

# Rethinking Graduation in the Age of AI

Featuring: Hannah Weissman, Director of Policy, Code.org



*#ResilientCommunities*

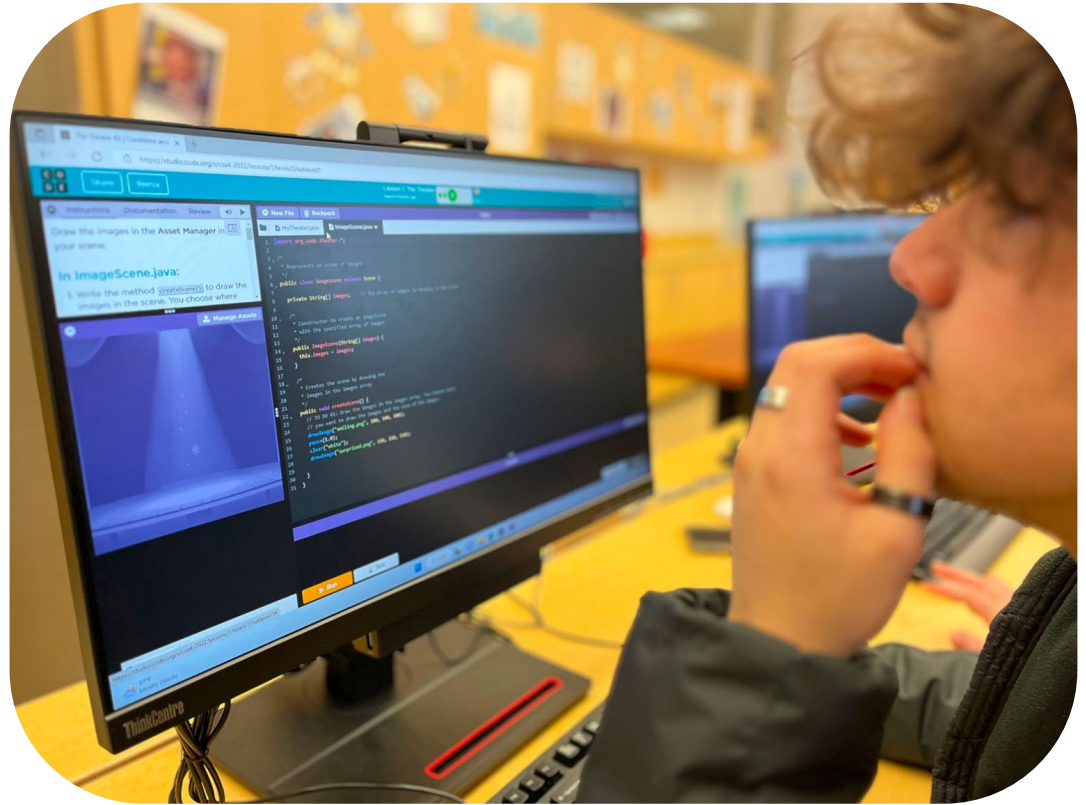
# Rethinking Graduation in the Age of AI

**Women in Government: National Legislative Conference**

Representative Maxine Dibert (AK) and Hannah Weissman, Director of Policy (code.org)

# Our Vision

Every student  
in every school  
should have the opportunity  
to learn computer science



# Making computer science a foundational part of our schools

## Clarity

1.

Create a statewide plan for K-12 computer science

2.

Define computer science and establish standards for K-12 computer science

## Capacity

3.

Allocate funding for rigorous computer science teacher professional learning

4.

Implement clear certification pathways for computer science teachers at elementary and secondary levels

5.

Create programs at institutions of higher education to encourage all preservice teachers to gain exposure to computer science

## Leadership

6.

Establish dedicated computer science positions in a state education agency

## Sustainability

7.

Require that all schools offer computer science with appropriate implementation timelines

8.

Allow computer science to count toward a core graduation requirement

9.

Allow computer science to satisfy an admission requirement at higher education institutions

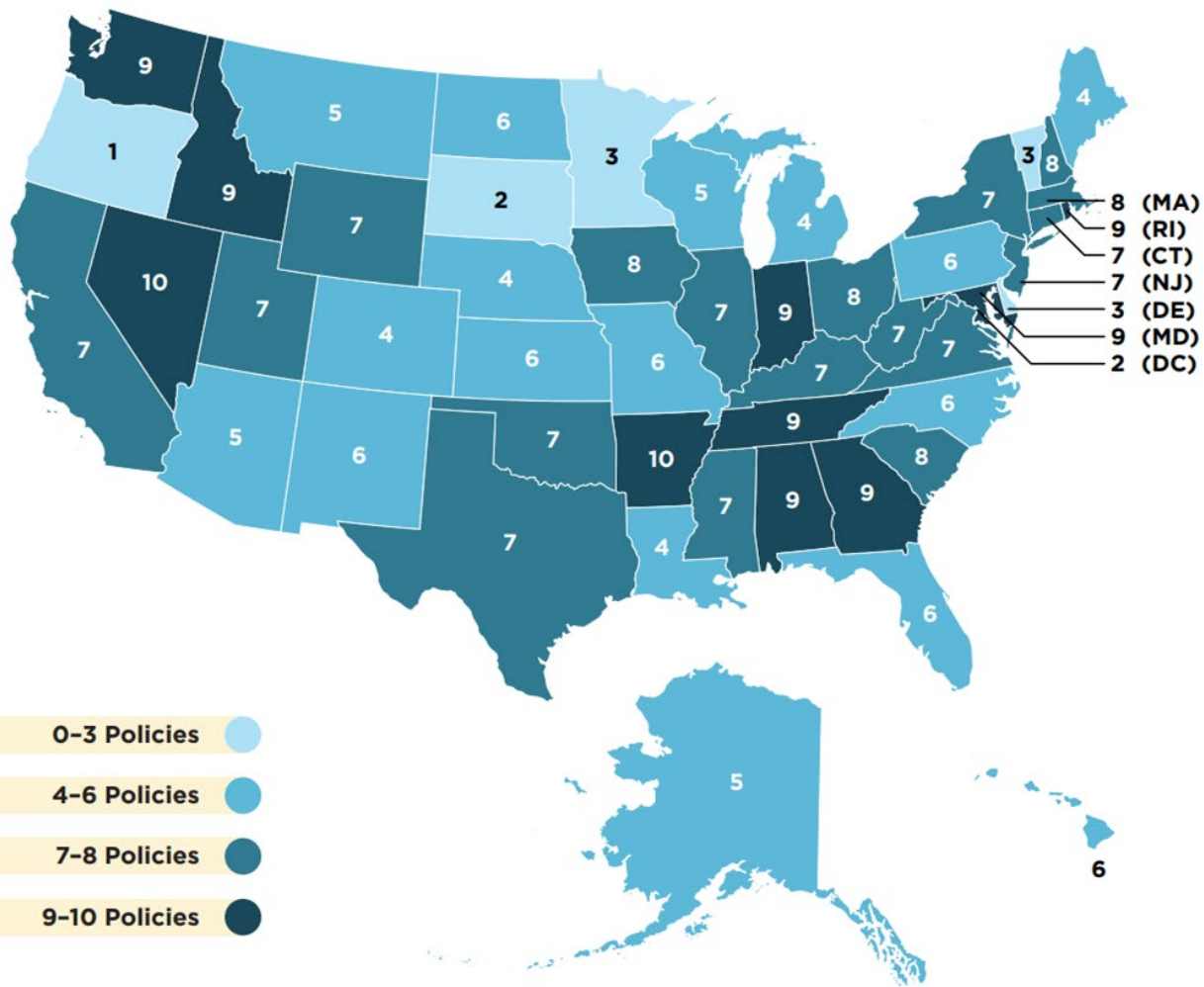
10.

Require that all students take computer science to earn a high school diploma

# Zooming in on Policy

**Define computer science and establish standards for K-12 computer science**

Understand why and how computers work, creating programs rather than just using them



# Policies Adopted by State

Only **half** of all  
high schools  
nationally **offer**  
**computer science**

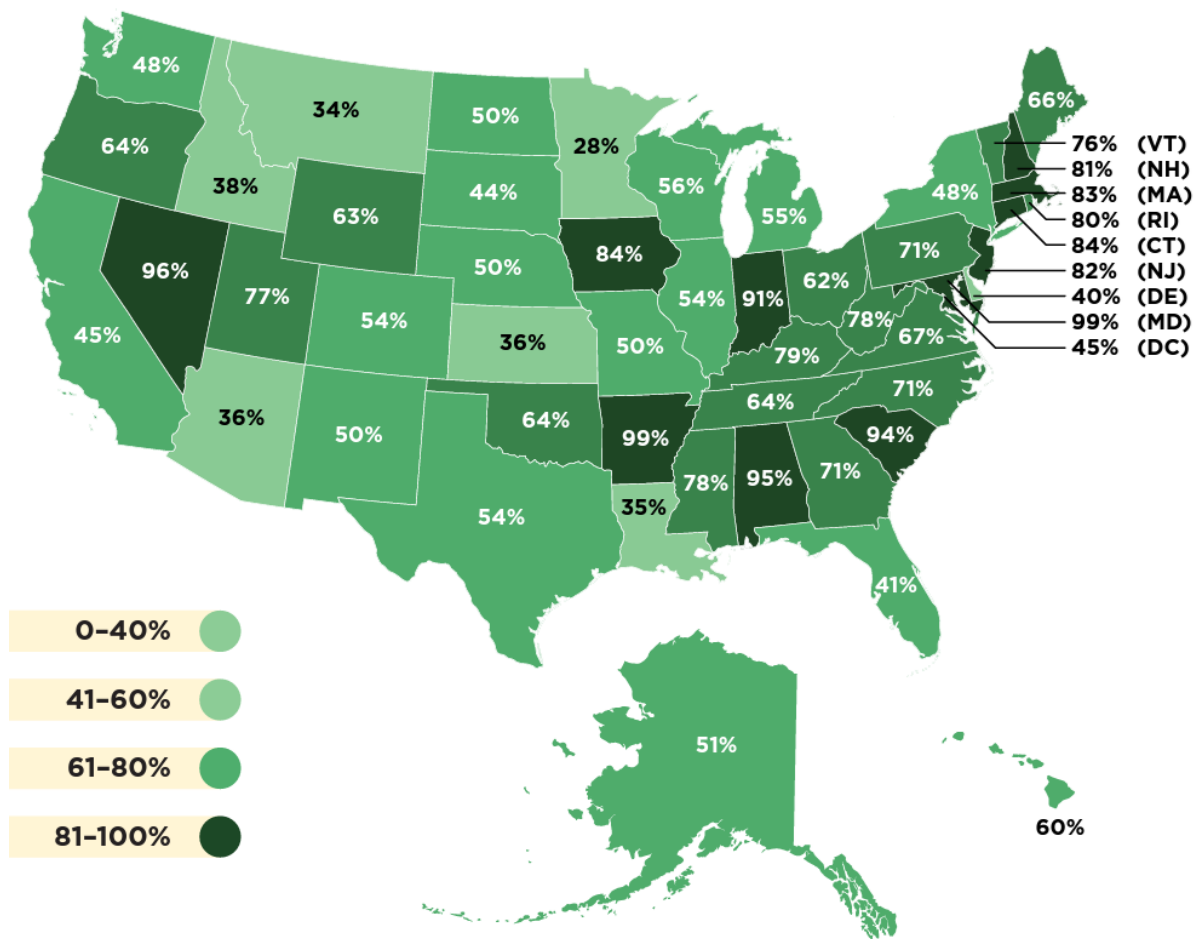


A donut chart with a white center. The chart is divided into two segments: a green segment representing 57.50% and a yellow segment representing 42.50%. The percentage '57.50%' is written in large green font in the center of the white circle. Below the percentage, the text 'of schools offer Computer Science nationally' is written in a smaller black font. The background of the chart area is light blue with yellow and green decorative shapes.

**57.50%**

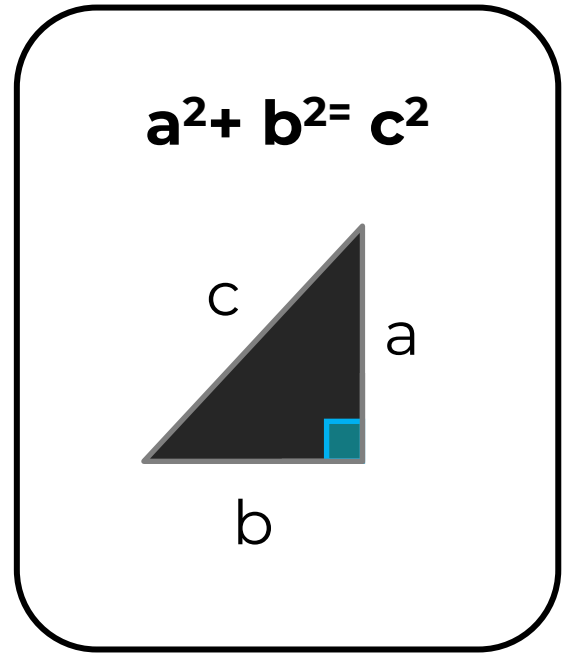
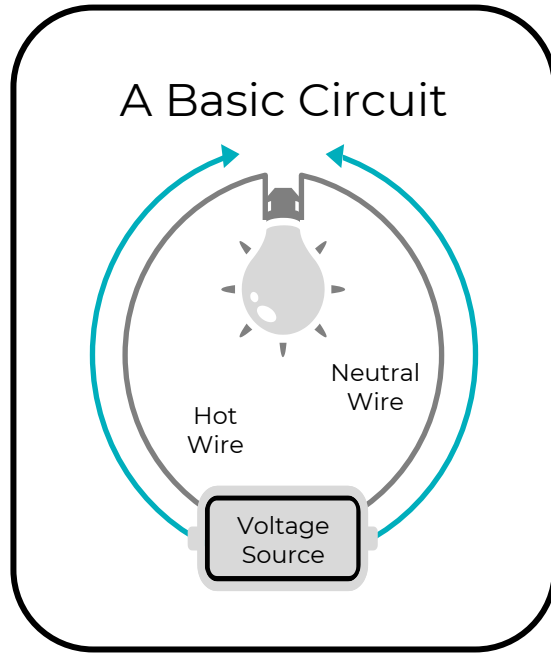
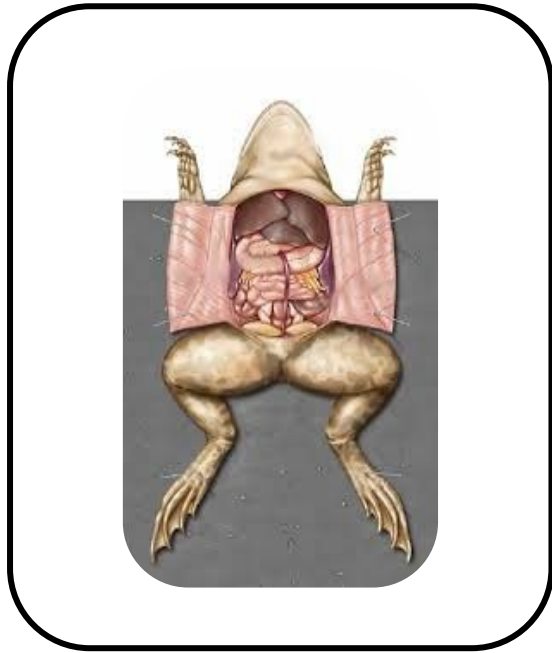
of schools offer Computer  
Science nationally

# High Schools Offering CS

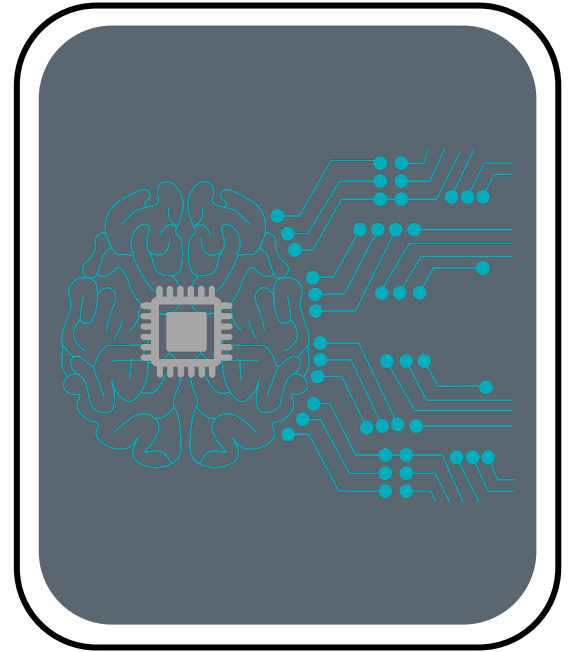
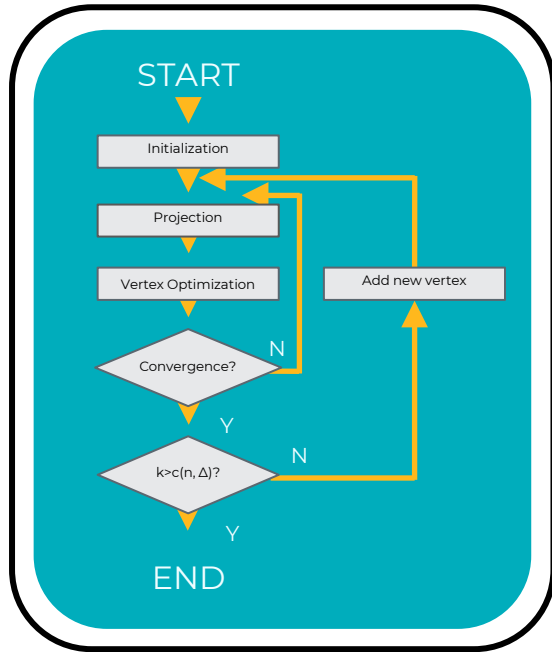




# What do we teach students?

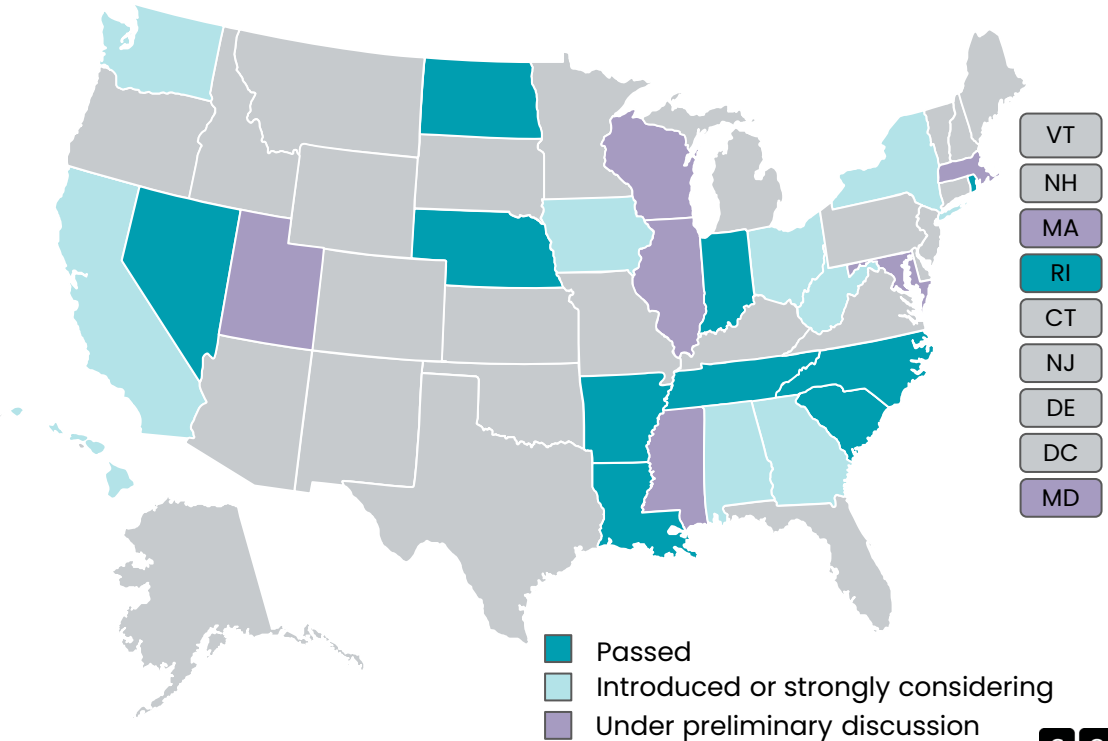


# What **should** we teach?



# High School Graduation Requirements

As of June 2024, ten states have passed graduation requirements, and an additional ten states have filed legislation or are working with the State Board/Department of Education to make regulatory changes for computer science to be a high school graduation requirement.

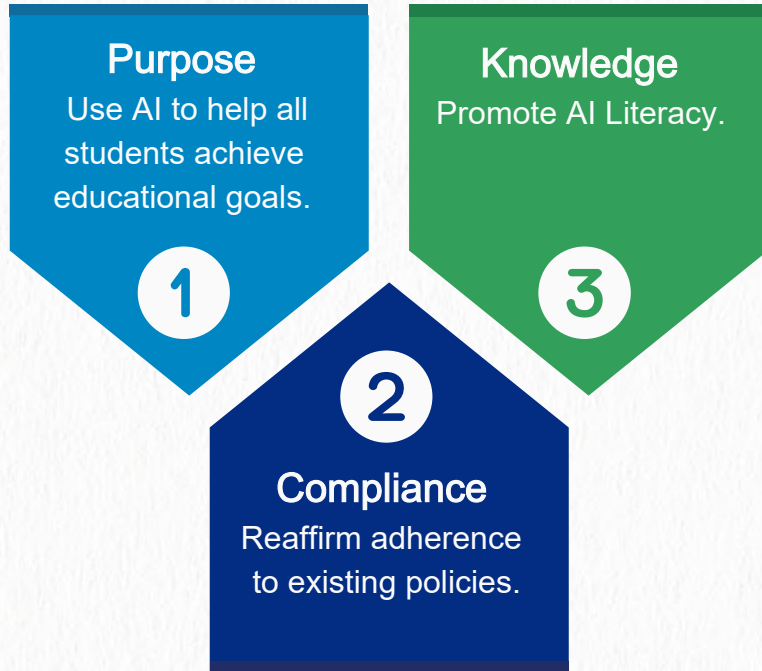




# **The Future of Education in an Age of AI**

|

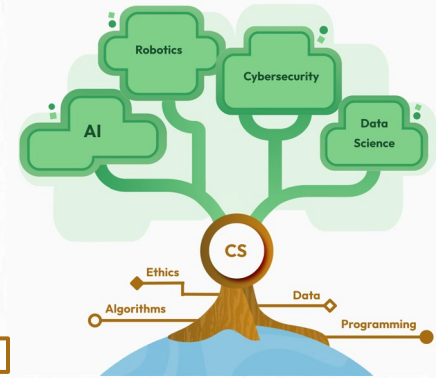
# Seven Principles for AI in Education



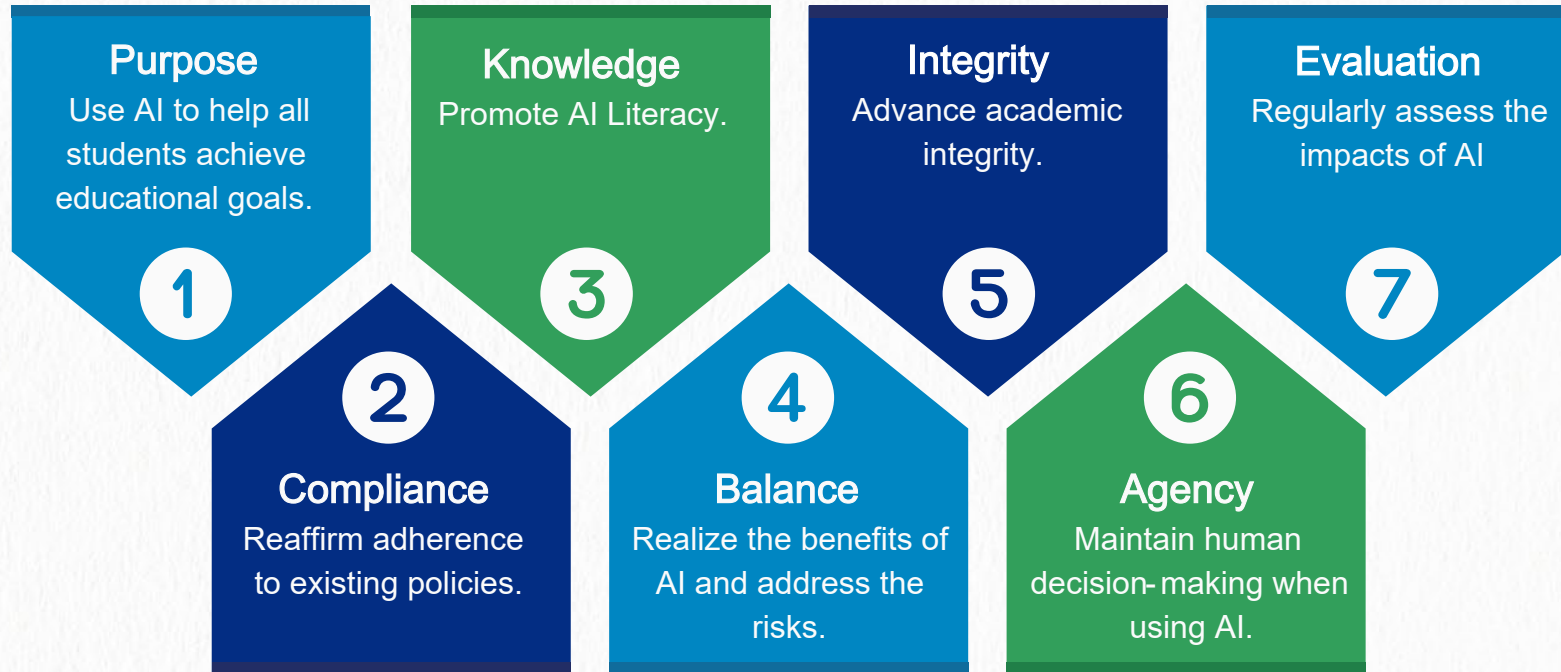
## AI Literacy

How to Use AI + How AI Works

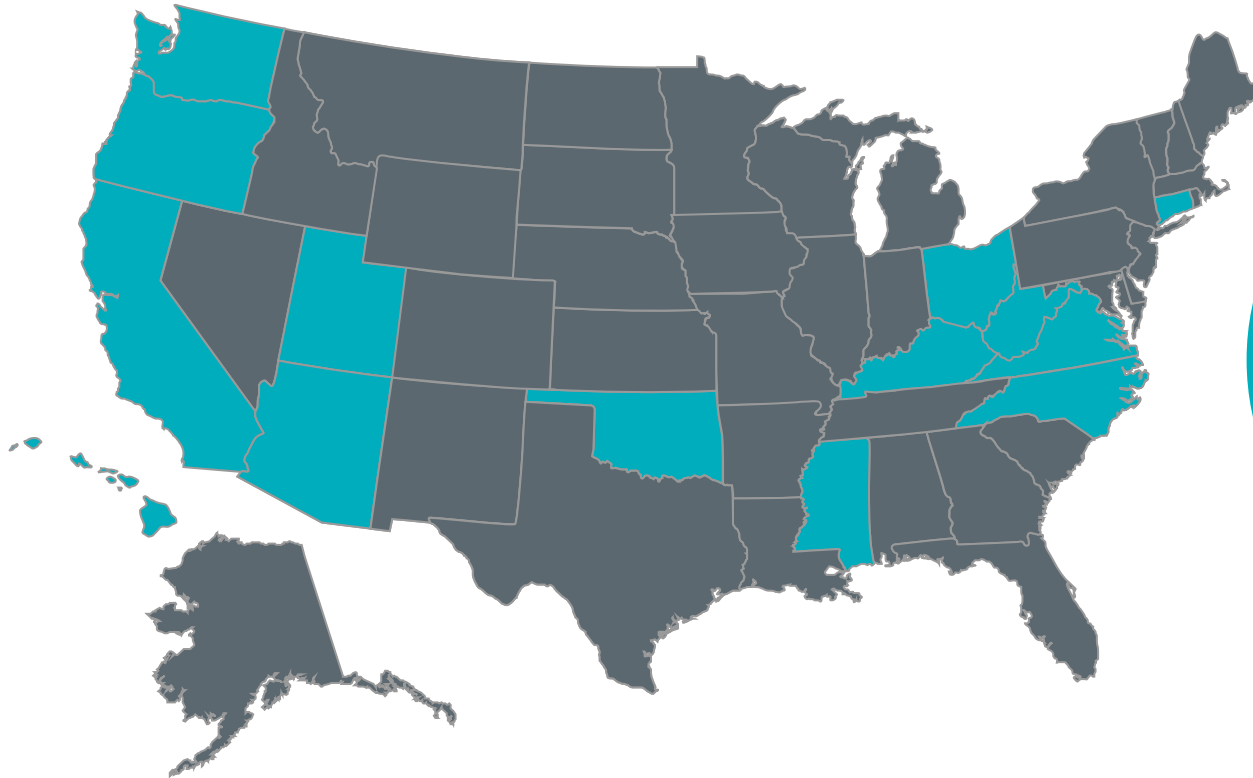
Applications  
Limitations  
Social Impacts  
Ethics



# Seven Principles for AI in Education



# States with AI Guidance



**15  
States**

# Computer Science and AI Resources

**What is AI?**  
Implications and Misconceptions

Understanding artificial intelligence (AI) helps educators address student and educator misconceptions, and provides the foundational concepts, history, and design of this transformative technology.

**Artificial Intelligence**  
AI refers to programs or machines that simulate human thought processes, such as learning, problem-solving, and decision-making. The broad definition and application of AI is subject to rapid growth of development made in a changing landscape.

**Timeline:**  
 1950s: AI as a field of computer science, focusing on logic, mathematics, and algorithms.  
 1980s: Expert Systems (ES) as a branch of AI that simulates human expertise in a specific domain.  
 2000s: Machine Learning (ML) as a branch of AI that allows computers to learn from data and improve their performance over time.  
 2020s: AI as a broad term encompassing various sub-fields, including ML, natural language processing (NLP), and computer vision.

What is AI?

**AI in Education**  
Real-World Examples and Use Cases

With advances in education systems may realize the potential benefits of AI to improve learning outcomes, support teacher practices and quality of life, and enhance educational equity. Without guidance, teachers and students can be exposed to privacy violations, algorithmic discriminatory consequences, and counterproductive educational practices. Educators should consider how AI is currently being used in educational settings, and the opportunities for further usage while considering best practices.

**Best Practices**

- Ethical Data Handling:** Ensure ethical use of AI in education by prioritizing secure data handling, obtaining consent, and protecting student privacy.
- Educator Training:** Promote ongoing professional development for educators to enhance AI literacy, fostering their ability to integrate and utilize AI tools effectively in diverse learning environments.
- Impact Assessment:** Regularly assess the impact of AI applications on student learning and overall educational outcomes, allowing for continuous improvement and refinement of AI tools for maximum effectiveness.

AI in Education

**Foundational Policy Ideas for AI in Education**

Comprehensive policies can support educators, students, and parents in engaging with and leveraging AI in education. Key policy areas include:

- Foster Leadership:** Establish an AI Education Task Force to oversee policy development and implementation.
- Promote AI Literacy:** Integrate AI skills and concepts, including their foundational principles, ethical aspects, and critical components, into existing curriculum.
- Support Professional Development:** Offer ongoing training and resources to help educators effectively integrate AI into their practice.
- Build AI Capacity:** Invest in infrastructure, including hardware, software, and data security, to support AI integration in schools.

Foundational AI Policy Ideas

**Ten Policy Ideas to Make Computer Science Foundational to K-12 Education**

Computing is a foundational part of daily life and nearly all occupations — from automated farm machinery to using artificial intelligence for medical diagnostics. All students must be exposed to computer science starting from K-12 education. Computer science is a key skill for the future. To ensure that all students are prepared for the careers of the future, we must ensure that all students have access to the highest-quality and fastest-growing jobs in America.

Only 37% of high schools offer a computer science course for students. There are particularly large disparities in access to computer science courses for small schools, low-income communities, Native American/Alaskan students, and Black/Hispanic American students.

While nearly half of our high schools are not teaching computer science, additional progress has occurred in the last several years. States have recognized the need for change: every state has passed policies encouraging computer science growth and expansion in their public systems. However, there is more work to be done.

States must continue investing in a broad policy framework that expands K-12 computer science. The ten recommendations listed below are designed to build and sustain a comprehensive system of teaching and learning computer science. These policies are built on the principles: **Equity and Diversity, Clarity, Capacity, Leadership, and Sustainability.**

Adopting these policies does not guarantee student success in computer science. We need great teachers and school leaders invested in ensuring all students have positive experiences in computer science education.

Foundational CS Policies

**2023 State of Computer Science Education**

National CS Report

**2023 State of Computer Science Education**

The rapid pace of technological advancement, in combination with the widespread integration of generative artificial intelligence (AI), underscores the need to foundational knowledge in computer science for all students. This report calls upon educators to embrace the spirit of the state and create meaningful, real-world connections with the students of the 21st century, including ensuring that all students have computer science education.

**1,217** in 2022, an average of 1,117 each participating state each month.

**\$95,976** These jobs have an average salary of \$95,976.

Currently, 37.2% of public high schools in the United States offer a foundational computer science course. This is up from 34.1% in 2021. Across the 50 states, where data is available, 5.6% of high school students are enrolled in a foundational computer science course. Even with growth across this growth, total disparities still exist, and we must continue to focus on addressing participation gaps.

State	CS Course Enrollment (%)
Montana	84%
Mississippi	36%
Washington	48%
Alaska	9%
Hawaii	72%

State Data

TeachAI.org

advocacy.code.org



# Q&A for Legislator Attendees

Please step up to the standing microphones in the room.  
Please keep your remarks in the form of a question.

