NCEE

# Joint Education Interim Committee
# Education Interim Budget Committee

September 13, 2022

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**Jason Dougal, NCEE President & COO**

# Why Do We Have the System We Have?

The current education system has its roots in the turn of the century – The 20th Century!

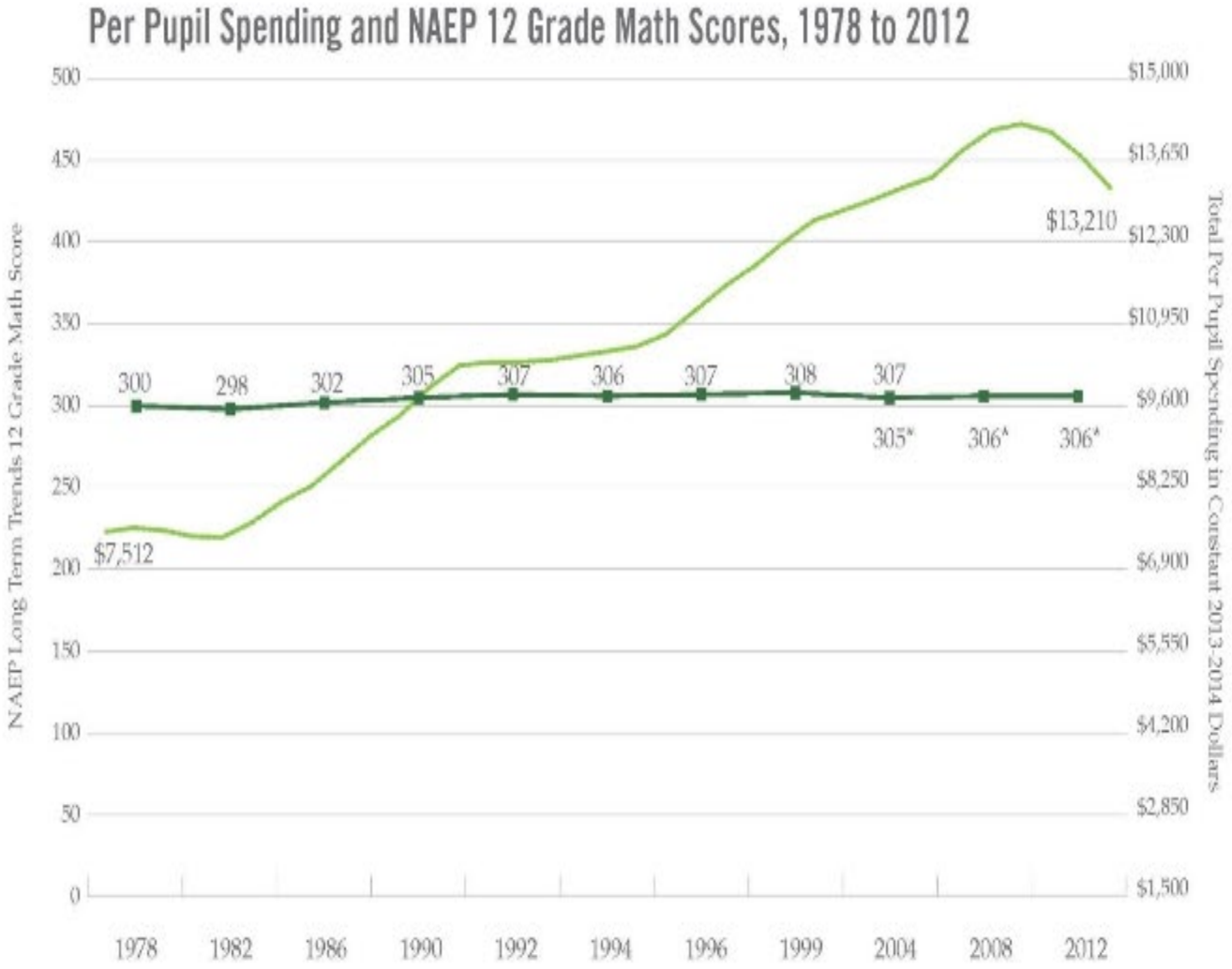
- Prepared workers for a burgeoning assembly line factory model
- Assimilated immigrants into American culture
- Provided widespread basic literacy and numeracy
- Critical thinking necessary for only a select percentage
- Leveraged lessons from across Europe

# How Has the Current System Performed?

Actually, quite well…for a long period of time

- For almost a century, the U.S. led the world in education attainment and quality
- Drove the biggest economy in the history of the world to ever new heights
- Fostered an explosion of the middle-class
- Backbone of a stable democracy
- Production engine that helped win 2 world wars

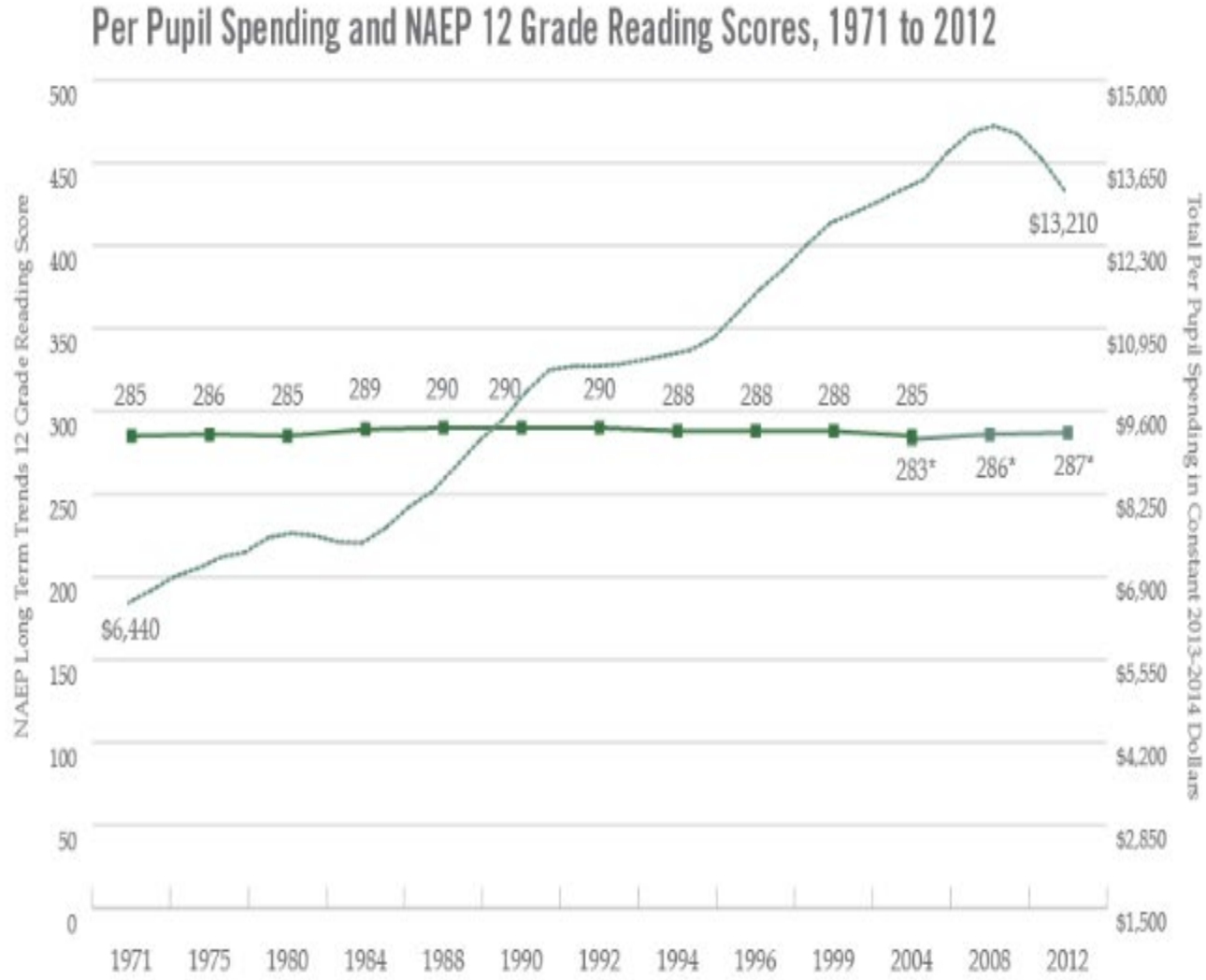
# How Has the Current System Performed Recently?




*Revised assessment format

Sources: The Nation's Report Card "NAEP 2012 Long-Term Trends in Academic Progress"; NCES Digest of Education Statistics 2014

# What We Spent; What We Got For It



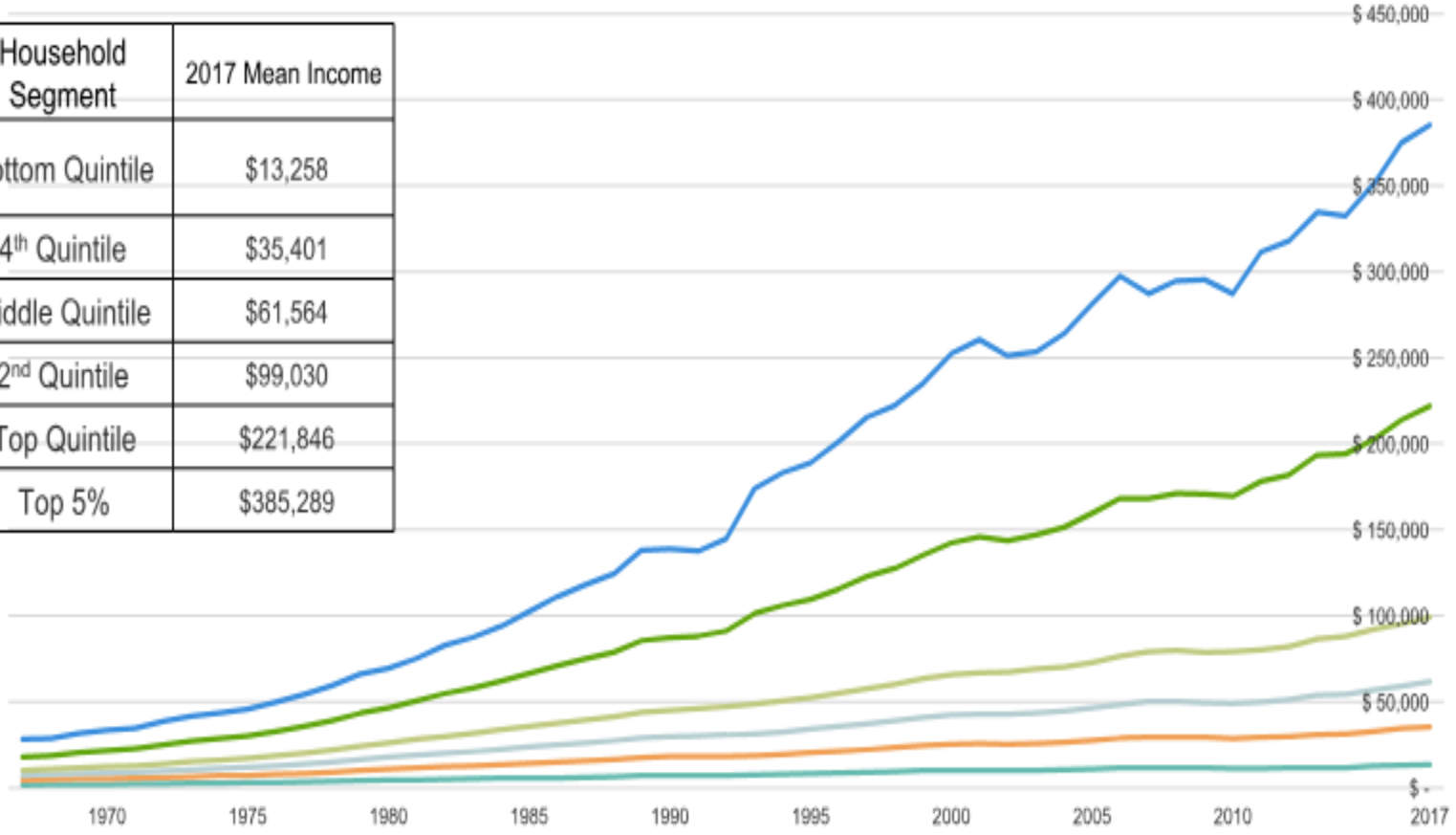

*Revised assessment format

Sources: The Nation's Report Card "NAEP 2012 Long-Term Trends in Academic Progress"; NCES Digest of Education Statistics 2014

# Income Distribution: The Last Half Century

Mean (Average) Household Income
by Quintile and Top 5%

| Household Segment | 2017 Mean Income |
|---|---|
| Bottom Quintile | $13,258 |
| 4th Quintile | $35,401 |
| Middle Quintile | $61,564 |
| 2nd Quintile | $99,030 |
| Top Quintile | $221,846 |
| Top 5% | $385,289 |



# 80s, 90s, and 00s: Global Economic Change

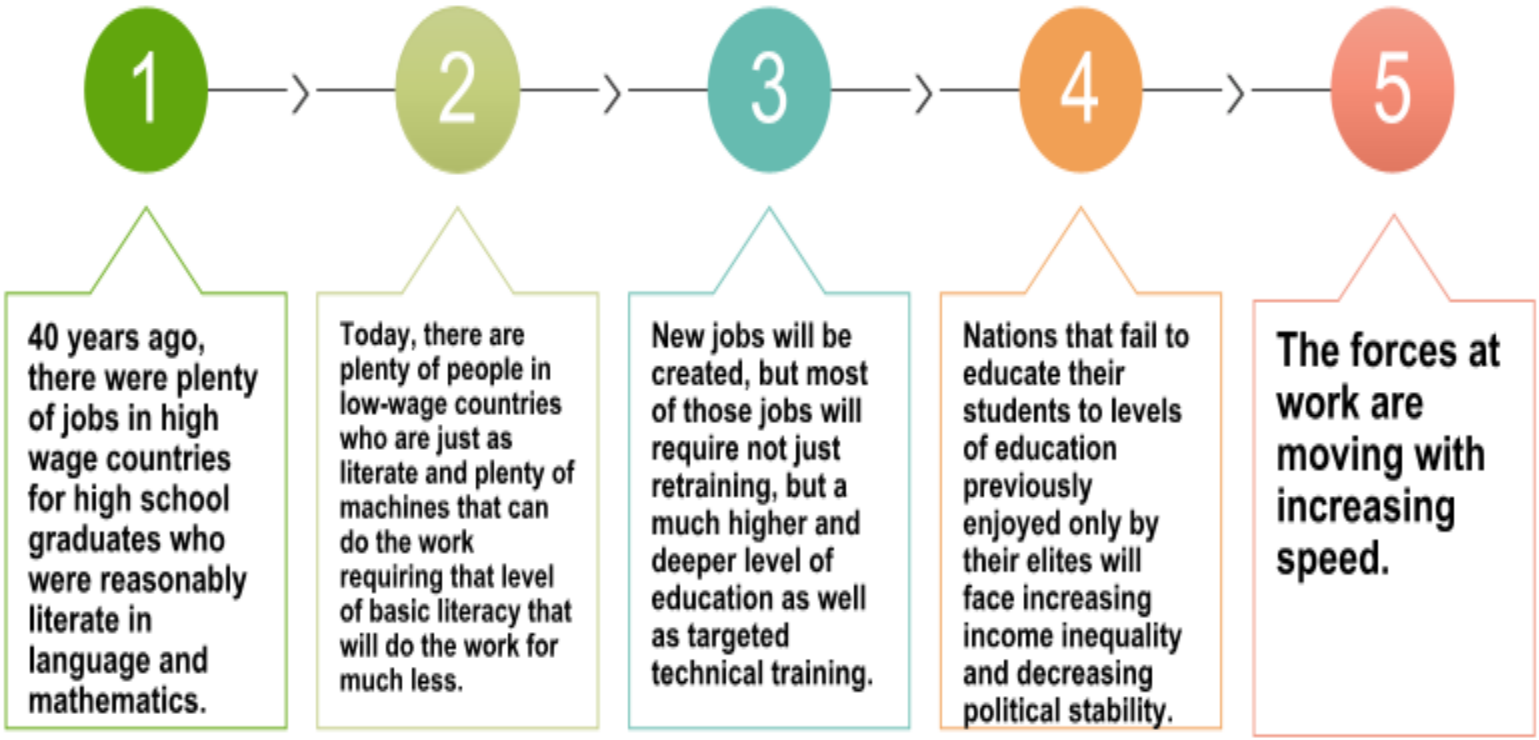
Low wage competition

- Low skill
- High skill
- All skill levels

Automation of jobs involving routine work

Vast extinction of low-skill, routine work jobs in high-wage countries

# Bottom line of economic argument…



# But it's about much more than economics …

# So…What Do Young People Need to Compete in an A.I. World?

Deep understanding of the core concepts underlying the disciplines—the big ideas

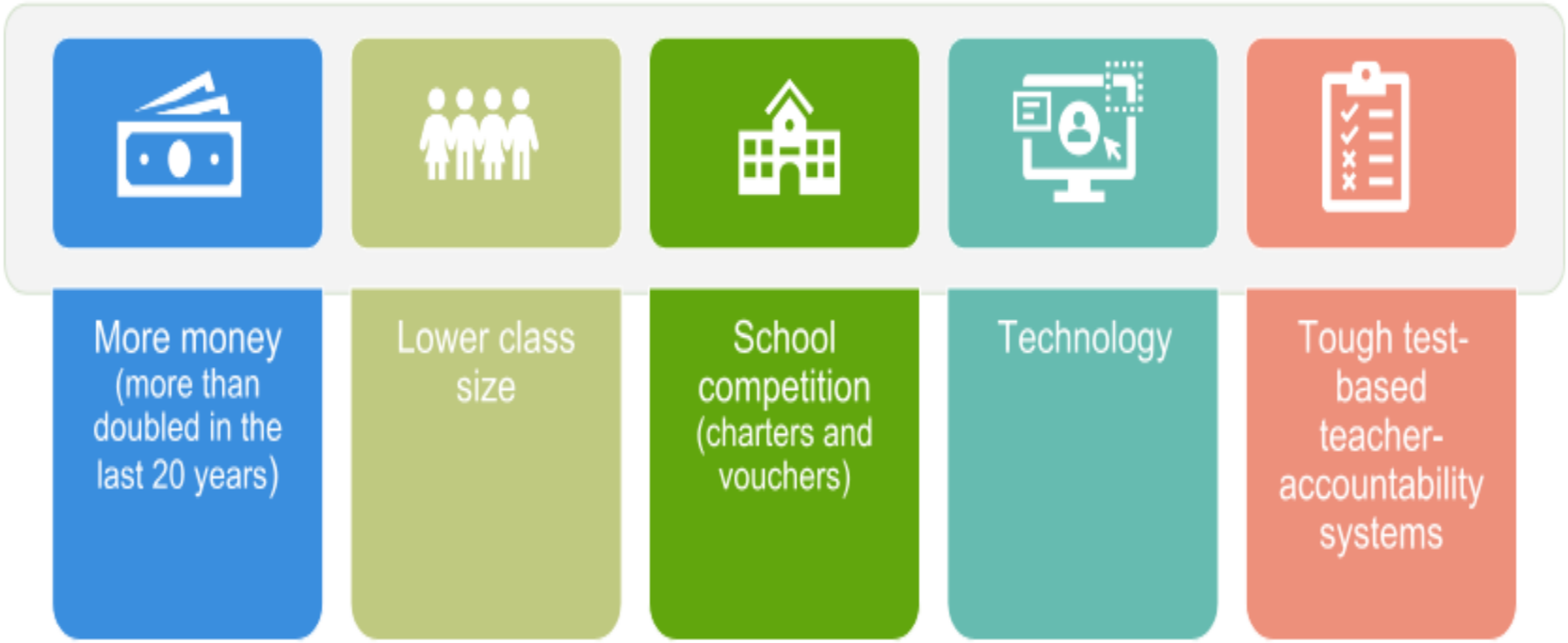
Ability to apply those concepts and ideas to wide range of practical problems

Full range of intrapersonal and interpersonal skills

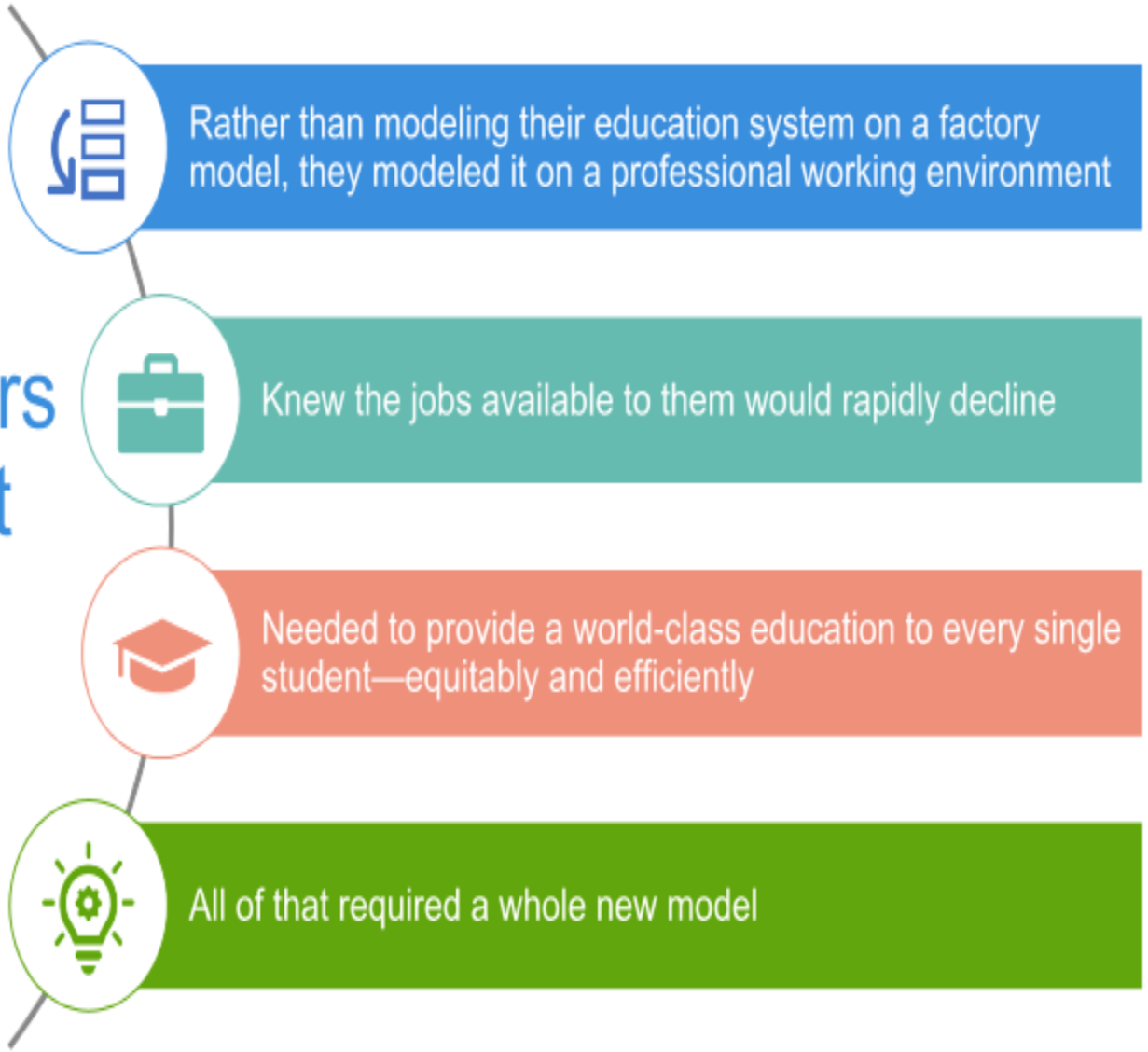
The moral and ethical grounding needed to make wise decisions

# How the U.S. Responded

REFORM AGENDA SINCE THE 1970S



# Our Competitors Had a Different Analysis



# Student Learning Results Over Time - Excellence

PISA RESULTS OVER TIME

## PISA - % Scoring Proficiency Levels 3+ by Subject and Jurisdiction

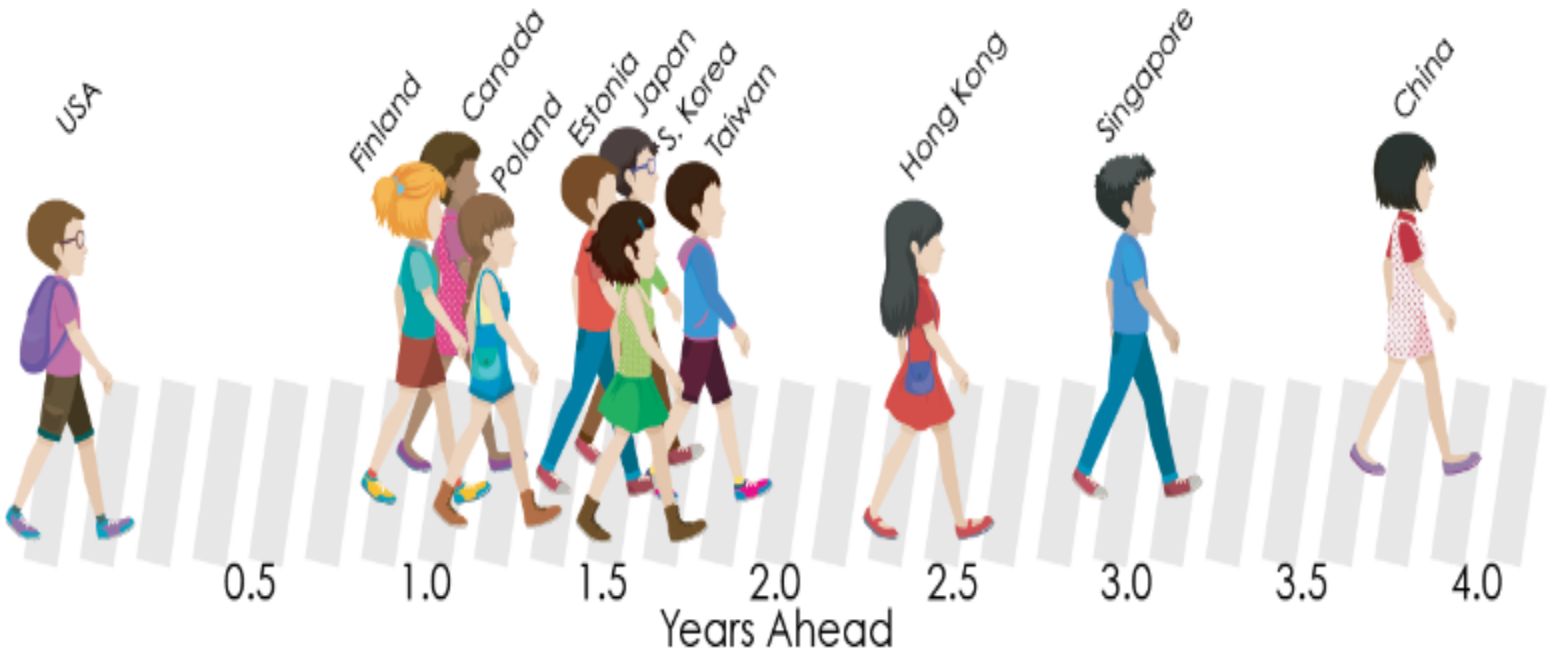
| | United States | | | OECD Average | | | Canada | | | Singapore | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reading | Math | Science | Reading | Math | Science | Reading | Math | Science | Reading | Math | Science |
| **PISA 2009** | 58.1 | 52.2 | | 57.2 | 55.9 | | 69.6 | 69.8 | | 69.0 | 77.1 | |
| **PISA 2012** | 58.5 | 47.9 | 55.1 | 58.5 | 54.4 | 57.6 | 69.7 | 65.2 | 68.6 | 73.4 | 79.5 | 73.7 |
| **PISA 2015** | 58.1 | 44.4 | 54.2 | 56.7 | 54.1 | 54.0 | 70.3 | 65.2 | 68.8 | 71.9 | 79.9 | 75.3 |
| **PISA 2018** | 59.6 | 48.7 | 57.8 | 53.6 | 53.8 | 52.2 | 66.2 | 62.9 | 64.1 | 74.5 | 81.9 | 75.9 |

**Data Sources**

Average score data from the PISA Data Explorer
2012 Massachusetts data from PISA Key Findings
Participation data from NCES
OECD member country data from PISA reports: 2009 2012 2015 2018

# Just How Far Behind?

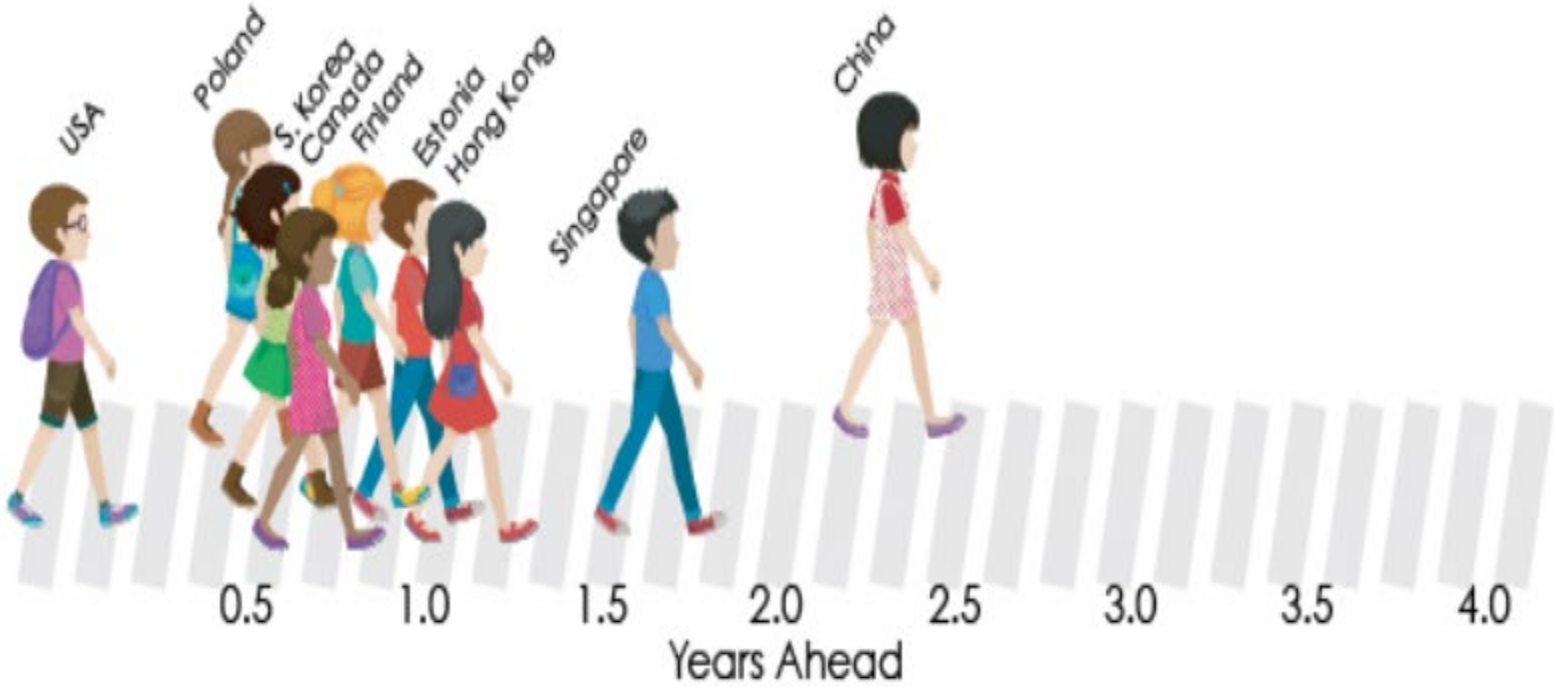
AVERAGE STUDENT PERFORMANCE IN **MATHEMATICS**, PISA 2018




In mathematics performance, average U.S. students are more than a year behind students from the top-performing countries. Students in Hong Kong and Singapore are between 2.5 and 3 full years ahead of average U.S. students in math, while Chinese students are nearly 4 full years ahead of U.S. students.

# Just How Far Behind?

**LOW-PERFORMING** STUDENTS IN READING, PISA 2019




Low-performing students are those in the 25th percentile of performance. In reading, low-performing students from many top-performing countries are around half a year ahead of low-performing U.S. students. Low performers in Singapore are 1.5 years ahead and Chinese low-performing students are almost 3 years ahead of low-performing students in the U.S.

# Student Learning Results Over Time - Equity

PISA RESULTS OVER TIME

## PISA Equity Metrics

**Top Performers** = share of those scoring Level 5 or 6 in at least one subject
**Low Achievers** = share of those scoring below Level 2 in all three subjects

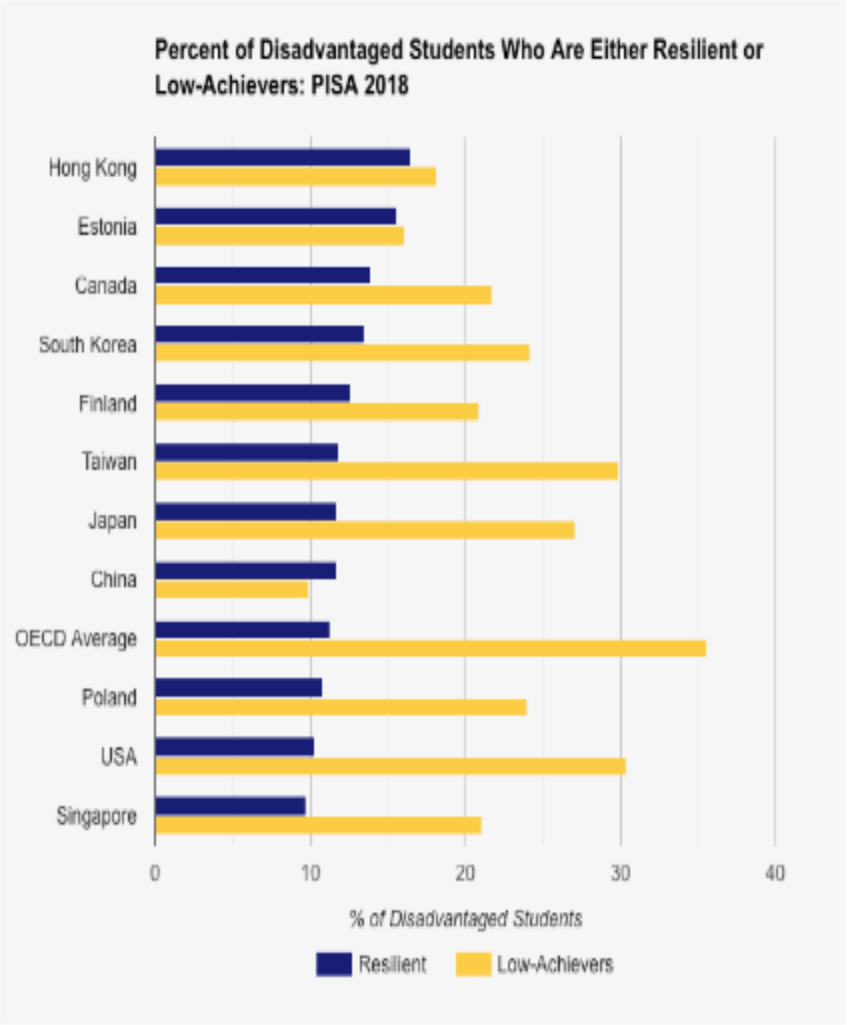
| | United States | | OECD Average | | Canada | | Singapore | |
|---|---|---|---|---|---|---|---|---|
| | Top Performers | Low Achievers | Top Performers | Low Achievers | Top Performers | Low Achievers | Top Performers | Low Achievers |
| **PISA 2015** | 13.3% | 13.6% | 15.3% | 13.0% | 22.7% | 6.4% | 39.1% | 4.8% |
| **PISA 2018** | 17.1% | 12.6% | 15.7% | 13.4% | 24.1% | 5.9% | 43.3% | 4.1% |

**Data Sources**
Data source: OECD, PISA 2018 Executive Summary Table I.1
Data source: PISA 2015 Results in Focus, Page 5

# Measure of Equity: Resilience

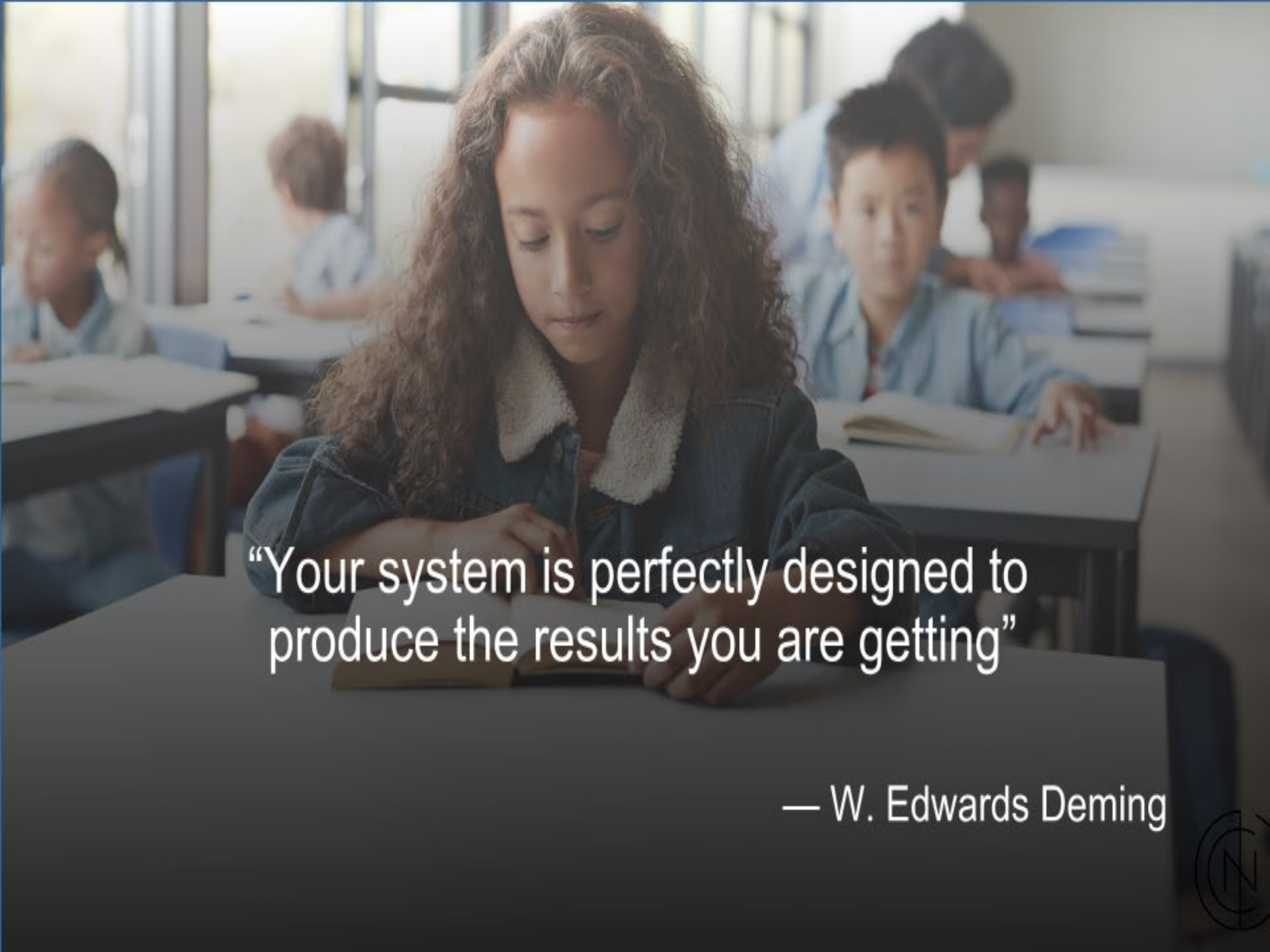
This chart shows the percentage of disadvantaged students who perform at the highest levels of achievement on PISA (resilience) compared to those who perform at the lowest levels.

In some countries, disadvantaged students are more likely to perform at higher levels than lower levels.



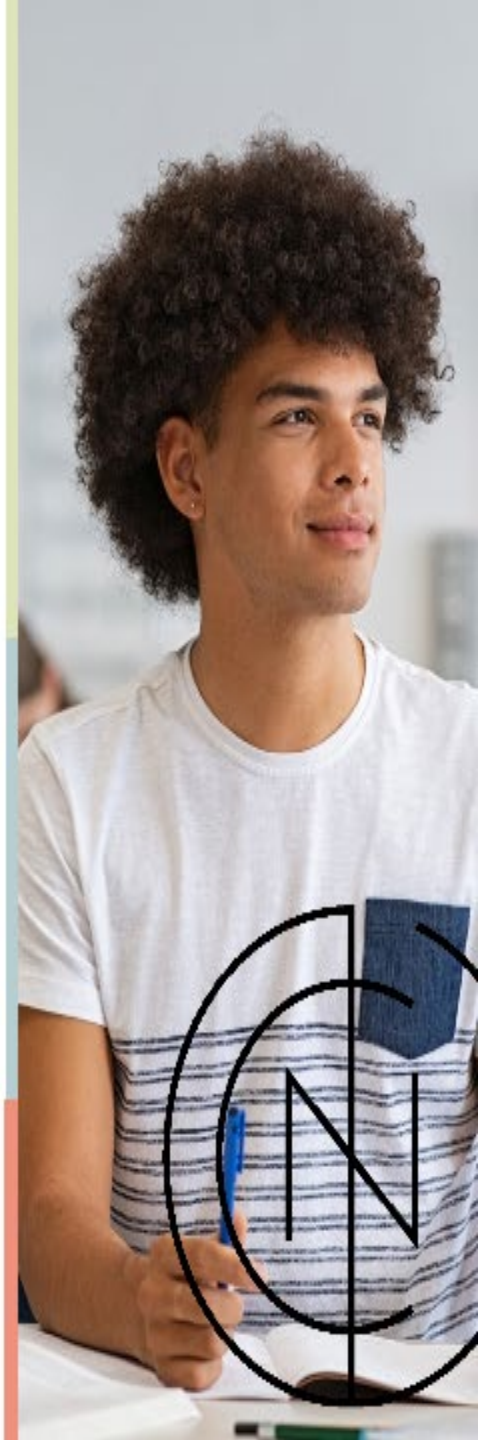
# Interpreting the U.S. Results

- Over 80% of U.S. students can: ID a main idea, recognize cause and effect, say if conclusions are warranted
- …But only 60% can compare distances on roads or convert currencies
- …Only 14% can distinguish between fact and opinion
- …And only 9% can apply scientific knowledge to unfamiliar situations


“Your system is perfectly designed to produce the results you are getting”
— W. Edwards Deming

# Proficiency-Based Learning

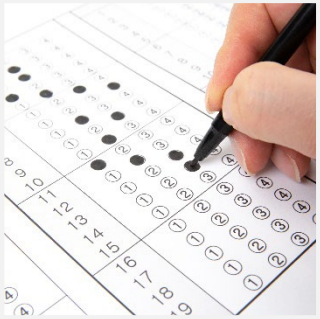
PART II



# Characteristics of Proficiency/Competency-Based Systems

"Learning outcomes in which learning is constant and time is the variable."

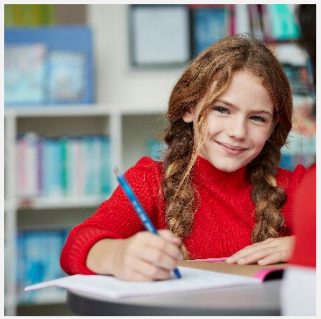
Students make decisions about learning experiences, how they create and apply knowledge and how they will demonstrate their learning. Student progress is based on evidence of proficiency rather than level of participation, effort or time spent in classroom.



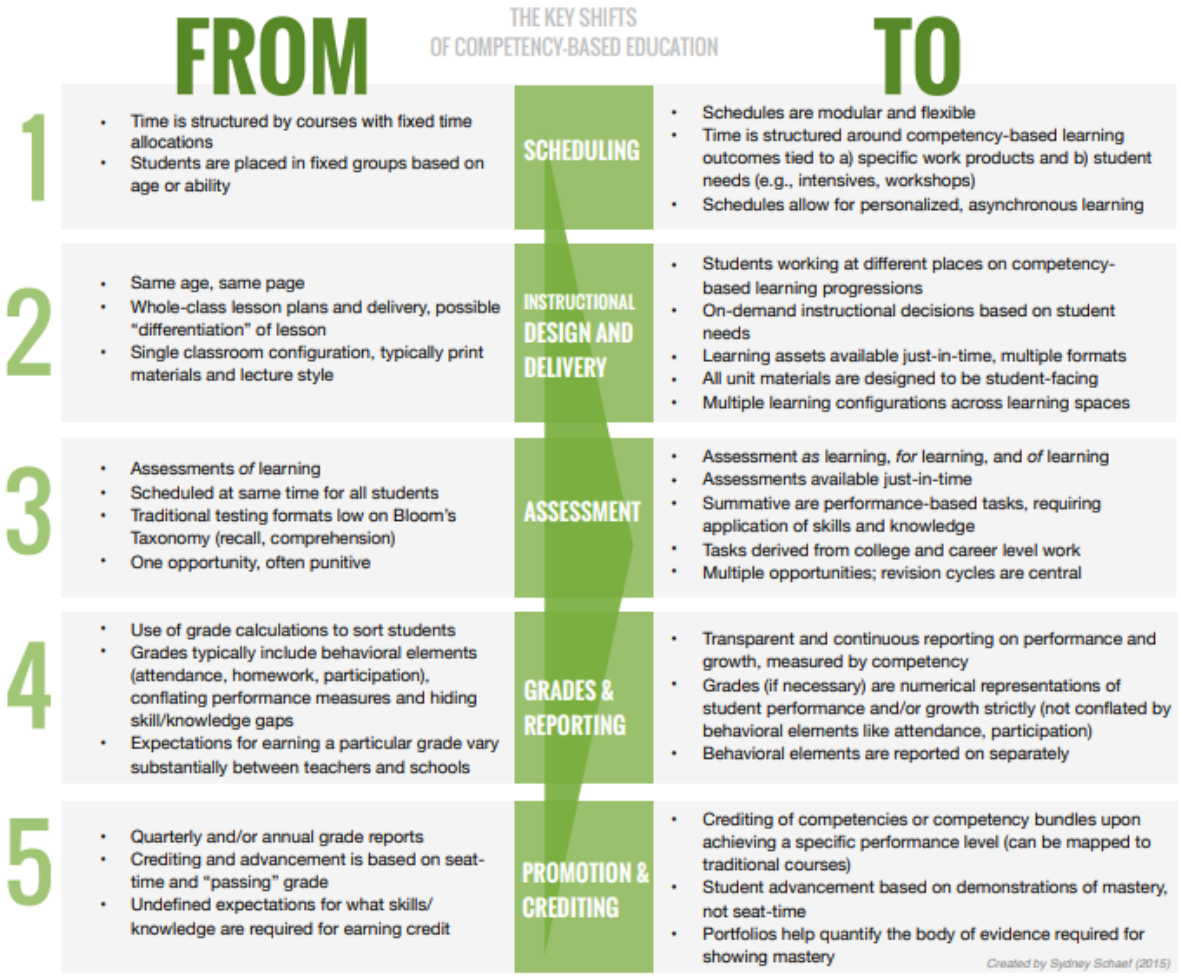
Assessment is meaningful and empowering learning experience of students that yields timely, relevant and actional feedback.

Students receive relevant, varied instruction and timely, differentiated support based on their individual learning needs. Students learn actively using different pathways and varied pacing.

Strategies ensure equity for all students are embedded in culture, structure and pedagogy of schools and education systems. All students have access to personalized learning opportunities and high-quality instruction.



Learning targets are rigorous, common expectations for learning that clarify what to learn, how to deeply learn it and how to demonstrate evidence of new learning.




Source:
Aurora Institute
*Competency*Works

# Field Updates Definition in 2019

Source: Aurora Institute
https://aurora-institute.org/wp-content/uploads/what-is-competency-based-education-an-updated-definition-web.pdf

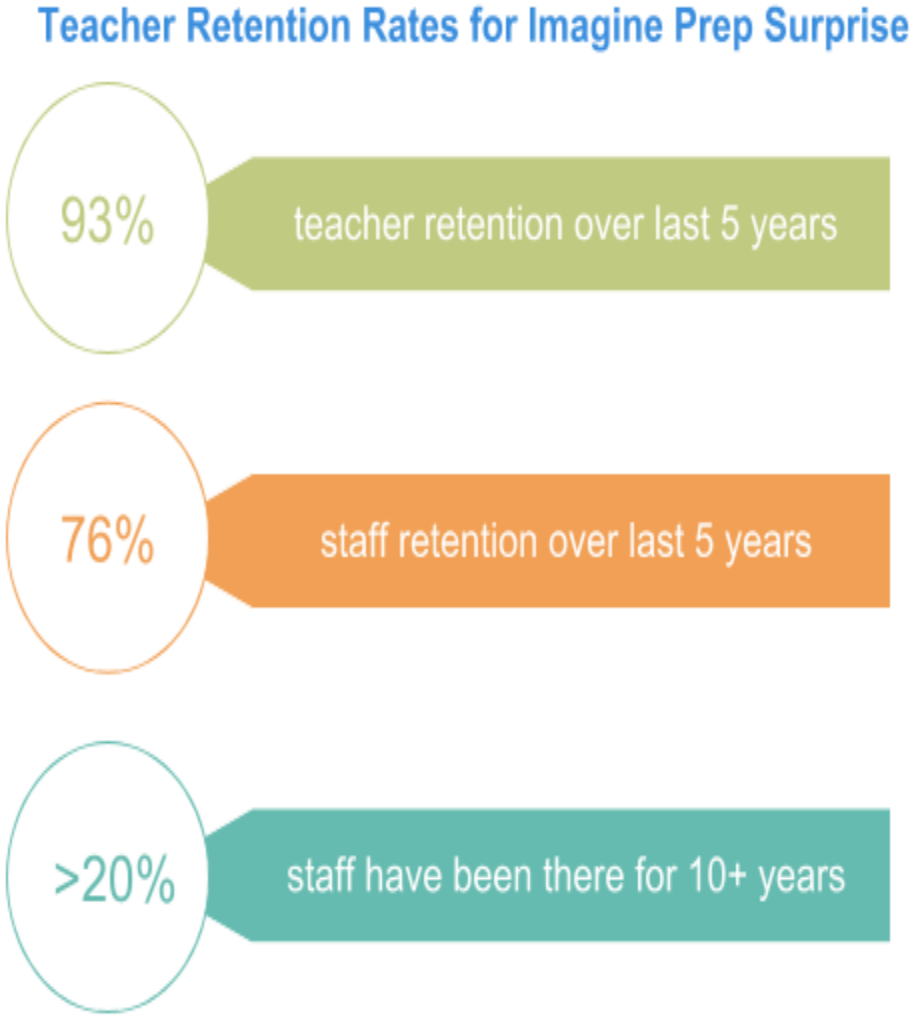
- Students are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning.
- Assessment is a meaningful, positive, and empowering learning experience for students that yields timely, relevant, and actionable evidence.
- Students receive timely, differentiated support based on their individual learning needs.
- Students progress based on evidence of mastery, not seat time.
- Students learn actively using different pathways and varied pacing.
- Strategies to ensure equity for all students are embedded in the culture, structure, and pedagogy of schools and education systems.
- Rigorous, common expectations for learning (knowledge, skills, and dispositions) are explicit, transparent, measurable, and transferable.

# Assessment & Measurement Issues

- Ü Externally benchmarked and graded exams
- Ü Standard set by content and psychometric experts
- Ü Transparent exams
- Ü Flexible timing of administration of exams

# Ways in Which Schools Change

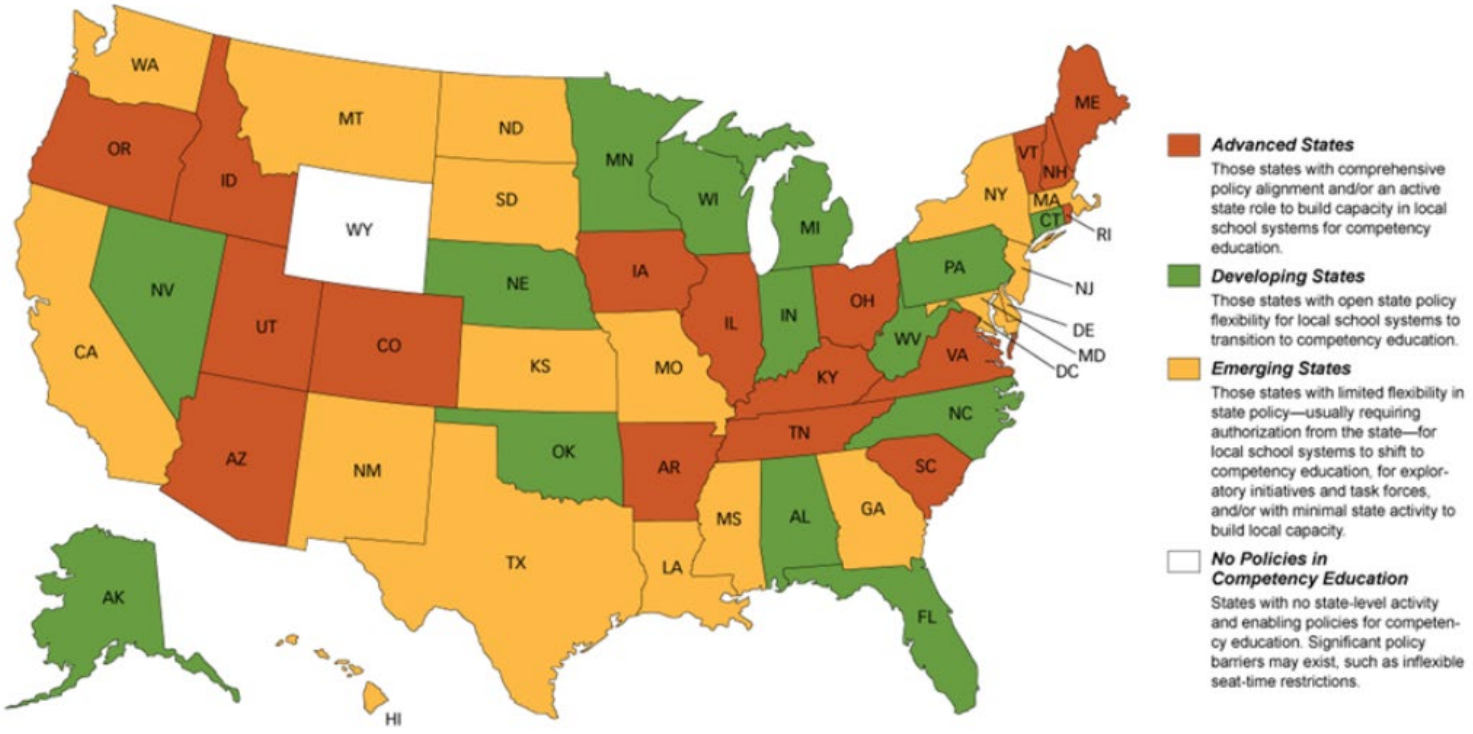
- Length of "courses"
- The speed at which students progress
- Addressing learning gaps early
- Student discipline issues decrease
- Parental engagement increases
- Teacher retention



# Ways in Mindsets Change

- Standard does not change, but the time it takes to meet the standard is variable
- Students are not labeled a failure, which drives metacognition and agency
- Relationships between teachers and students change
- Teachers have the tools they need to work like professionals

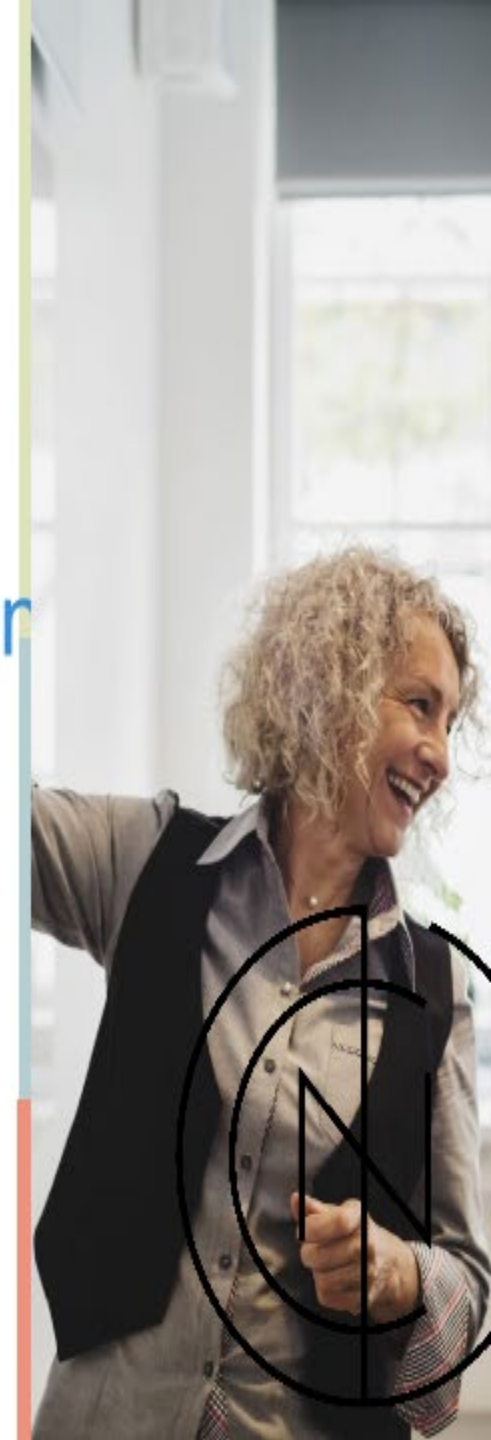
# Proficiency/Competency-based Education in the States




Source: Aurora Institute at https://aurora-institute.org/cw_post/competency-based-education-across-america/

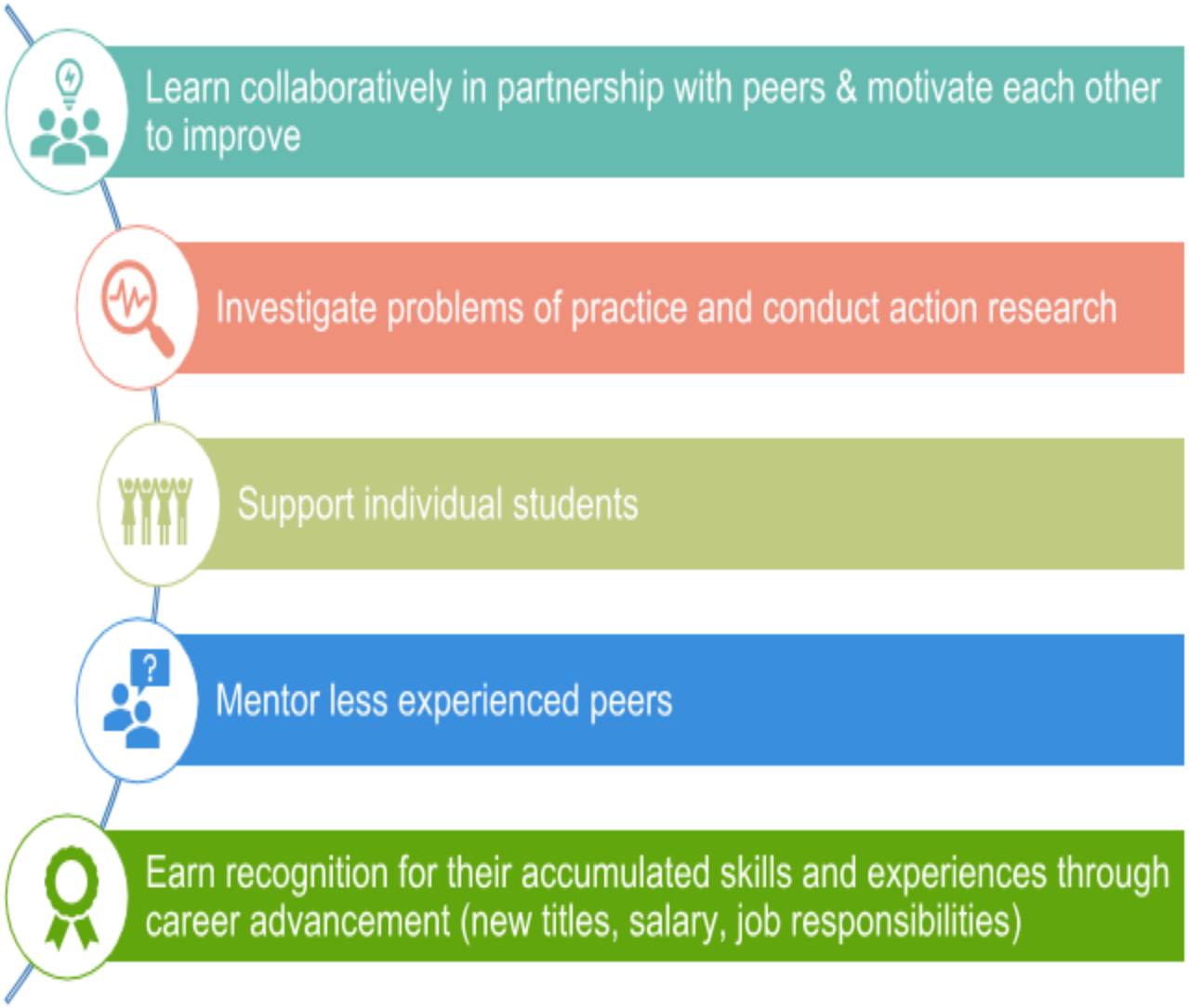
# Transforming the Teacher Profession

PART 3



# A Professional Work Environment for Teachers

Imagine a school where, teachers have time & opportunities to:

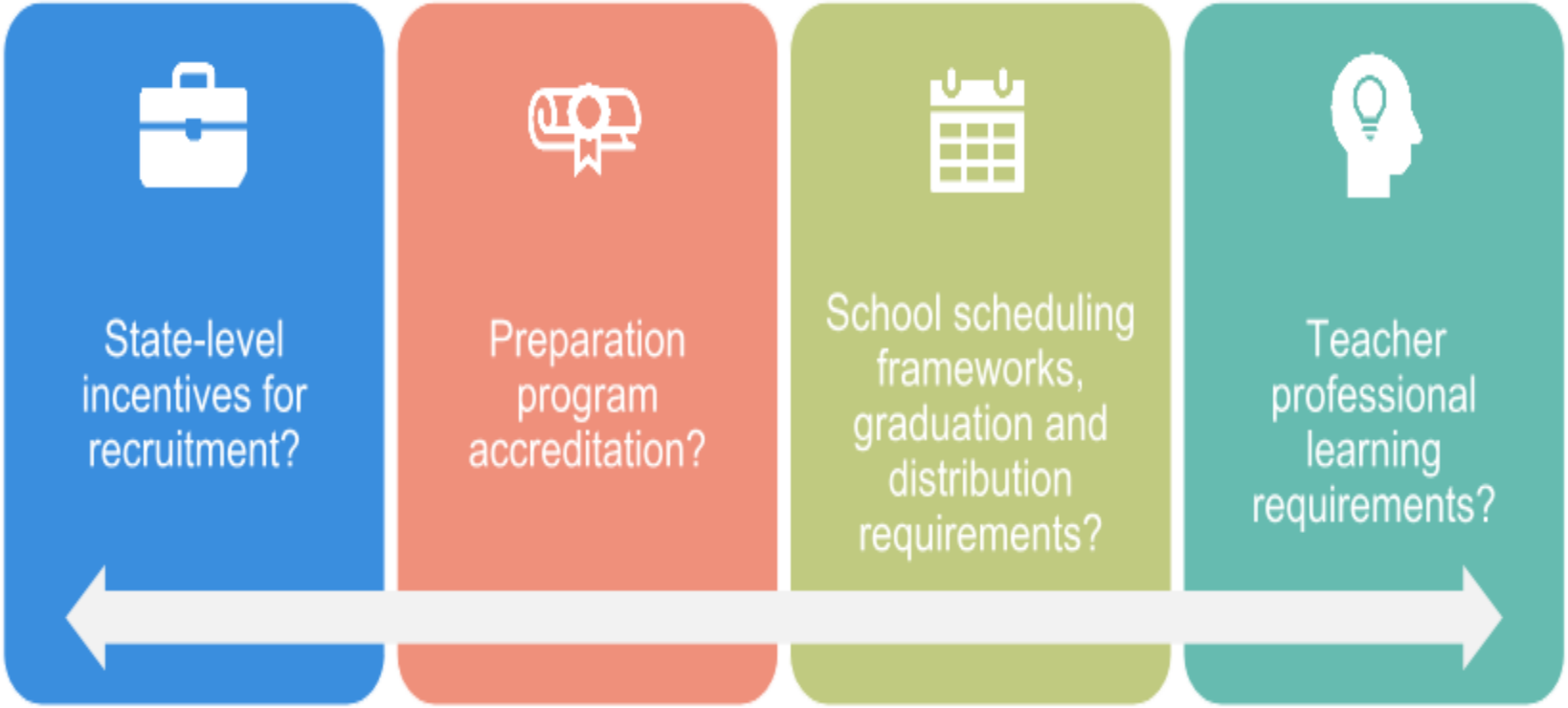


# Current Redesign Efforts in CA & MS

- Career progression that allows teachers to stay in the classroom
- Increased compensation with advancement up the ladder
- Best teachers mentor and coach newer or struggling teachers
- Both afforded time to work with mentors/mentees
- Time dedicated to collaborative lesson planning, peer observation, debrief, 1-on-1 and small group intervention, parental engagement
- Addresses both induction and leadership development
- Supportive and evaluative

# A Professional Work Environment for Teachers

What are the levers policymakers can use to promote that kind of professional work environment, including:

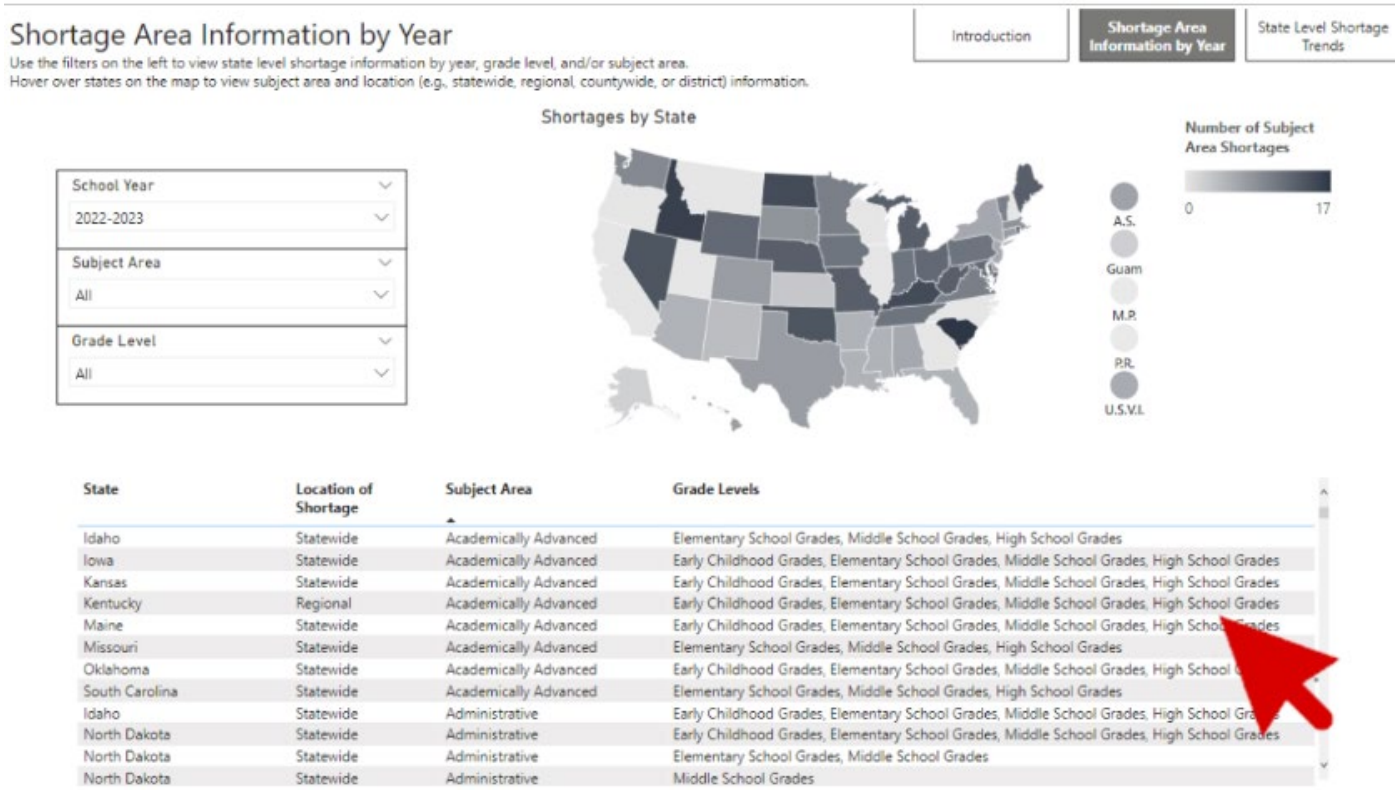



# NCSL 50-State Searchable Tracking Databases

**Education Program Tracking Database**

https://www.ncsl.org/research/education/education-bill-tracking-database.aspx

- At least 316 enactments in 2022 in every state




NCSL Web Resource: https://www.ncsl.org/research/education/teacher-shortage-areas-by-state.aspx

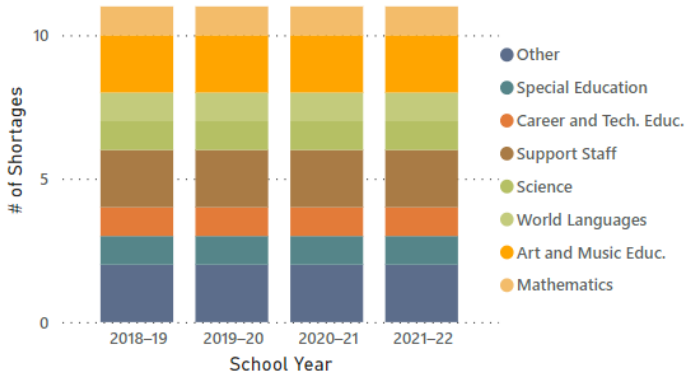
# State Level Shortage Trends

Use the state filter to view shortage area data over time for individual states or territories.

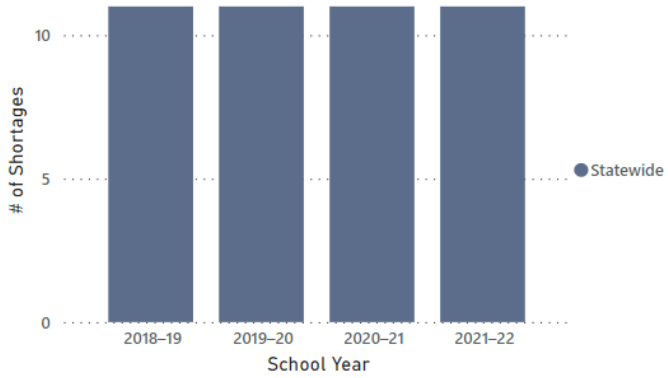


State: Montana

## Shortages by Subject Area and Year




## Shortages by Location Type and Year



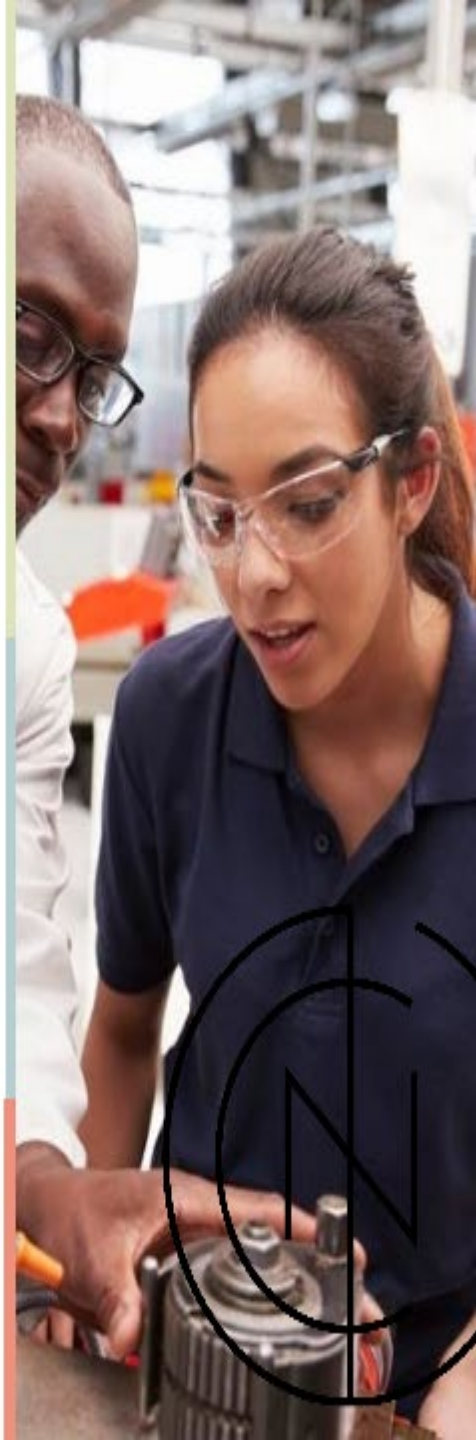

| State | School Year | Subject Area | Discipline | Location of Shortage | Region, County, or School District | Grade Levels |
|---|---|---|---|---|---|---|
| Montana | 2018-2019 | Art and Music Education | Art | Statewide | Statewide | Grade Level Not Specified |
| Montana | 2018-2019 | Art and Music Education | Music | Statewide | Statewide | Grade Level Not Specified |
| Montana | 2018-2019 | Special Education | | Statewide | Statewide | Grade Level Not Specified |
| Montana | 2018-2019 | Support Staff | Counseling | Statewide | Statewide | Grade Level Not Specified |
| Montana | 2018-2019 | Support Staff | Library/Media Specialist | Statewide | Statewide | Grade Level Not Specified |
| Montana | 2018-2019 | Career and Technical Education | | Statewide | Statewide | High School Grades |
| Montana | 2018-2019 | Language Arts | English | Statewide | Statewide | Middle School Grades, High School Grades |
| Montana | 2018-2019 | Mathematics | | Statewide | Statewide | Middle School Grades, High School Grades |
| Montana | 2018-2019 | Science | | Statewide | Statewide | Middle School Grades, High School Grades |

# New Mexico Making Progress

- Long-time Partnership with Teacher Preparation Programs
- Tiered-licensure System with Performance Evals for nearly 20 years
- Cultural Competency and Diverse Teachers – 2022 HB 60
- Grow-Your-Own Scholarship - 2021 HB 22
- Teacher Salaries - $10k raise – 2022 SB 1
- Teacher Residencies - 2022 HB 13
- Recruiting Retired Teachers – 2022 HB 73
- Teacher Prep/PD on Science of Reading in 2023

# Career and Technical Education

PART 4

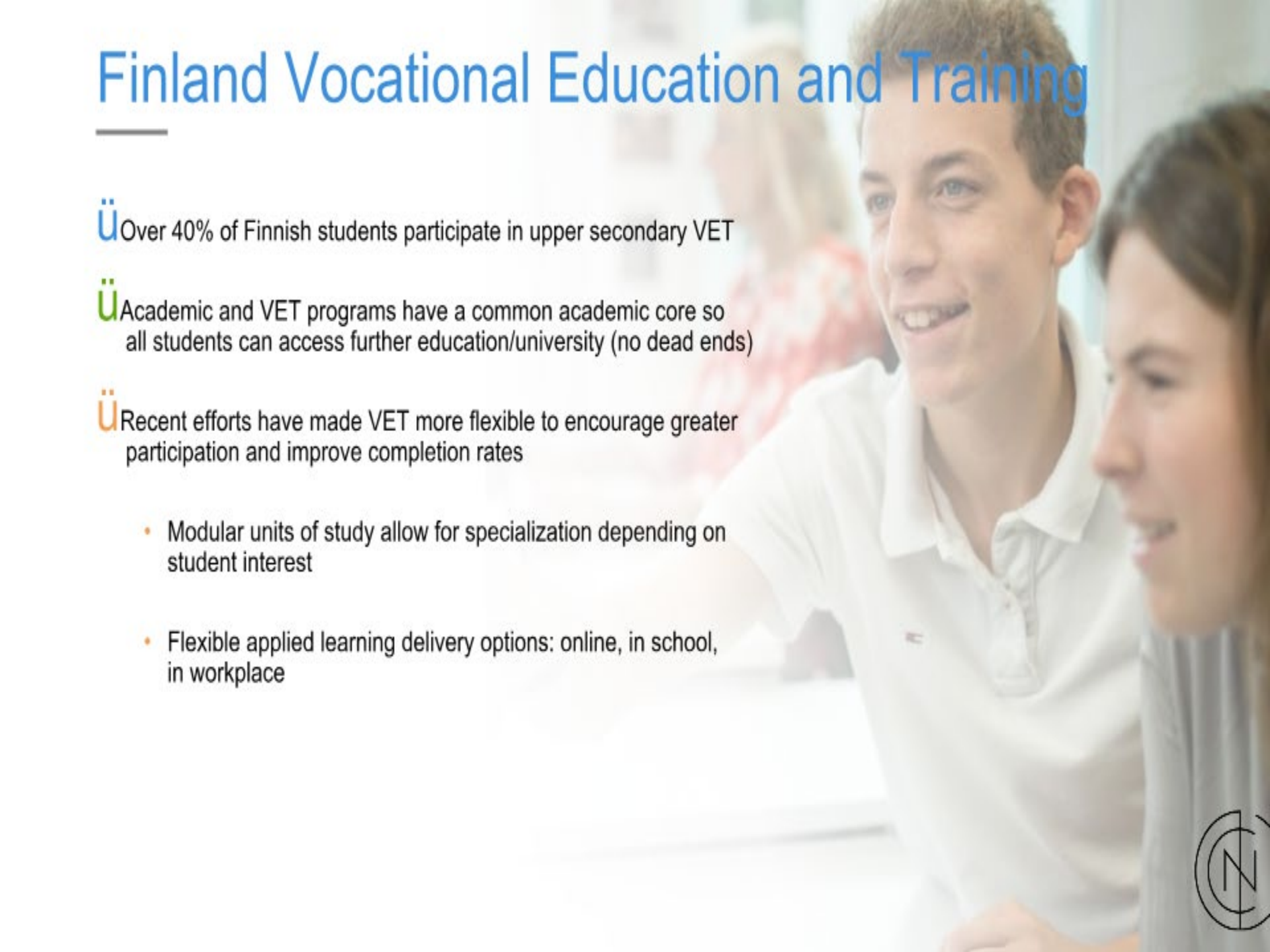


# Switzerland Youth Apprenticeship

- Ü 70% Swiss high school students enroll in apprenticeships starting in grade 10
- Ü Employers set the standards, commit to training students in their workplaces, and assess their learning
- Ü Combines school-based learning with paid work hosted by employer
- Ü Three-to-four-year learning experience resulting in nationally recognized credential
- Ü Graduates can access further education in an academic or applied university

# Finland Vocational Education and Training

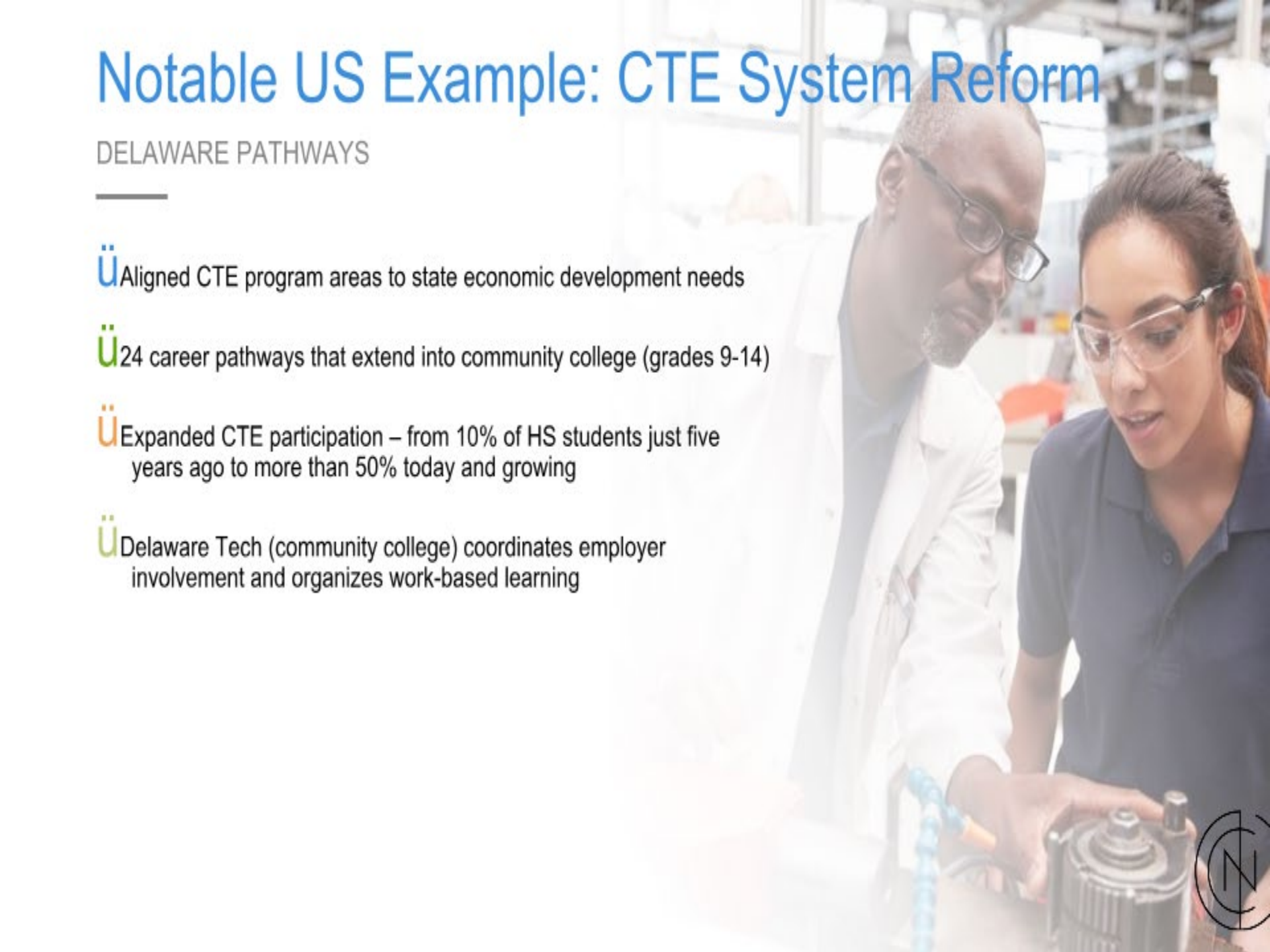
- Over 40% of Finnish students participate in upper secondary VET
- Academic and VET programs have a common academic core so all students can access further education/university (no dead ends)
- Recent efforts have made VET more flexible to encourage greater participation and improve completion rates
  - Modular units of study allow for specialization depending on student interest
  - Flexible applied learning delivery options: online, in school, in workplace



# Notable US Example: CTE System Reform

## DELAWARE PATHWAYS

- Aligned CTE program areas to state economic development needs
- 24 career pathways that extend into community college (grades 9-14)
- Expanded CTE participation – from 10% of HS students just five years ago to more than 50% today and growing
- Delaware Tech (community college) coordinates employer involvement and organizes work-based learning



# Notable US Example: CTE System Reform

## DELAWARE PATHWAYS

- Ü Brings together employers and school districts
- Ü Youth apprenticeship programs (grades 11-13) based on Swiss model
- Ü Multiple occupations within in-demand industries – advanced manufacturing, healthcare, IT, hospitality, financial services, education
- Ü Currently in CO, DC and communities in IN, NY and PA and expanding nationally

# Challenges for Rural Areas Offering CTE

**Challenge**: Providing all students with substantive work-based learning experiences

Possible solutions:

- Virtual options
- School-based businesses (serving the school or the surrounding community)
- Provide different kinds of WBL experiences within one business
- Simulated workplaces

**Challenge**: Offering a robust mix of CTE options with a small teaching staff

Possible solutions:

- Share CTE classes (in person or virtual) across schools/districts
- Partner with community colleges to provide technical programming

# CareerWise Colorado

NCSL Webinar: https://www.ncsl.org/research/education/careerwise-colorado-youth-apprenticeship-inspired-by-swiss-vet.aspx

# Indiana Making Progress

- Coordinated Statewide Effort Led by Legislature, Gov, Dept of Education and Workforce Boards
- Graduation Pathways to Ensure College and Career Readiness
- Increased Allowed Assessments for Graduation
- Partnership with Ivy Tech Community Colleges for HS Students
- Partnership with Industry
- Investment from Local Philanthropy
- Studied Swiss Model (Basis for Apprenticeships)
- Created Apprenticeships in Shortage Industries

# Early Childhood Education

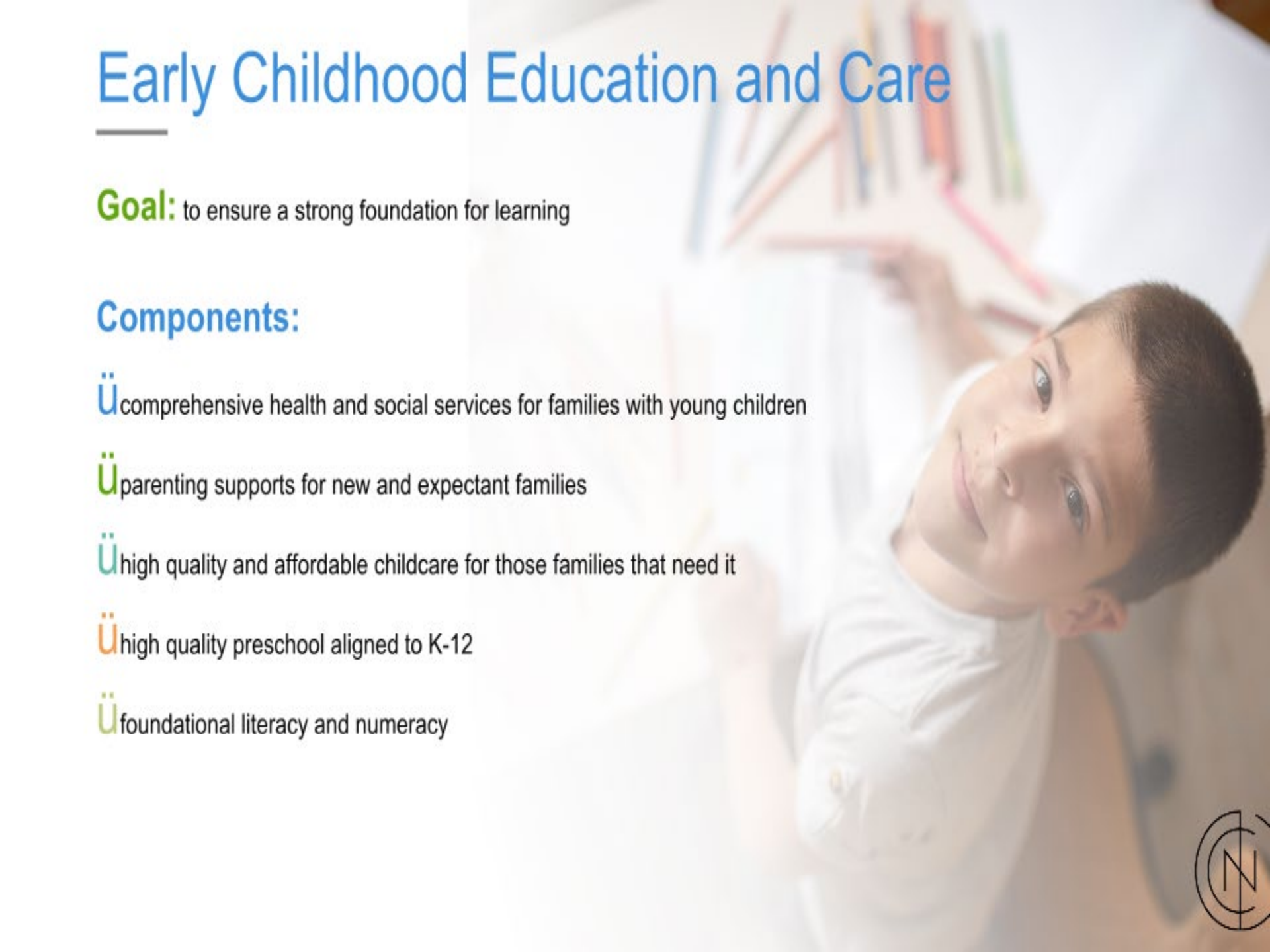
PART 5

# Early Childhood Education and Care

**Goal:** to ensure a strong foundation for learning

## Components:

- comprehensive health and social services for families with young children
- parenting supports for new and expectant families
- high quality and affordable childcare for those families that need it
- high quality preschool aligned to K-12
- foundational literacy and numeracy



# Example: supports for families with young children

## Maryland's Patty Centers are a regional network that provide:

- ü parenting support and programming for families with young children
- ü access to needed social, health and job training services for families with young children
- ü information about and referrals to childcare providers in the region
- ü professional development and support for childcare providers in the region

## They:

- ü serve all families in the region
- ü are being expanded from 24 to 54 in the state, with priority given to high need communities

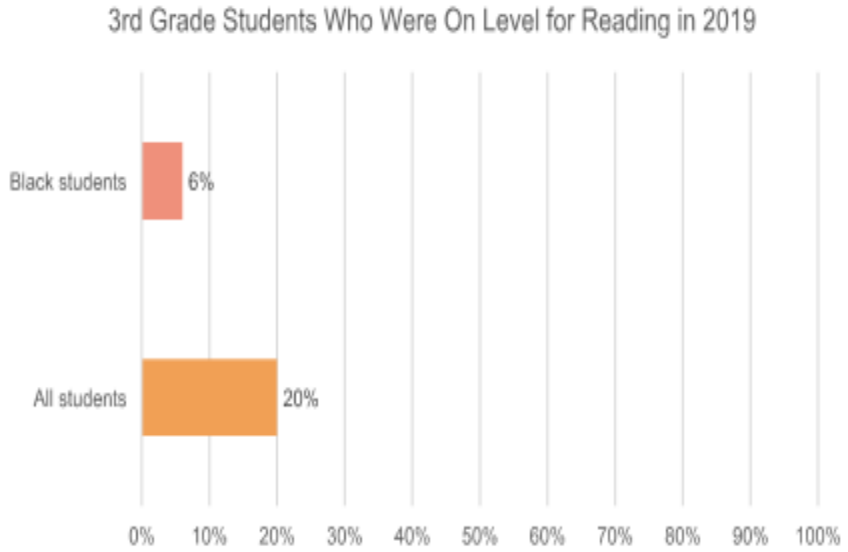
# Derry Area SD Early Childhood Support

- Developed via a federal Striving Readers grant but has continued through partnerships, particularly with the United Way
- Welcome Baby Package & Imagine Library
- Infant, Toddler & Preschool Storytime
- Teaching Tiny Trojans kindergarten readiness program
- Kindergarten readiness screener
- **Kindergarten readiness tripled** from about 25% to 75% by the end of the initial five-year grant period

# Racine USD Early Reading Initiative

## Analysis revealed the problem was systemic:

- ü Poor curriculum alignment & coherence
- ü Limited teacher professional learning
- ü Lack of clarity about roles & responsibilities
- ü Poor monitoring of student growth
- ü Lack of coordination between programs
- ü Competing priorities




## Strategy

- ü Adopt a coherent approach based on science of reading and with culturally responsive reading materials
- ü Focus on K & 1 in 2021-22 (add grade 2 then 3 in subsequent years)
- ü Establish a common, instructionally-sensitive measure for monitoring student growth
- ü Clearly establish school leadership responsibility for instruction, supported by other district roles and resources
- ü Prioritize resources to support this initiative

# Year 1 Results for Grade 1 by School

## DISTRIBUTION ACROSS PERFORMANCE CATEGORIES (SEPT TO MAY) BY SCHOOL

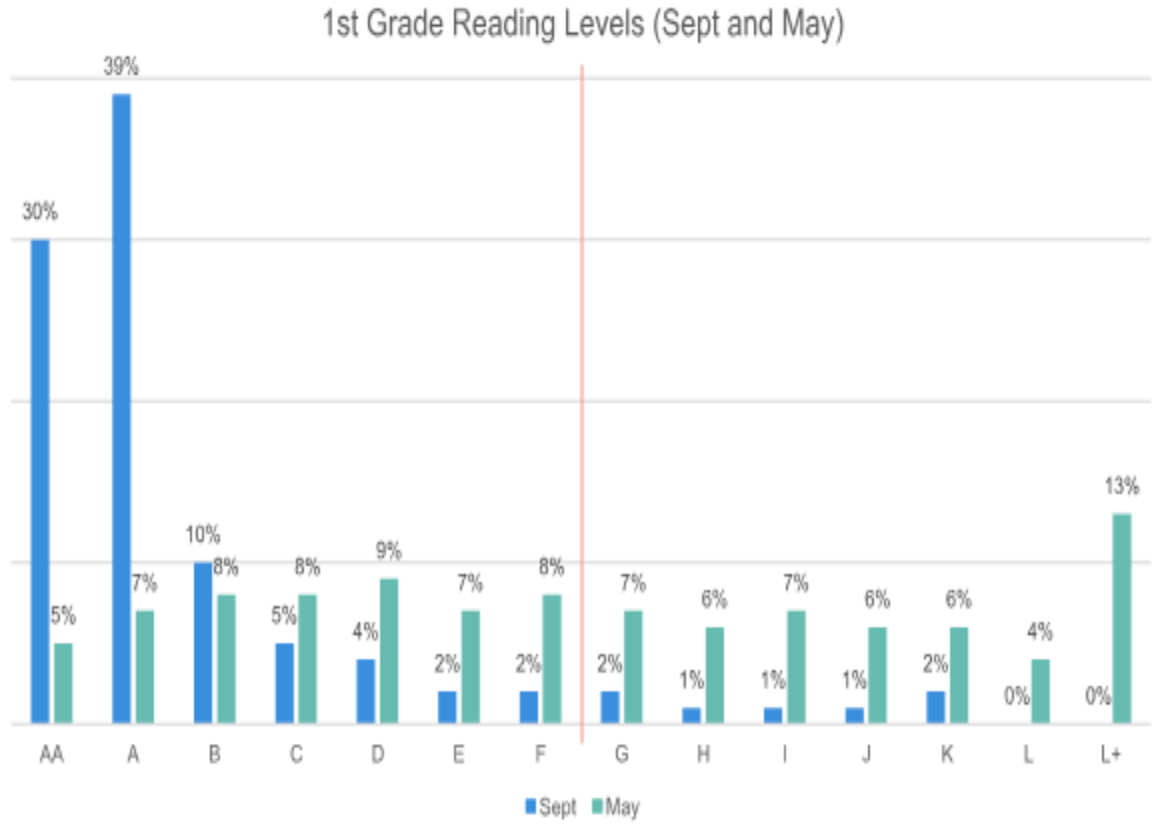
| | Sept | | | | | May | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Urgent | Needs Focused Instruction | Making Good Progress | Proficiency | Total | Urgent | Needs Focused Instruction | Making Good Progress | Proficiency | Total | SEPT Greens | May Greens | Net Change |
| [redacted] | 91% | 0% | 0% | 9% | 35 | 57% | 9% | 16% | 18% | 44 | 9% | 35% | 25% |
| [redacted] | 95% | 0% | 0% | 5% | 37 | 44% | 6% | 22% | 28% | 36 | 5% | 50% | 45% |
| [redacted] | 93% | 4% | 0% | 4% | 28 | 64% | 11% | 9% | 17% | 47 | 4% | 26% | 22% |
| [redacted] | 90% | 3% | 3% | 5% | 40 | 63% | 6% | 11% | 20% | 35 | 8% | 31% | 24% |
| [redacted] | 71% | 12% | 6% | 12% | 52 | 42% | 14% | 12% | 32% | 38 | 3% | 40% | 37% |
| [redacted] | 92% | 0% | 8% | 0% | 13 | 64% | 12% | 8% | 16% | 25 | 8% | 24% | 16% |
| [redacted] | 91% | 3% | 3% | 3% | 65 | 75% | 3% | 9% | 14% | 74 | 6% | 23% | 17% |
| [redacted] | 94% | 3% | 0% | 3% | 32 | 61% | 0% | 8% | 32% | 38 | 3% | 40% | 37% |
| [redacted] | 68% | 10% | 10% | 13% | 31 | 58% | 65 | 9% | 27% | 33 | 23% | 36% | 13% |
| [redacted] | 85% | 2% | 4% | 9% | 54 | 48% | 12% | 13% | 27% | 60 | 13% | 40% | 27% |
| [redacted] | 75% | 2% | 7% | 17% | 60 | 26% | 11% | 15% | 48% | 65 | 23% | 63% | 40% |
| [redacted] | 73% | 0% | 0% | 27% | 11 | 69% | 6% | 6% | 20% | 35 | 27% | 26% | -1% |
| [redacted] | 97% | 3% | 0% | 0% | 35 | 79% | 6% | 15% | 0% | 34 | 0% | 15% | 15% |
| [redacted] | 46% | 13% | 22% | 20% | 96 | 35% | 15% | 11% | 39% | 92 | 42% | 50% | 8% |
| [redacted] | 100% | 0% | 0% | 0% | 30 | 50% | 11% | 18% | 21% | 28 | 0% | 39% | 39% |
| [redacted] | 82% | 4% | 8% | 6% | 50 | 26% | 6% | 6% | 62% | 50 | 14% | 68% | 54% |
| [redacted] | 73% | 0% | 4% | 23% | 26 | 43% | 0% | 20% | 37% | 51 | 27% | 57% | 30% |
| [redacted] | 68% | 9% | 9% | 14% | 44 | 21% | 5% | 12% | 63% | 43 | 23% | 75% | 52% |

This shows each school's overall gains in achievement from September to May. This data includes monolingual and dual language.

These results generally follow expectations about students' performance in the various schools. However, note Roosevelt, for example, where no students were making good progress toward the goal in September, but 39% had reached or exceeded the goal by May.

# Year 1 Results for Grade 1

## GROWTH BY STUDENT BASED ON A MATCHED SAMPLE




This chart reflects the reading levels for a ***matched sample*** of 1st graders with both a Sept. and May data point. The September distribution is in blue and the May distribution is in teal. The vertical red line reflects the 2021-2022 goal of G or higher.

Whereas almost 4 in 5 students began the year barely beginning to read, almost half finished the year meeting or exceeding their reading goal.


# NCSL 50-State Searchable Tracking Databases

## Early Education Enactment Database

https://www.ncsl.org/research/human-services/early-care-and-education-bill-tracking.aspx

- At least 134 enactments in 37 states in 2022

## Overview of Early Education and Care Policy

https://www.ncsl.org/research/human-services/early-childhood-101.aspx

# The Path Forward

NEXT STEPS