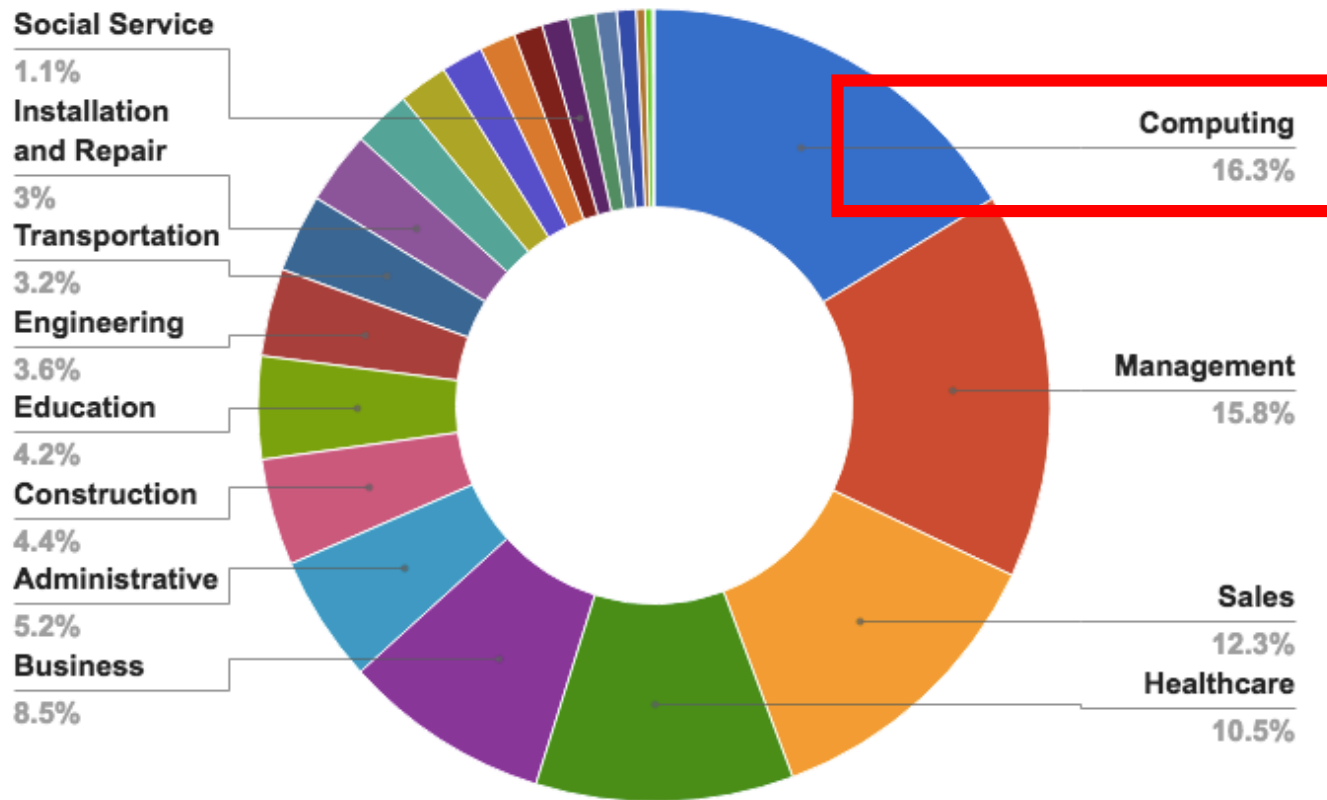


Build and Grow A Sustainable High School Computer Science Program with TEALS

# Parents, Students, & Educators all want CS

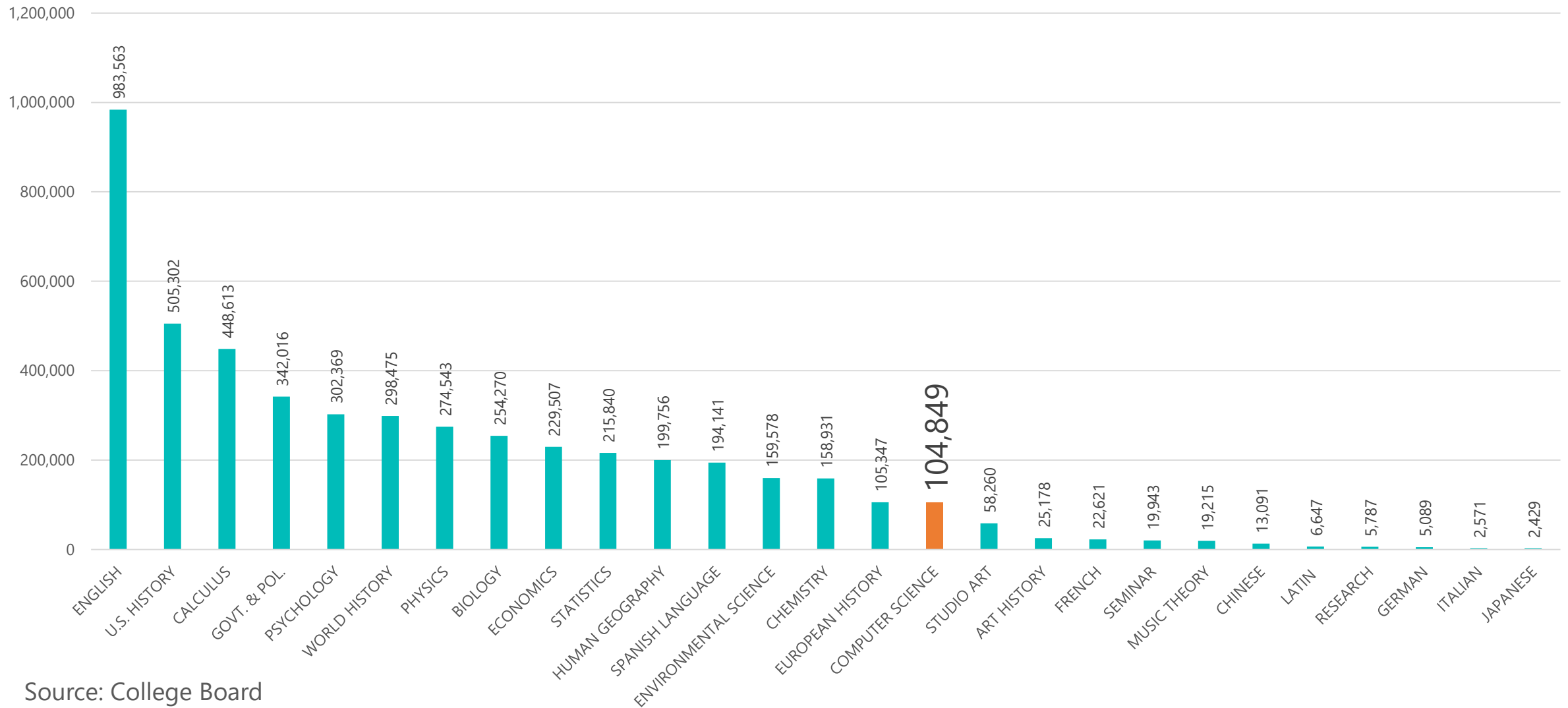


# Computing jobs are the #1 source of new wages in the United States



**500,000 current openings:**  
 These jobs are in **every** industry and **every** state, and they're projected to grow at twice the rate of all other jobs.

# 2017 AP Exams



Source: College Board

# Computer Science Impacts Every Industry



## Informed Citizens

Healthy democracy in the digital age needs digitally literate electorate and leaders.

- Artificial Intelligence
- Surveillance
- Privacy
- Big Data
- Digital Security
- Digital Currency

## Computational Thinking

Aspects of computational thinking will permeate everything these students will do in the future, regardless of career.

- Healthcare
- Arts & Music
- Manufacturing
- Retail
- Legal
- Athletics
- Education

# What about MI?

Only **1,685** out of **109,164** total AP tests (1.5%) taken were for AP CS in 2016-2017.

**98 out of 1,368 Public schools** (7%) offered AP Computer science in the 2016-2017 school year.



**Detroit International Academy for Young Women**

**Number of Black, Hispanic, and female students who took the AP exam in MI**

**Black: 19 (1.97%)**  
**Hispanic: 41 (4.26%)**  
**Female: 208 (21.6%)**

# Computer Science Education in Tech Hubs

Only **1,945** out of **87,050** total AP tests (**2.2%**) taken were for AP CS.

**98** schools (**23%**) with AP programs offered the AP CS course in 2015-16.



**Number of Black, Hispanic, and female students who took the AP exam in WA**

**Black:** 39 (1.9%)

**Hispanic:** 102 (5.2%)

**Female:** 583 (30%)



# Computer Science Education in Tech Hubs

Only **10,244** out of **743,280** total AP tests (**1.4%**) were AP CS.

**370** schools (**16%**) with AP programs offered the AP CS course in 2015-16.



**Number of Black, Hispanic, and female students who took the AP exam in CA**

**Black:** 146 (1.4%)

**Hispanic:** 1,487 (14.5%)

**Female:** 2,770 (27%)





# What about elsewhere?

## AZ High Schools

Total AP tests: 6,735  
 AP CS: 438 **(6.5%)**  
 Female: 99 **(22.6%)**  
 Black: 4 **(0.9%)**  
 Hispanic: 62 **(14%)**

## AL High Schools

Total AP tests: 50,959  
 AP CS: 303 **(.59%)**  
 Female: 61 **(20%)**  
 Black: 11 **(3.6%)**  
 Hispanic: 20 **(6.6%)**

## NY High Schools

Total AP tests: 278,524  
 AP CS: 3,761 **(1.3%)**  
 Female: 924 **(25%)**  
 Black: 196 **(5.2%)**  
 Hispanic: 399 **(10.6%)**

# TEALS – A True Industry & School Partnership

Industry-wide, grassroots initiative with a proven track record created by engineers and educators

Trained industry volunteers teach collaboratively in the classroom with teachers

Started in 2009 with one school, 12 students, and one volunteer (our founder!)

Supported by Microsoft Philanthropies





“If you’re coaching a sport, if you had a major league baseball player coming in to coach your team, that’s really what TEALS is.”

**Mark Kondo**, Teacher  
Quincy High School Quincy, WA

# Who do we teach?

## Diversity

**32%** Female Students  
(2.5x industry average)

**20%** Underrepresented minorities (3X industry average)

## High Schools

Public, Charter, Private, Religious, Independent.

Urban, suburban, rural.

High performing, high needs, and everything in between.

## Extracurriculars

**52%** Play a sport

**29%** Volunteer

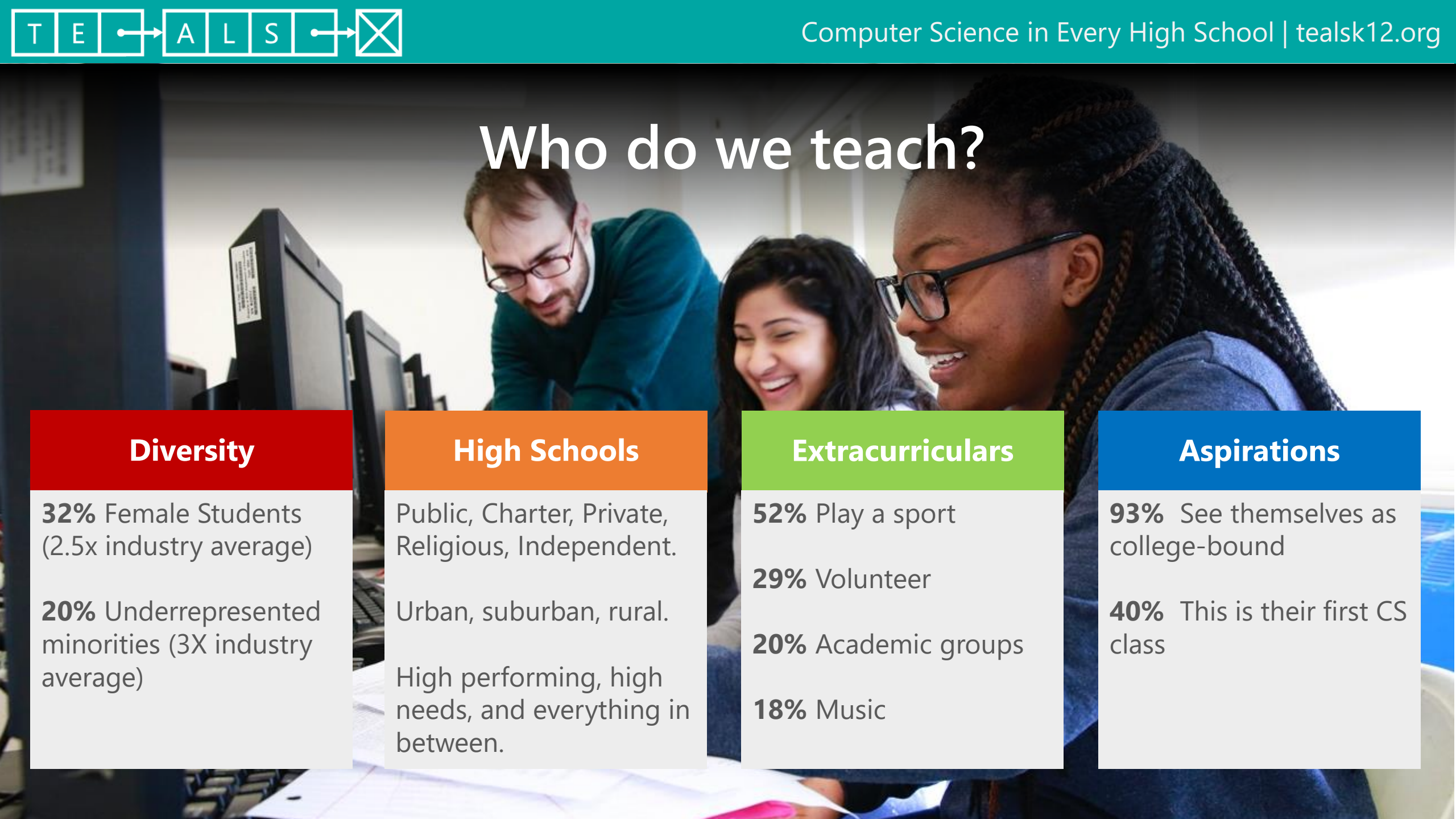
**20%** Academic groups

**18%** Music

## Aspirations

**93%** See themselves as college-bound

**40%** This is their first CS class





“[TEALS]... teaches you to be resilient. Everyone should take CS, you learn so much and the support we receive is very well guided.”

**Arabia S.**, TEALS Alum & CS Student  
at Smith College

# TEALS Models of Support

## Co-Teach

Classroom teacher is new to CS; volunteers provide most of the classroom instruction while teacher is learning the material

Teaching and lab support: volunteers assist with grading, teach class

2-4 volunteers, 4-5x per week

\$5,000 stipend split between volunteers

## Lab Support

Classroom teacher is able to independently teach a CS course

Wants additional support – grading, lower student-teacher ratio, industry connection

1-2 volunteers, 2-5x per week

Expense reimbursement required

## Classroom Enrichment

Classroom teacher is able to independently teach a CS course

Wants to be a part of TEALS community (curriculum support, monthly meetups, online community, industry mentor)

Range from assisting with lab/assignments/grading to career talks or demos

Expense reimbursement required

# Curriculum

## Introduction to Computer Science

UC Berkeley CS 10  
 1 Semester course or full year option w/ Python  
 Block programming language  
 All grade levels  
 UC A-G approval  
 Textbook: Blown to Bits

## AP Computer Science A

UW CSE 142/143 course  
 Year long course with AP exam in May  
 Industry standard Java  
 So/Jr/Sr with Algebra II completion  
 Textbook: Building Java Programs

## AP Computer Science Principles

Complements (does not replace) AP CS A  
 Broad coverage of computing principles, issues, and creative solutions  
 Lab Support or Classroom Enrichment support only.

# Remote Teaching Classes



## Who It Helps

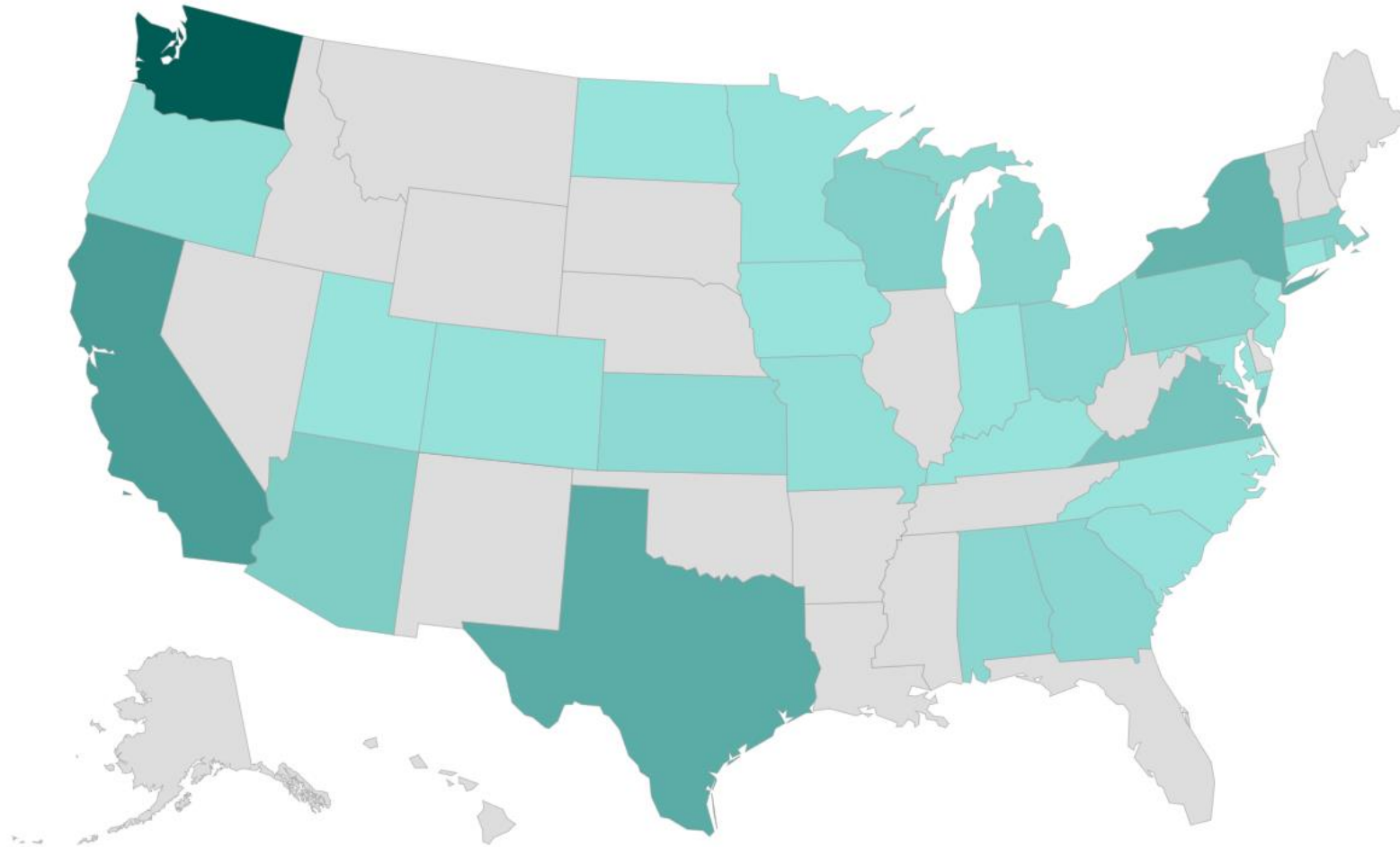
Schools with little or no tech community in proximity  
Rural Schools with small classes  
Schools outside of an area where tech professionals could commute

## What You'll Need

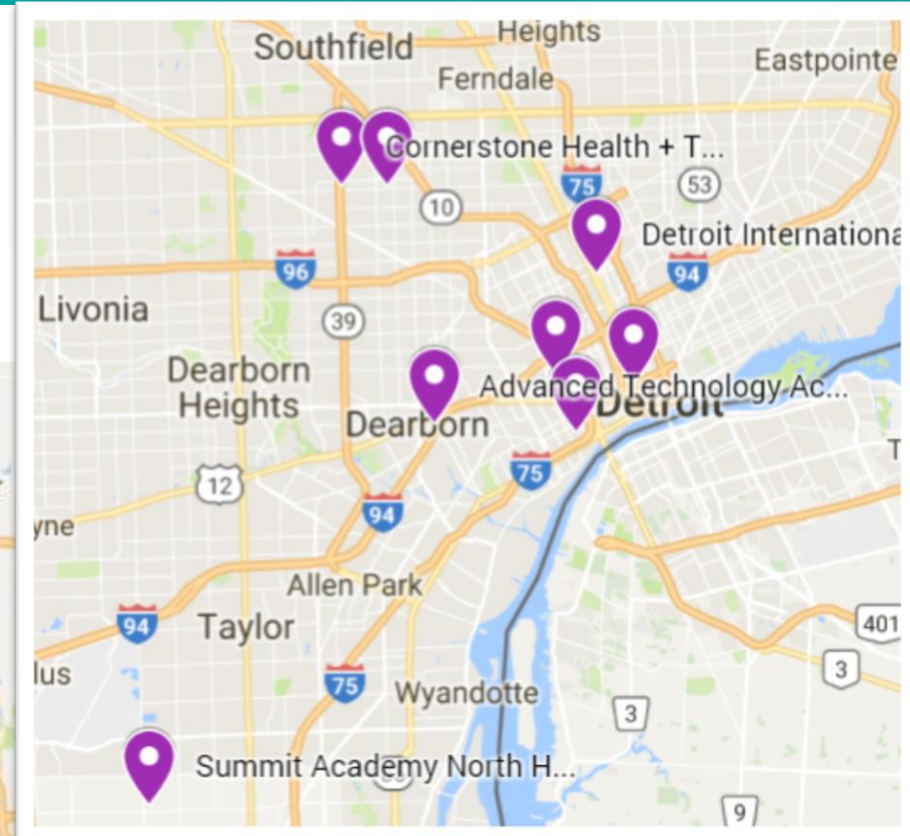
Sufficient bandwidth for teleconferencing  
Summer PD required for classroom teacher  
Equipment and software as outlined in detail in TEALS Implementation Guide



# Where do we teach?



# Michigan Schools



# Michigan Schools

## Detroit Area

- Detroit Community Public Schools
  - Cass Technical High School
  - Renaissance High School
  - Western International High School
  - Detroit International Academy for Young Women
  - West Side Information Technology and Cybersecurity
- Metro Detroit
  - Cornerstone Health + Technology
  - Advance Technology Academy
  - Summit Academy North

## Other Michigan Schools

- Lansing Area
  - East Lansing High School
- Grand Rapids Area
  - West Michigan Aviation Academy

# Brandon Paradis, West Michigan Aviation Academy



# Student Resources

TEALS is dedicated to helping students learn how technology can play a role in their future education and career through a range of student opportunities in computer science and technology:

Hackathons & Competitions

Scholarships

Summer Internships

Workshops & Trainings



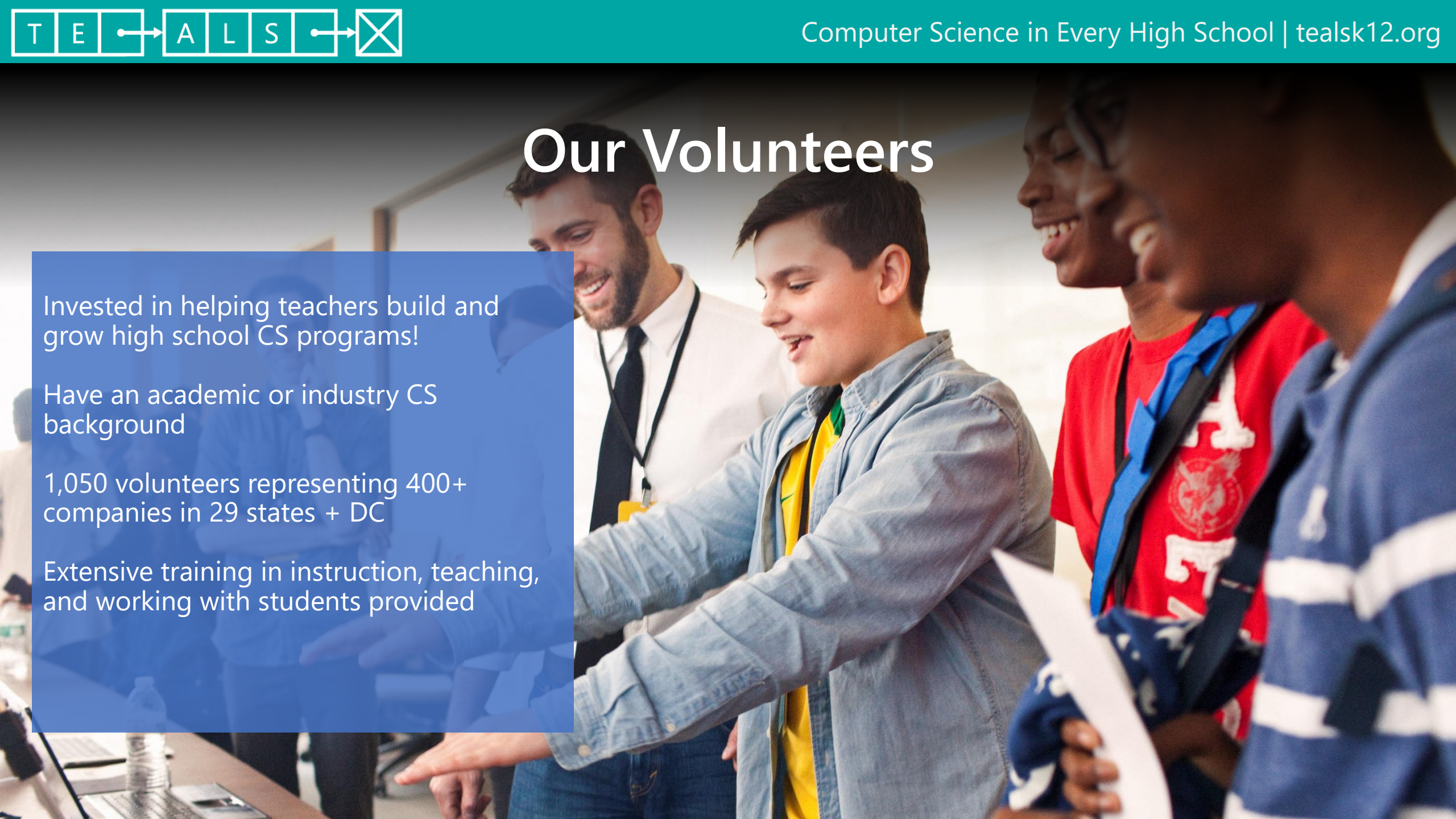
# Our Volunteers

Invested in helping teachers build and grow high school CS programs!

Have an academic or industry CS background

1,050 volunteers representing 400+ companies in 29 states + DC

Extensive training in instruction, teaching, and working with students provided





"I'm blessed to have the opportunity to help these students achieve their goals. If they improve even 1%, I've changed the course of a life."

**Silvia Doomra**, Sr. Product Manager,  
AWS & Volunteer at Quincy HS

# Recruiting and retaining volunteers

School community  
(parents, alumni, board, PTA, foundation)

Local partners  
(companies, chamber, econ dev offices)

Civic leaders  
(mayors, state legislators, civic orgs)

National partners  
(ACM, IEEE, Higher Ed, code.org, etc)

TEALS talks at local companies and orgs.

Build a **lasting relationship** with your volunteers.



# School Responsibilities

Help with volunteer recruitment, onboarding, and support

Identify a classroom teacher & participate in summer training (new teachers)

Provide class materials and equipment

Participate in classroom observations and back-to-school meetings

Interest in growing CS program



## Next Steps:

Read the Implementation Guide

Apply online in late Fall

Connect with TEALS Regional Manager

Outreach to local tech organizations & companies to encourage volunteering

Share TEALS information with school and local community

Apply at  
[tealsk12.org/schools](https://tealsk12.org/schools)