

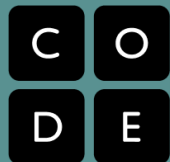
The New Literacy: Computer Science Education in Kentucky

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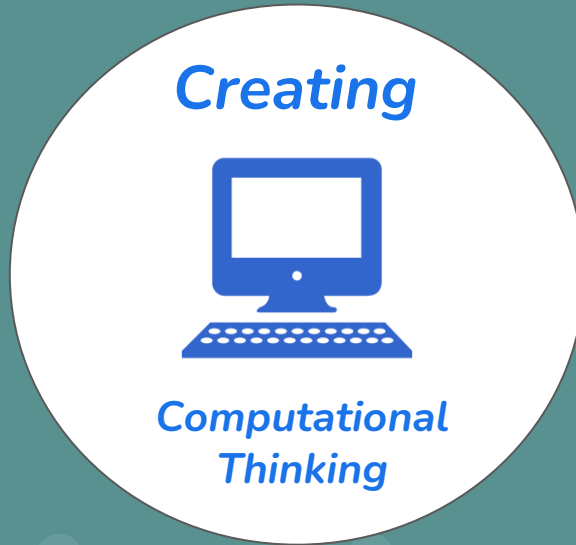


The Fundamentals of Computer Science

Algorithms & Programming

*Networks & the Internet/
Cybersecurity*

Data & Analysis



*Computing systems
(hardware, software)*

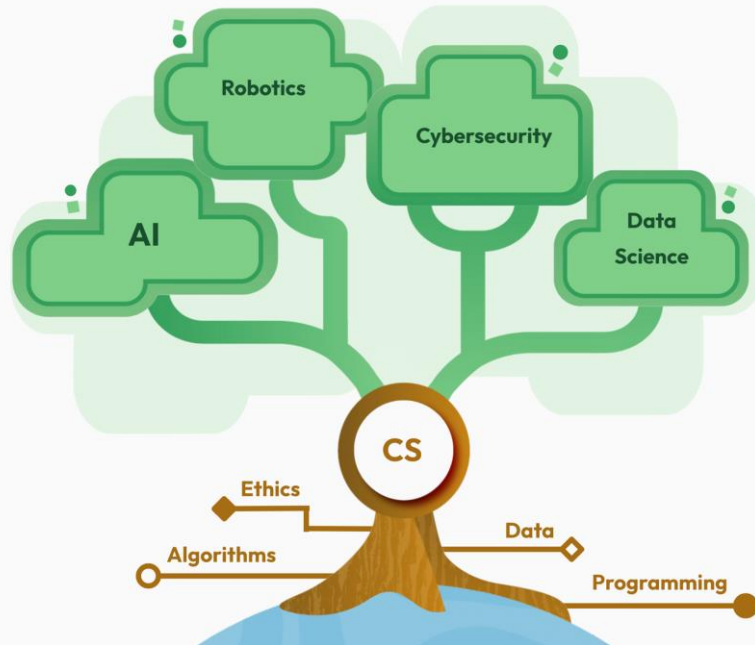
Impacts of Computing

The image features a close-up of a metallic, articulated robotic hand holding a human hand. The robotic hand is positioned on the left, with its fingers wrapped around the human hand, which is on the right. The background is a soft, out-of-focus blue with some bokeh light effects. At the bottom of the image, there is a decorative pattern of vertical, rounded rectangular bars in varying shades of blue and white, resembling a stylized bar chart or a digital interface element.

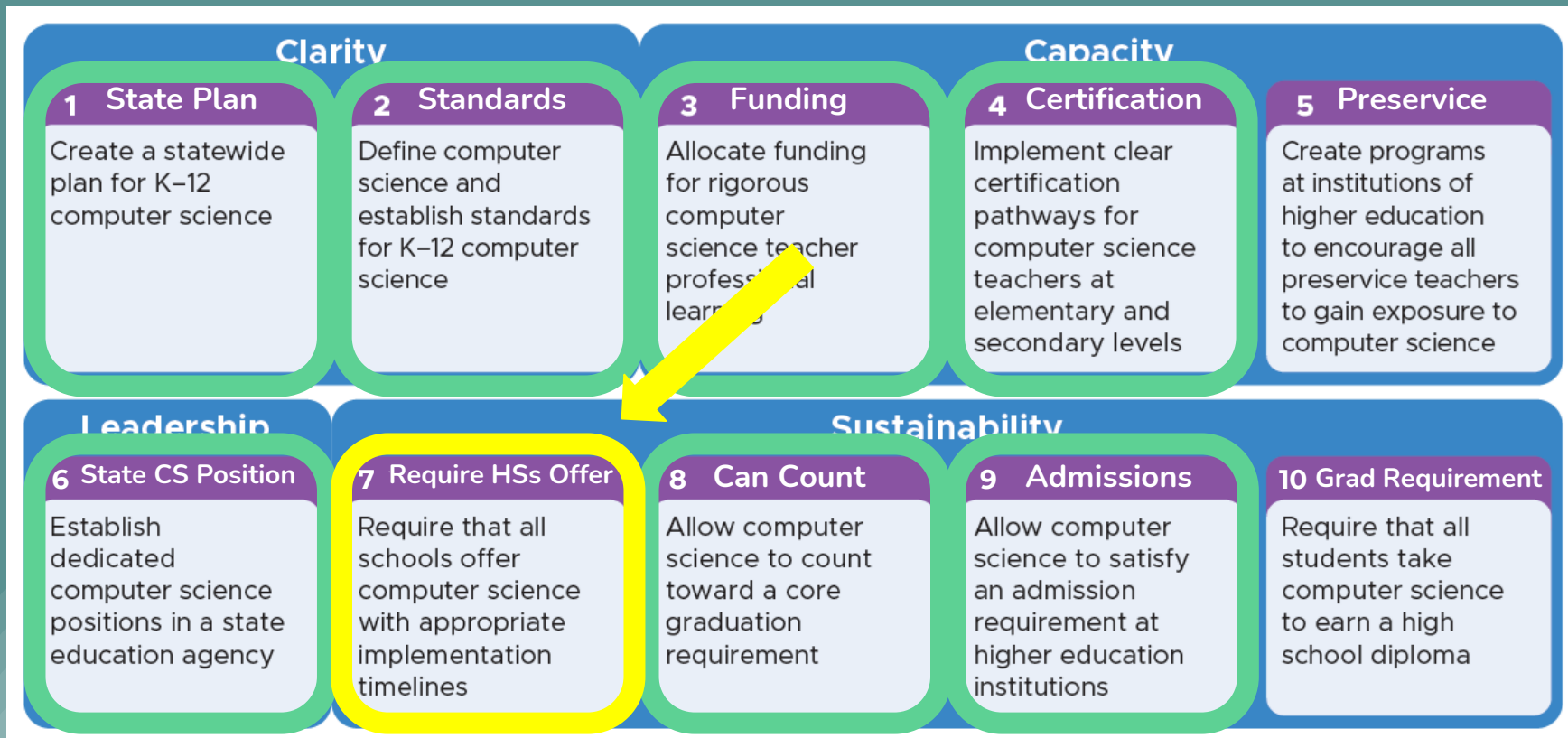
**Artificial intelligence is
reshaping the workforce
and society...**

CS is a Foundation for AI Literacy

- AI is built on computer science. The foundations of CS are more important than ever because of their relevance for AI literacy.
- CS will evolve to emphasize certain concepts (computational thinking, data) and de-emphasize others (syntax coding).
- Learning programming teaches critical skills and knowledge that are still relevant when interacting with & managing AI systems.



How Can Kentucky Expand CS Education?



AdvanceKentucky® Computer Science Initiatives

Building Kentucky's Future Workforce in CS, AI & Cybersecurity



What We've Done

- **Statewide partnerships** in all regions
- Working to expand CS pathways as Co-Lead for Kentucky's **ECEP Alliance** team
- **CSTA PD Week 2025**: 5-day workshop focused on K-5 teachers, CS and AI PD.
- **AI Foundations PD** launched Summer 2025.
- Trained nearly 400 teachers as a **Code.org Regional Partner**, including teachers earning the Approval for Computer Science (ACS)

What's Next

- Continue and expand teacher PD to include AI and Cybersecurity.
- **Expand Middle School PD & curriculum** beyond Code.org
- **Deepen CTE AI & Cybersecurity pathways** for teachers & students
- **Sustain & scale K-5 PD** statewide
- **Increase statewide participation in CS education**



HB 680 - 2022 \$3M Appropriation - 2024

2024-2025

Pilot year of statewide operation

68 Students - 5 Schools

Pathways: Computer Programming, Network Administration, Network Security

College Credit Hours Earned: 190

Industry Certifications Earned: 26

Virtual Paid Work Experience: 33 in pre-internship;
4 in full-time summer internship

2025-2026

225 Students in 26 Schools

420% increase in schools

226% increase in students

New Cybersecurity Pathway - *critical shortage in KY; less than 350 students*

Intro to AI Course pilot in Spring 2026

What's Next

Employer Advisory Board

Data Science Pathway in 2026-2027 -

another critical shortage; 0 students in highest demand area

Enrollment goal: 750-800 students by 2027-2028

Top 10 skills of 2025



Analytical thinking and innovation



Active learning and learning strategies



Complex problem-solving



Critical thinking and analysis



Creativity, originality and initiative



Leadership and social influence



Technology use, monitoring and control



Technology design and programming



Resilience, stress tolerance and flexibility



Reasoning, problem-solving and ideation

Type of skill

- Problem-solving
- Self-management
- Working with people
- Technology use and development

Source: Future of Jobs Report 2020, World Economic Forum.



Kentucky Department of **E D U C A T I O N**

- Modernization and Maturity
 - Pathways
 - Standards
 - Partnerships
- Foster and Celebrate Non-Course CS activities
 - STLP
 - Hour of Code
 - CTSOs like TSA, SkillsUSA
- Kentucky Education Technology Systems (KETS) Investment is an investment in Computer Science learning

Fastest growing and declining jobs by 2030

↑ Top fastest growing jobs

1	Big data specialists
2	FinTech engineers
3	AI and machine learning specialists
4	Software and applications developers
5	Security management specialists
6	Data warehousing specialists
7	Autonomous and electric vehicle specialists
8	UI and UX designers
9	Light truck or delivery services drivers
10	Internet of things specialists

↓ Top fastest declining jobs

1	Postal service clerks
2	Bank tellers and related clerks
3	Data entry clerks
4	Cashiers and ticket clerks
5	Administrative assistants and executive secretaries
6	Printing and related trades workers
7	Accounting, bookkeeping and payroll clerks
8	Material-recording and stock-keeping clerks
9	Transportation attendants and conductors
10	Door-to-door sales workers, news and street vendors, and related workers

Note: The jobs that survey respondents report the highest and lowest net growth (%) by 2030.

Source: World Economic Forum, (2025). *Future of Jobs Report 2025*.