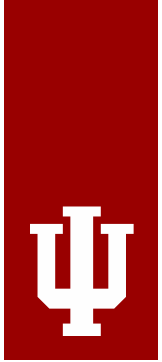

Building Capacity for Preservice CS Education in Indiana

INDIANA UNIVERSITY BLOOMINGTON

Welcome, Educator Preparation Programs!

BCPCS Fall 2024 Summit

In the Room

Who Are We?

- Name, organization, role
- What's one recent "Aha!" or crazy moment for you relating to computer science education? Anything at all!

Learning Technologies

Looking Ahead

CS Education

Status and Needs

What has been discovered?

Needs Analysis Report

Needs Analysis

1. **Purpose:** To examine the needs of elementary teacher education programs in Indiana with regards to integrating Computer Science (CS) standards/content into their curricula

2. **Method:** 5-item survey and 30-minute semi-structured interviews

    - 115 teacher educators representing 65 elementary teacher education programs in Indiana

        - 35 Responses and 24 fully completed surveys (21% completion rate)

    - Interviewed nine faculty members representing eight elementary teacher education programs in Indiana

Survey Results: Summary

Question Items	Responses
Covering the Indiana K-8 CS standards in Elementary Teacher Education Program	*75% indicated "yes", 21% "no"*
Covering the Indiana K-8 CS standards in courses/experiences required for teacher ed.	*83% indicated "yes"*
How the Indiana CS K-8 standards are covered	*Methods courses 83%, Educational technology 50%*

Survey Results: Summary

Question Items	Responses
Curriculum resources used	Specific: *Code.org (55%); Scratch (50%); Hour of Code (33%)* Strategies: *Plugged activities (50%); Unplugged activities (50%); Integrating into field experiences/practicum (39%)*
Barriers	Teacher Educator barriers: • Lack of time (72%); Lack of faculty with CS knowledge (50%); Lack of faculty interest (39%); Lack of professional development opportunities (39%) Preservice teacher barriers: • Lack of awareness of importance of CS (39%); Lack of opportunities to integrate CS during student teaching (44%)

Interview Results: Strategies

They take an existing folk tale, and they use … choose your adventure builder. … They learn about how things are abstracted, … CT (FA02, line 36-40)

I try to connect with creative computing out of Scratch (FA04, line 25-26)

Unplugged activities, Code.org (FA01, line)

Integrating CS with other courses taught in the program, and other disciplines (engineering, science, literacy)

Implementing existing curriculum and resources, or creating new resources

Interview Results: Authentic Experiences

How much experience they get in the field is I image the cooperating teacher dependent. (FA01, line 132-133)

Partnering with elementary schools

When they go out to the field … and work with .. 2nd graders … once they start seeing how smart those kids are, our kids get excited. (FA04, 206 – 209)

Providing more real-world experiences to pre-service teachers

We want our students to understand that we are trying to solve real-world problems. (FA04, line 76-78)

Providing authentic problem solving opportunities

Interview Results: Challenges

I don't have a full grasp of what it looks like. I would like to see concreate examples of how other faculty members around the state are doing that. (FA01, line 251-253)

Leadership, … As a leader need to coordinate with other faculty members. (FA03, line 50-59)

Hard enough time documenting the candidates use of technology in the field, so, the answer is "No'. (FA02, line 61-62)

Pedagogical content knowledge	Leadership support	Authentic settings to apply knowledge

Recommendations

1. Integrate CS in methods courses to address CS standards and provide opportunities for preservice teachers to be introduced to teaching CS in elementary grade levels.

2. Create environments for preservice teacher educators and faculty members, to learn CS, and access professional development and other resources can improve the implementation of CS and CS standards into their Elementary Preservice Teacher Preparation Programs.

3. Collaborate with in-service teachers to facilitate providing preservice teachers with real-world learning opportunities through field experiences and student teaching practicums.

To Access Full Report:

bit.ly/IDOE4CSteachered

Next Steps

Elementary Teacher Needs Analysis

New Needs Analysis Project

1. **Purpose:** To examine the needs of elementary teachers in Indiana with regards to integrating Computer Science (CS) standards/content into their curricula

2. **Method:**

    - Survey focusing on:

        - CS Standards (awareness of standards and who teaches them)

        - CS Curriculum Resources (what resources do teachers use)

        - Barriers to Teaching CS

    - Follow-up interviews with teachers

Timeline

October 2024 – December 2024:

- Complete development of survey instrument and receive feedback
- Distribute survey to elementary teachers in Indiana
- Analyze survey data

January 2025 – May 2025

- Conduct teacher interviews and collect artifacts
- Analyze interview data
- Complete analysis report

Feedback

1. Please provide feedback and suggestions to draft survey:
    - What else do we want to know?
        - Link to Survey
        - Url: https://tinyurl.com/INCSeducation
2. What are the best way to access participants?

What Works?

Curating Our CS Wins

Separately & together, we are making progress.

Let’s Document Progress

https://padlet.com/sdrumm1/BCPCS

Celebrating CS!


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Create equitable access to computer science curriculum and experiences for all K-12 Indiana students.

AGENDA

- Where We Have Been
- Where We Are Now
- What's Next

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NOVEMBER 7, 2017

STATUS OF K-14 COMPUTER SCIENCE EDUCATION IN INDIANA

LANDSCAPE REPORT

ECEP

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ELEMENTARY

Indiana has CS K-8 standards, which is an excellent start to K-12 computer science education. Project Lead the Way's Launch Engineering curriculum in 192 elementary schools does include some computer science and provides teacher training. However, since most elementary teachers and principals in the state have not had experience with computer science, it will likely be need significant amounts of support (with curriculum, resources, and professional development).

Specific Recommendations:

- **DOE:** Move grade bands of standards to align with current science testing schedule
- **CSforIN:** Identify curriculum and resources for elementary use
- **CSforIN:** Use materials from CSforAll to guide districts to select and implement curriculum and professional development

STATUS OF K-12 COMPUTER SCIENCE EDUCATION IN INDIANA

- **GOV:** Provide funding for professional development and curriculum development for teachers
- **CHE:** Embed computer science into pre-service elementary teacher preparation programs.

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MIDDLE SCHOOL

There is one course code for engineering course and one digital citizenship course as an option, but most of these do not include CS curriculum. In the 36 (5.3%) middle schools that offer PLTW middle school engineering, they have the option to select to select computer science modules. There should be a middle school computer science course code created. To incentivize more schools to offer computer science at the middle school level, we could leverage State CTE funding to incentivize middle schools to offer CS courses. The Introduction to Computer Science course could be recommended for 9th grade and identified as a CTE introductory course that receives $300 per student. If it is a 9th grade course, there are options to offer it at a middle school level.

Specific Recommendations:

- **GOV:** Provide funding for professional development and curriculum development for teachers
- **CSforIN:** Use materials from CSforAll, NexTech, PLTW, and others to guide districts to select and implement curriculum and professional development
- **DOE:** Create new middle school course for computer science (not just the high school option of Introduction to Computer Science).
- **DOE/DWD/CTE:** Enable Introduction to Computer Science to be listed as eligible for state funding at the middle school level (currently only available for Preparing for College and Career, Introduction to Engineering Design, and Introduction to Agriculture, Food and Natural Resources).
- **CHE:** Embed computer science into pre-service teacher preparation programs.

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HIGH SCHOOL

Specific Recommendations:

- **DOE/LEG:** Require schools to make computer science courses available to ALL students across Indiana and put this in course catalog.
- **DOE:** Create incentives for high schools to offer CS, perhaps incorporating CS into AHD or THD (as directed electives or as AP/dual enrollment).
- **CSforIN/DOE:** Examine strategies associated with requiring all high schools to offer CS.
- **DOE/DWD/CTE:** Enable Introduction to Computer Science, AP CS-A, and AP CS Principles to be listed as eligible for per-pupil state funding.
- **CSforIN:** Work on strategies to reach a broader population and encourage the enrollment of underrepresented populations in CS (especially rural, women, black, and Hispanics)
- **CSforIN:** Work with local colleges and universities to offer major specific credit for AP CS-A and AP CS-P.

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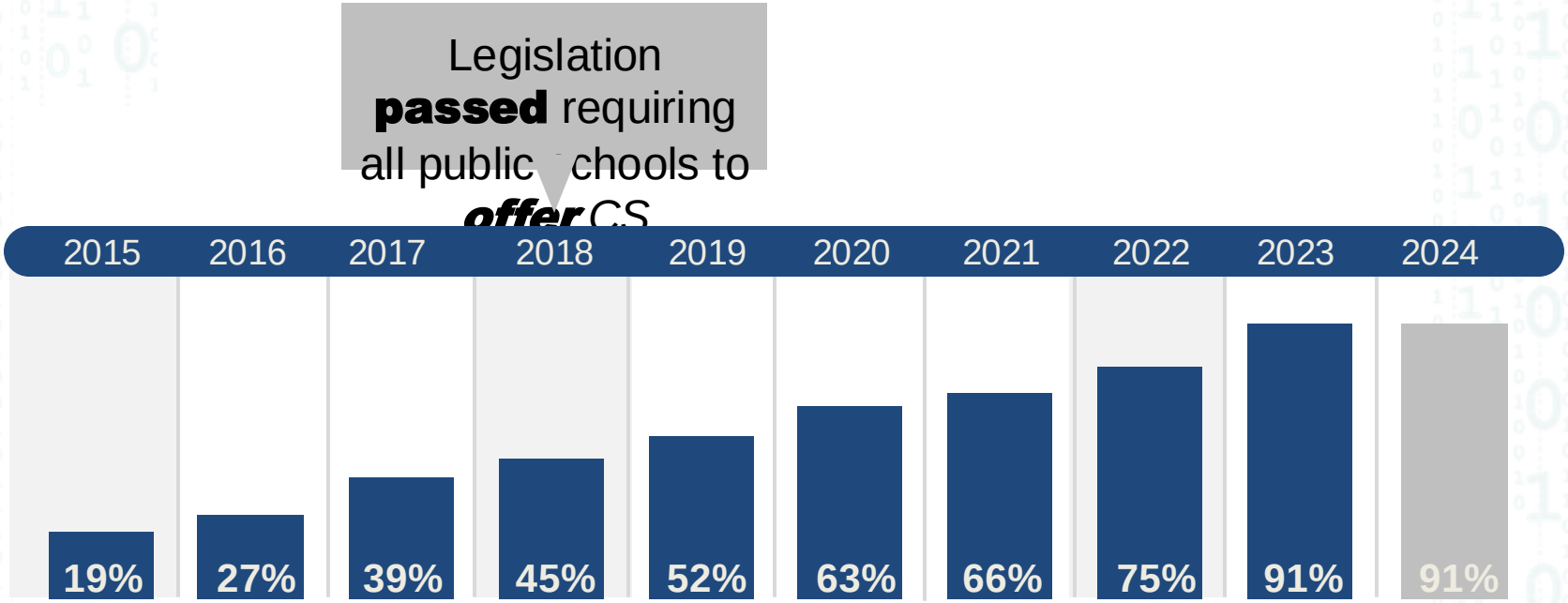

% of Indiana High Schools Offering Computer Science

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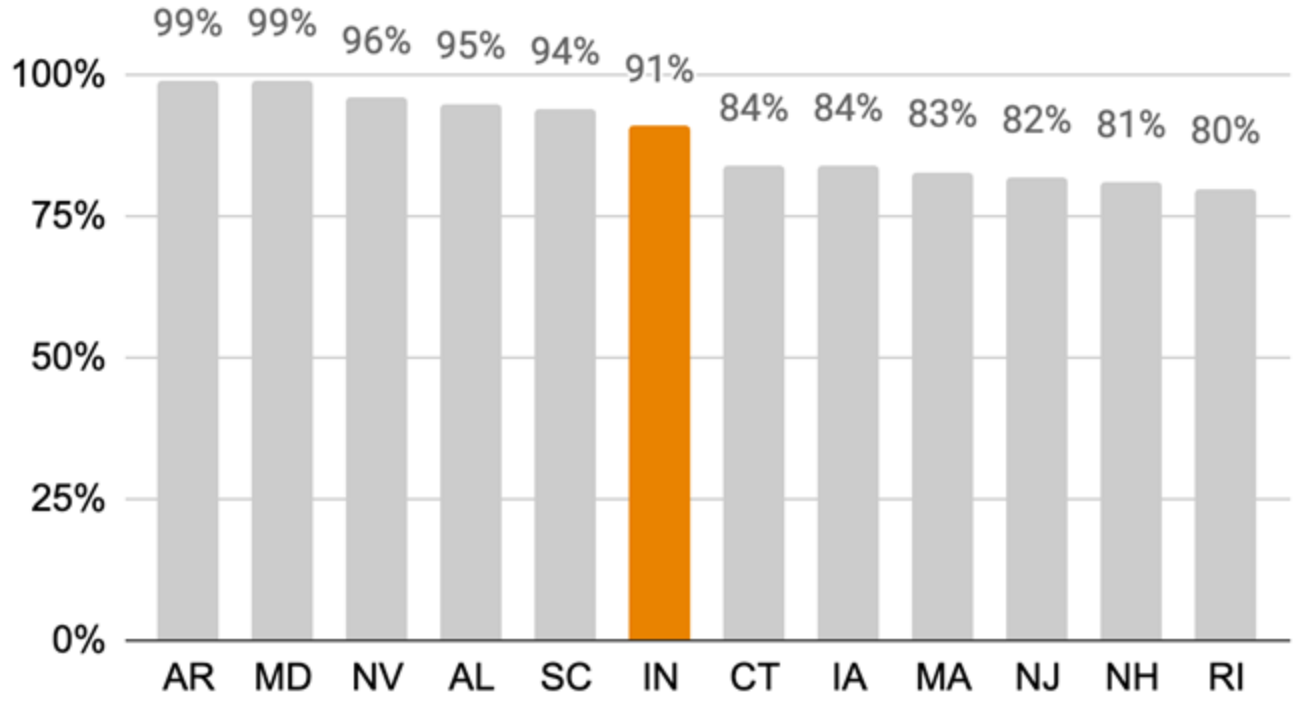
Indiana State Ranking - 2023



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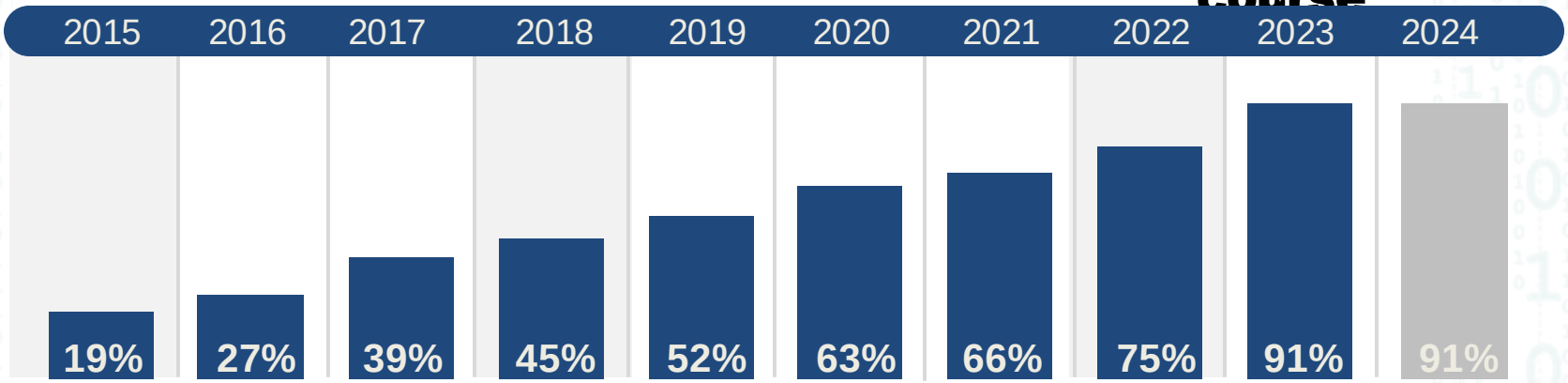
Only **6%** of Indiana students **completed a CS course**



% of Indiana High Schools Offering Computer Science

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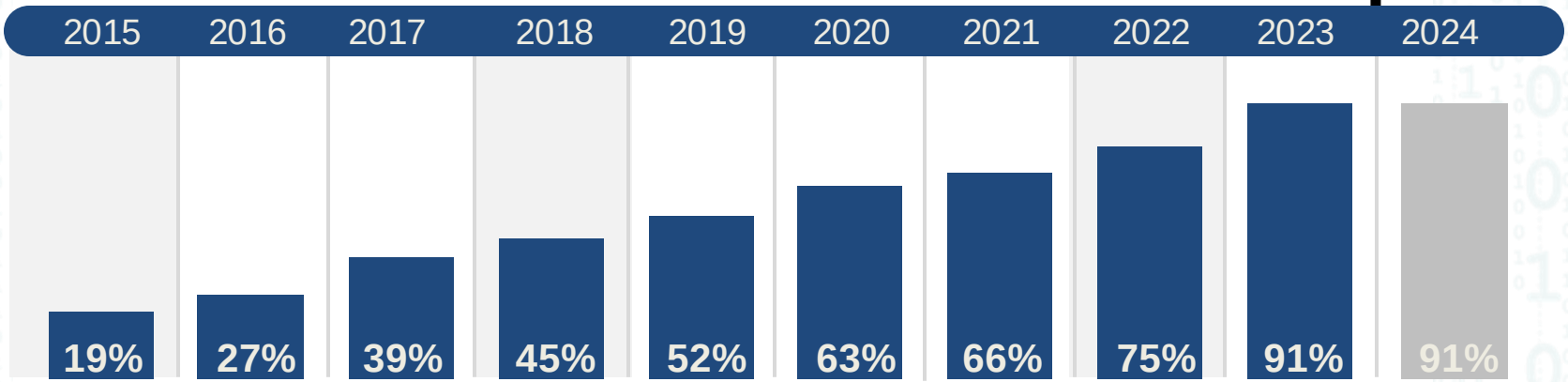
Legislation passed to make **CS a Graduation Requirement**



% of Indiana High Schools Offering Computer Science

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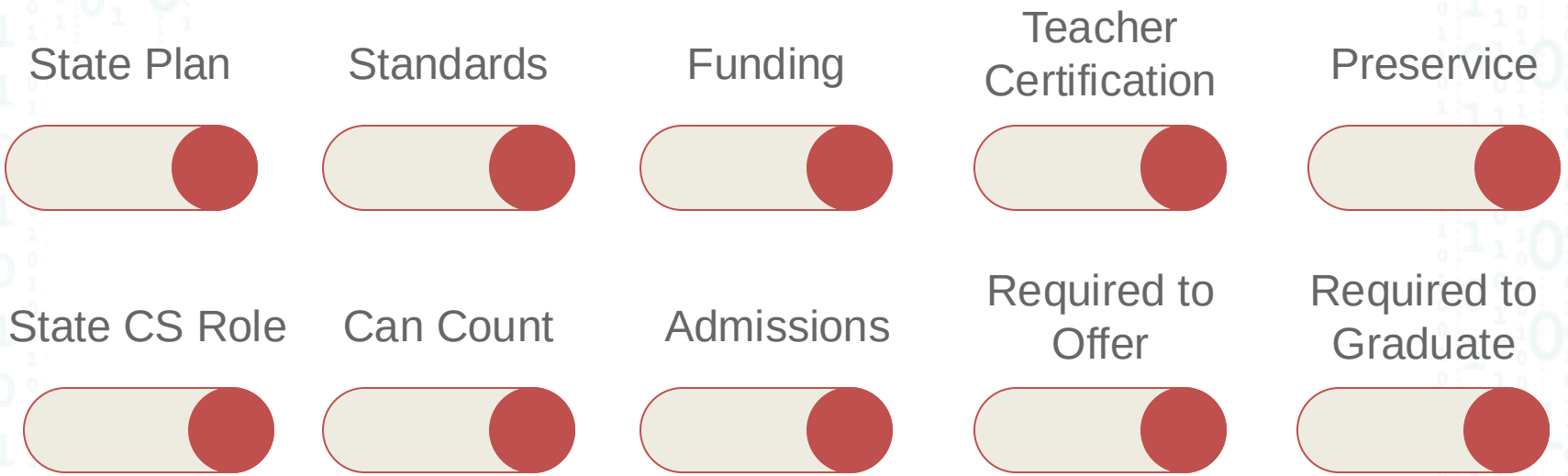
Recommended Policy Implementation



Funding

- More than $18 million in Computer Science since 2018
- $4 million in robotics
- $10 million every two years into STEM (including CS) Teacher Recruitment and Training

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Teacher Certification

- **Computer Science Praxis Exam for PK-12 Computer Science**
- **Integrated STEM Praxis Exam**
- **I-STEM Network for Teacher Certification**

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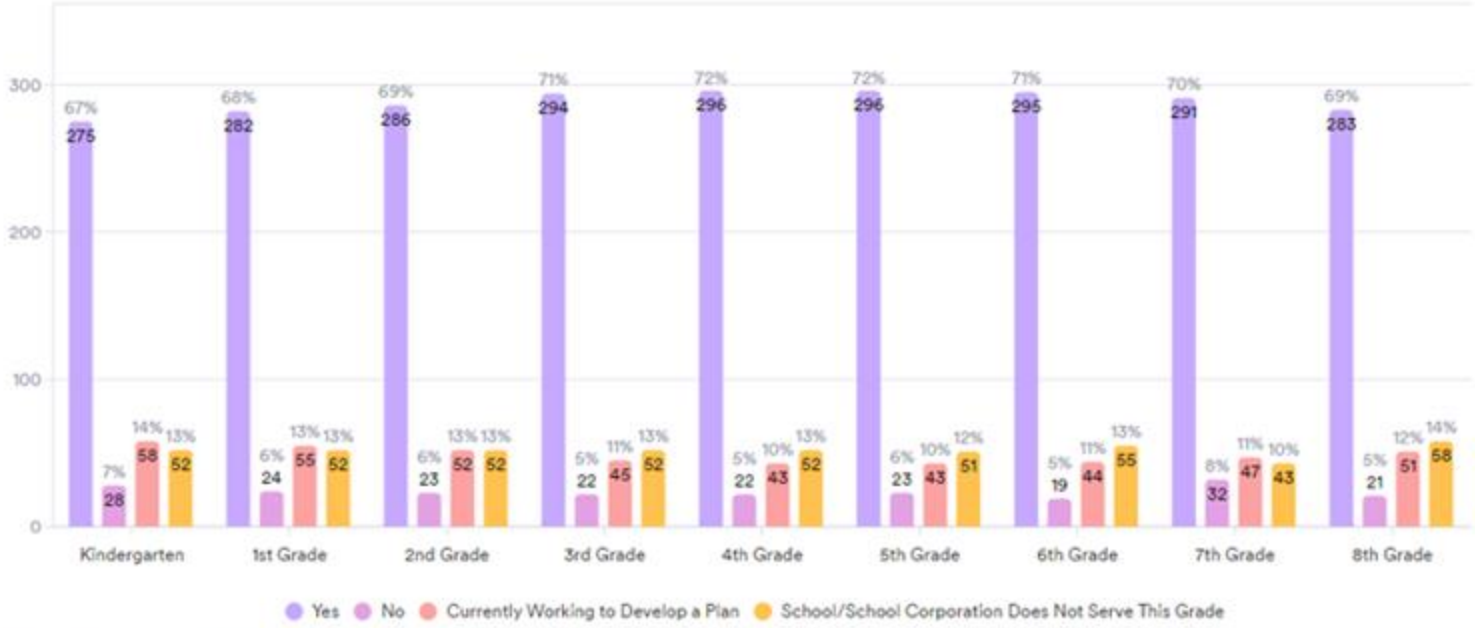
Where does CS instruction take place at the following grade levels?

413 Responses

K-8 STANDARDS BASED CS INSTRUCTION

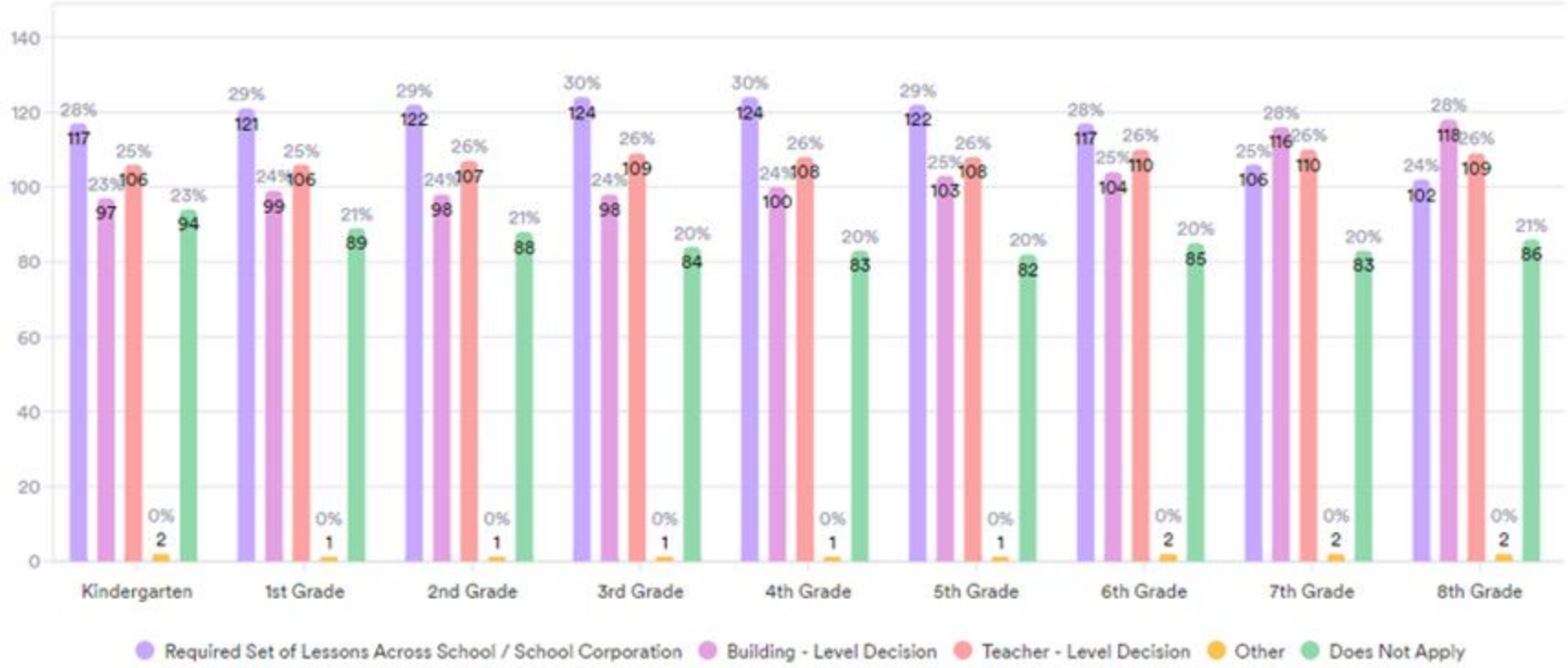
Do all students in your school/school corporation receive standards-based computer science (CS) instruction at the following grade levels?

413 Responses



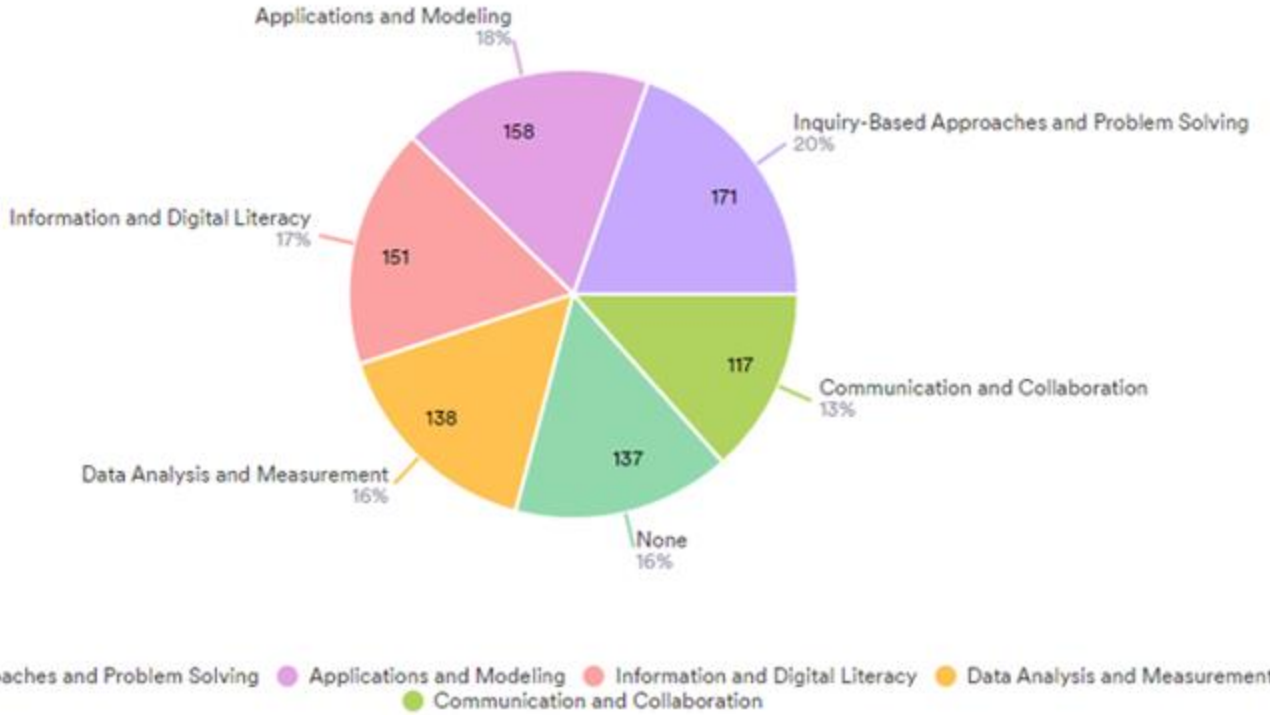
What is your primary CS implementation strategy at the following grade levels?

413 Responses



Which domain(s) of the integrated STEM standards do you need support/resources in implementing?

872 Responses



AGENDA

- Where We Have Been
- Where We Are Now
- What's Next

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1998	2018
Google filed for Incorporation	59,898 Google Searches Every Second

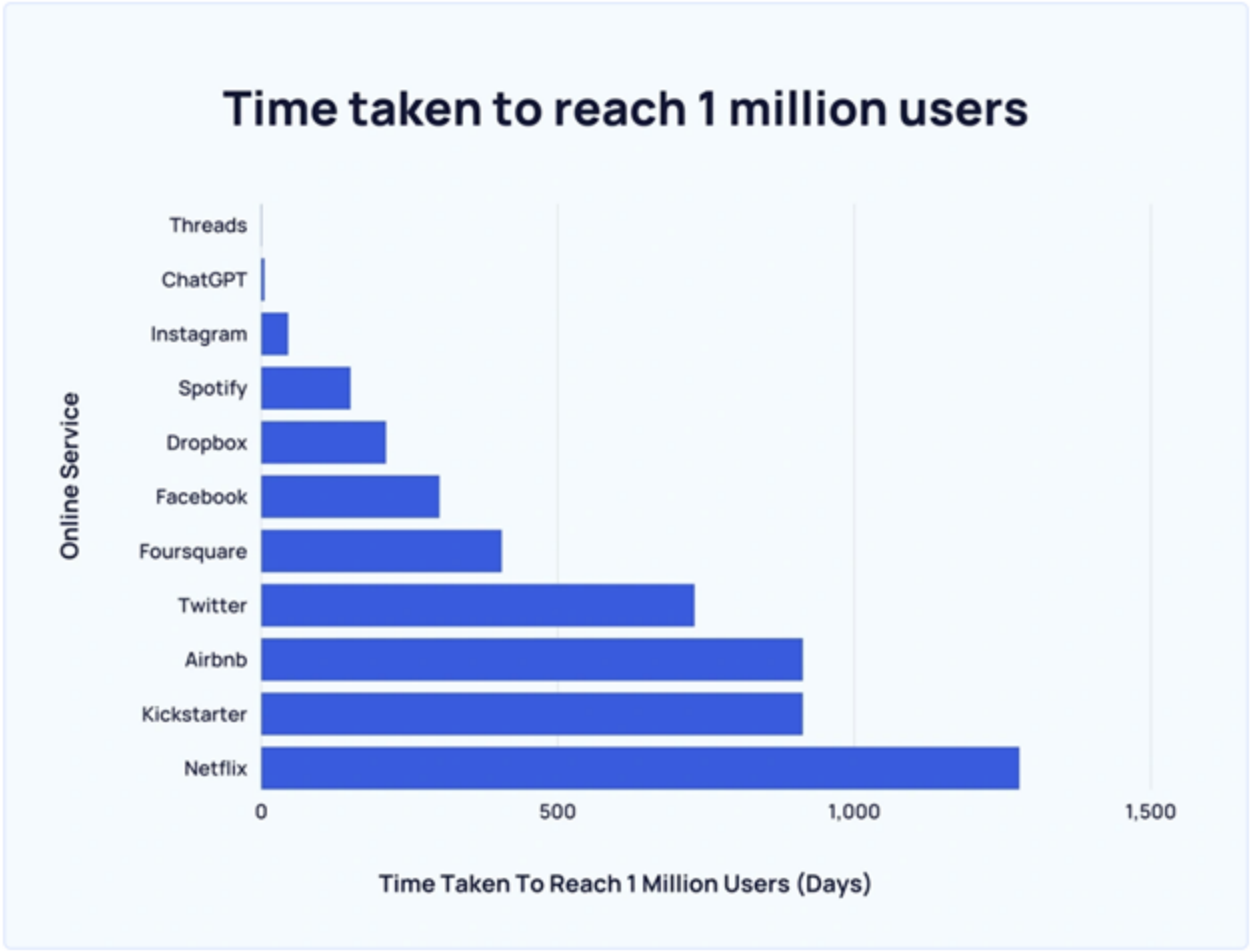
1998	2018
Don't get in strangers cars or meet people from the internet	Summon strangers from the internet and get in their cars

2022

ChatGPT was launched on November 30, 2022

2024

At it’s peak in April 2024, ChatGPT received 1.8 Billion monthly users.


Time taken to reach 1 million users
Online Service
Threads
ChatGPT
Instagram
Spotify
Dropbox
Facebook
Foursquare
Twitter
Airbnb
Kickstarter
Netflix
0
500
1,000
1,500
Time Taken To Reach 1 Million Users (Days)

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What's Next

- **Reimagining CS:** Every student prepared for a world powered by computing

- **TeachAI & AIforK12:** Every student prepared for a world powered by computing through AI

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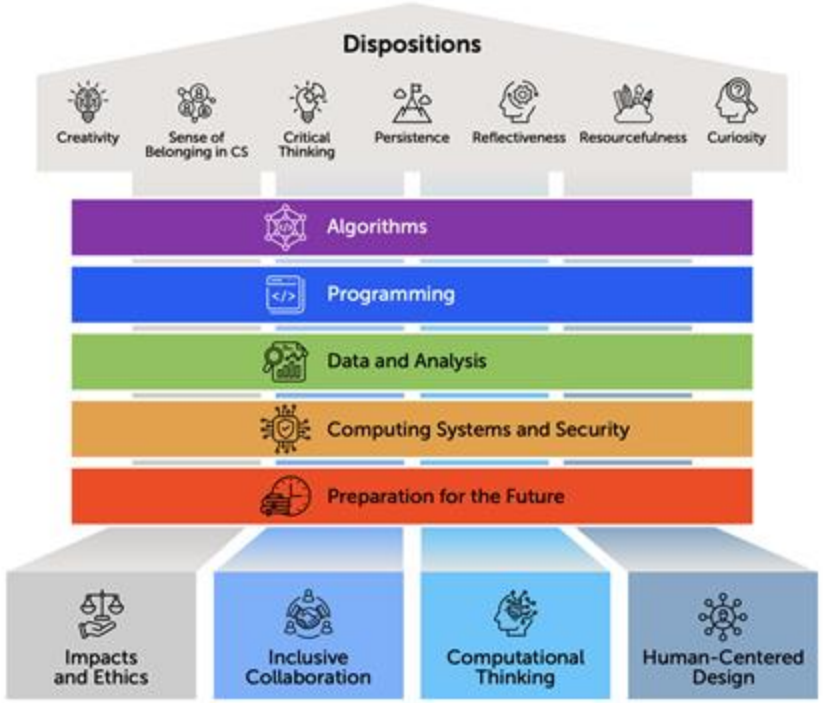
Reimagining CS

A collaborative effort spearheaded by the Computer Science Teachers Association & the Institute for Advancing Computer Education, alongside the College Board, Code.org, ECEP, ACM, and CSforAll.

The project articulates what CS content is essential for all high school graduates to know to live in a world powered by computing.



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8.4 Recommendations for Curriculum Providers, PD Providers, and School of Education Faculty

Curriculum providers and PD providers play a crucial role in providing learning experiences and teaching strategies for teachers. Similarly, preservice teaching faculty in schools of education share a role in developing the knowledge and skills of preservice teachers.

Role	Recommendations
Curriculum Providers	A. Develop both discrete and integrated curricula that align to the foundational CS content, including Dispositions and Pillars. In particular, include content related to: i. Ethics and impacts of computing ii. Inclusive collaboration B. Develop advanced curricula that align to content progressions and example pathways and that integrate the Pillars.
PD Providers	A. Provide professional learning that supports reimagined CS, the foundational CS content, and example pathways (e.g., develop content that includes emerging areas, fosters Dispositions, integrates with other subject areas, and/or fosters an inclusive classroom environment). In particular, include content related to: i. Ethics and impacts of computing ii. Inclusive collaboration
School of Education Faculty	A. Develop faculty's knowledge and skills related to K-12 CS education, particularly as the foundational content and revised standards are implemented. B. Develop or update programs to prepare K-12 CS teachers that align to the revised CSTA K-12 Standards including relevant pedagogical content knowledge. (See CSTA's Schools of Education Guidance.) C. Include foundational CS content in required coursework. D. Support preservice teachers of all disciplines in understanding connections between CS and their primary discipline (and how they might integrate CS into their instruction).

School of Education Faculty	A. Develop faculty's knowledge and skills related to K-12 CS education, particularly as the foundational content and revised standards are implemented. B. Develop or update programs to prepare K-12 CS teachers that align to the revised CSTA K-12 Standards including relevant pedagogical content knowledge. (See CSTA's Schools of Education Guidance.) C. Include foundational CS content in required coursework. D. Support preservice teachers of all disciplines in understanding connections between CS and their primary discipline (and how they might integrate CS into their instruction).

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AIforK12

- Develop national guidelines for teaching AI in K-12
  - Modeled after the CSTA standards for computing education.
  - Four grade bands: K-2, 3-5, 6-8, and 9-12
  - What should students know?
  - What should students be able to do?
- Develop a curated AI resource directory for K-12 teachers
- Foster a community of K-12 AI educators, researchers, and resource developers

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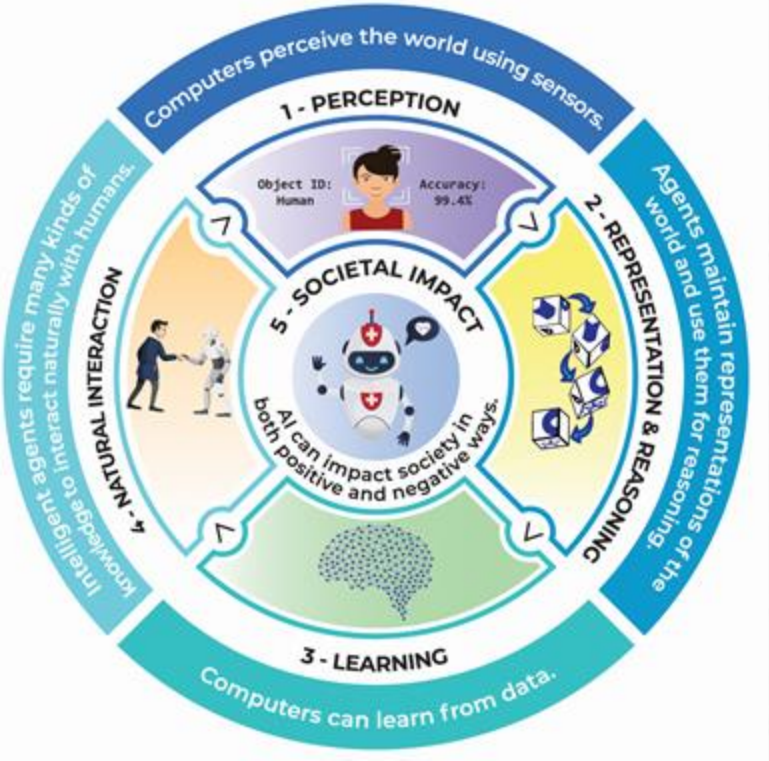
Five Big Ideas in AI

1. **Perception:** Computers perceive the world using sensors.
2. **Representation and reasoning:** Agents maintain representations of the world and use them for reasoning.
3. **Learning:** Computers can learn from data.
4. **Natural interaction:** Intelligent agents require many kinds of knowledge to interact naturally with humans.
5. **Societal impact:** AI can impact society in both positive and negative ways.



5 Essential AI Experiences

1. Train and Use a Machine Learning Model.

1. Build AI applications or Incorporate AI into a CS Project
    a. Using AI plugins, API, extensions in Scratch, Snap!, Python, or other tools

1. Ethical & Responsible Design & Evaluation of AI Technologies
    a. engage diverse users and stakeholders early and often
    b. explore the sources of data and bias
    c. evaluate reasonable conclusions that can be draw and limitations
    d. evaluate the societal impacts of AI-enabled technology on diverse stakeholders and users

1. Use Computational and Systems thinking to Design AI Technologies

1. Master foundational programming skills
    a. reading, tracing, and predicting code outcomes
    b. testing, debugging, and evaluating the correctness of code

Thoughts, Questions, Discussion?

Thoughts, Questions, Discussion?

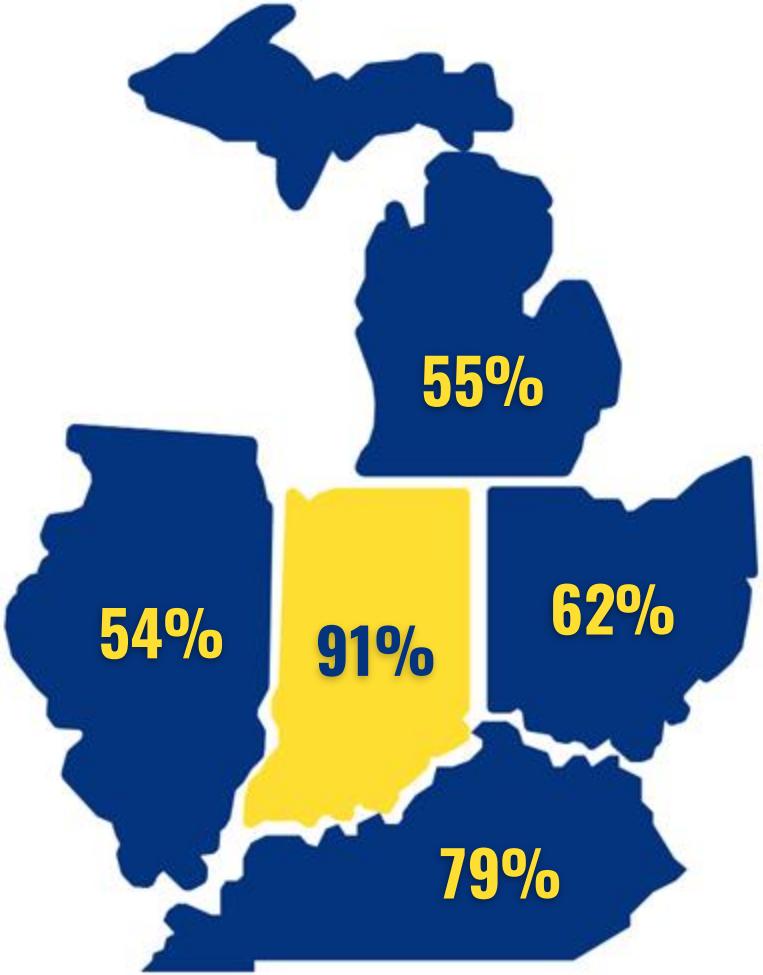

LUNCH
BREAK

IDOE: State of the State

The State of Computer Science in Indiana

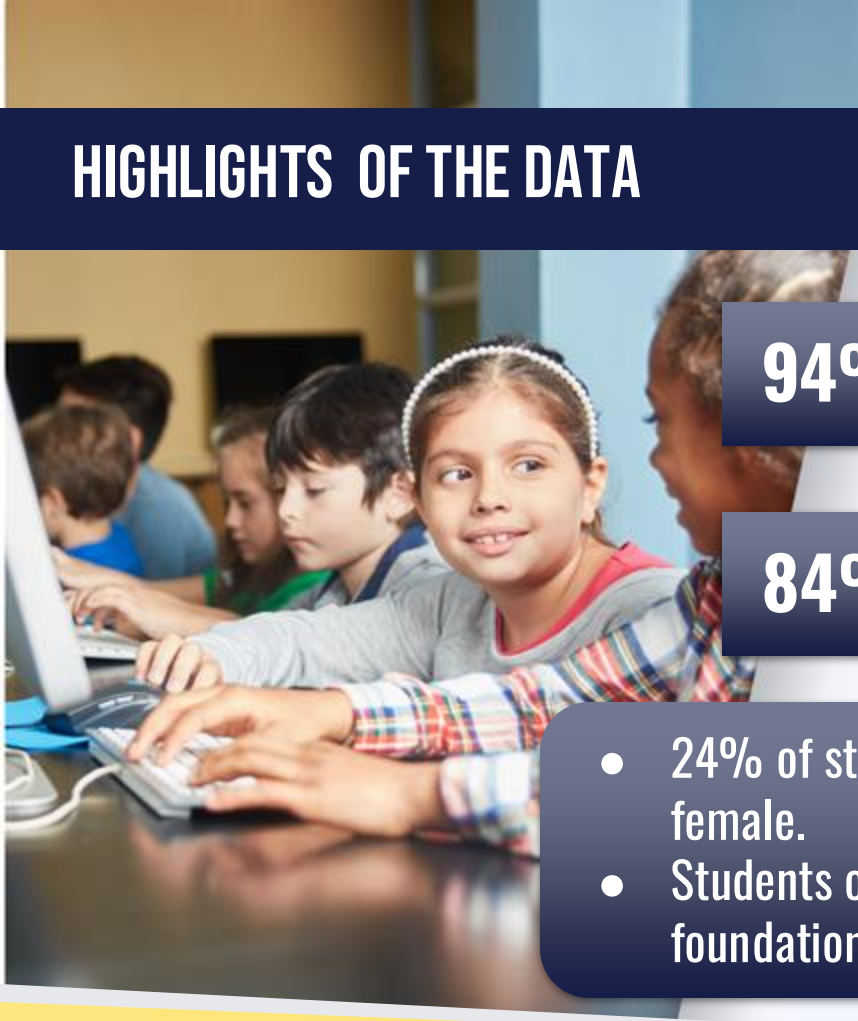
October 11, 2024

@EducateIN



Indiana Leads the Midwest;
Sixth in the Nation in High Schools offering Computer Science.

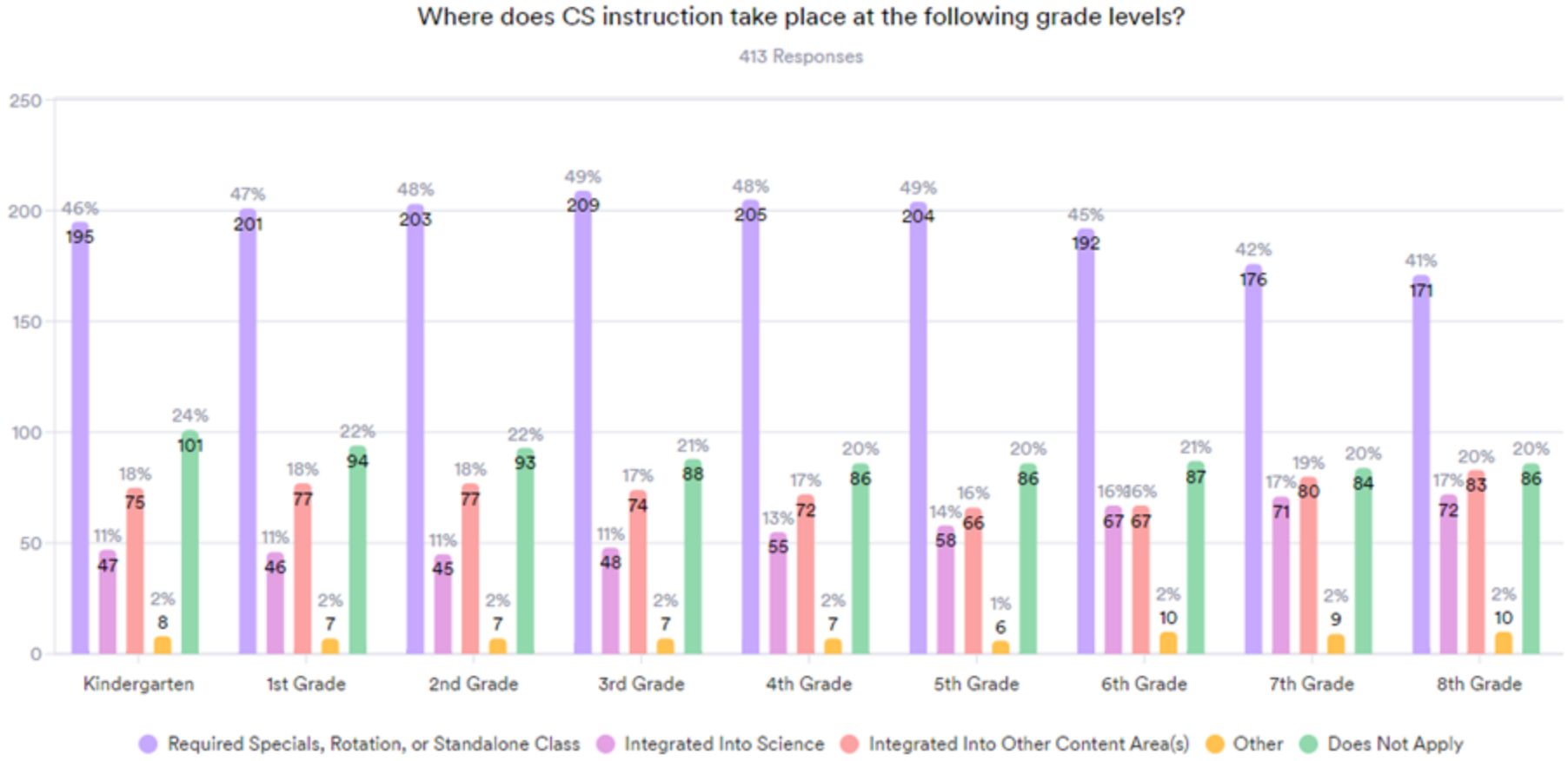
HIGHLIGHTS OF THE DATA



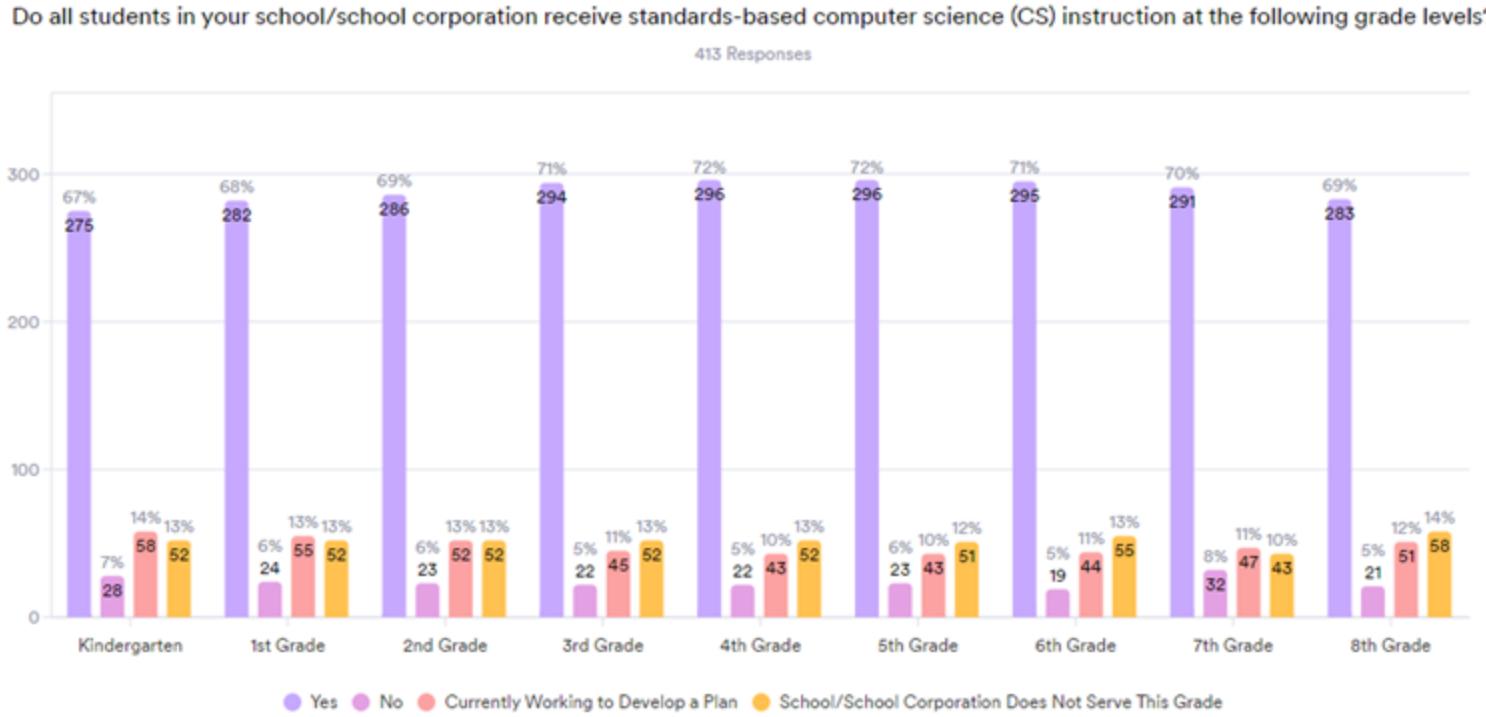
94% Students in 94% of **rural** schools have access.

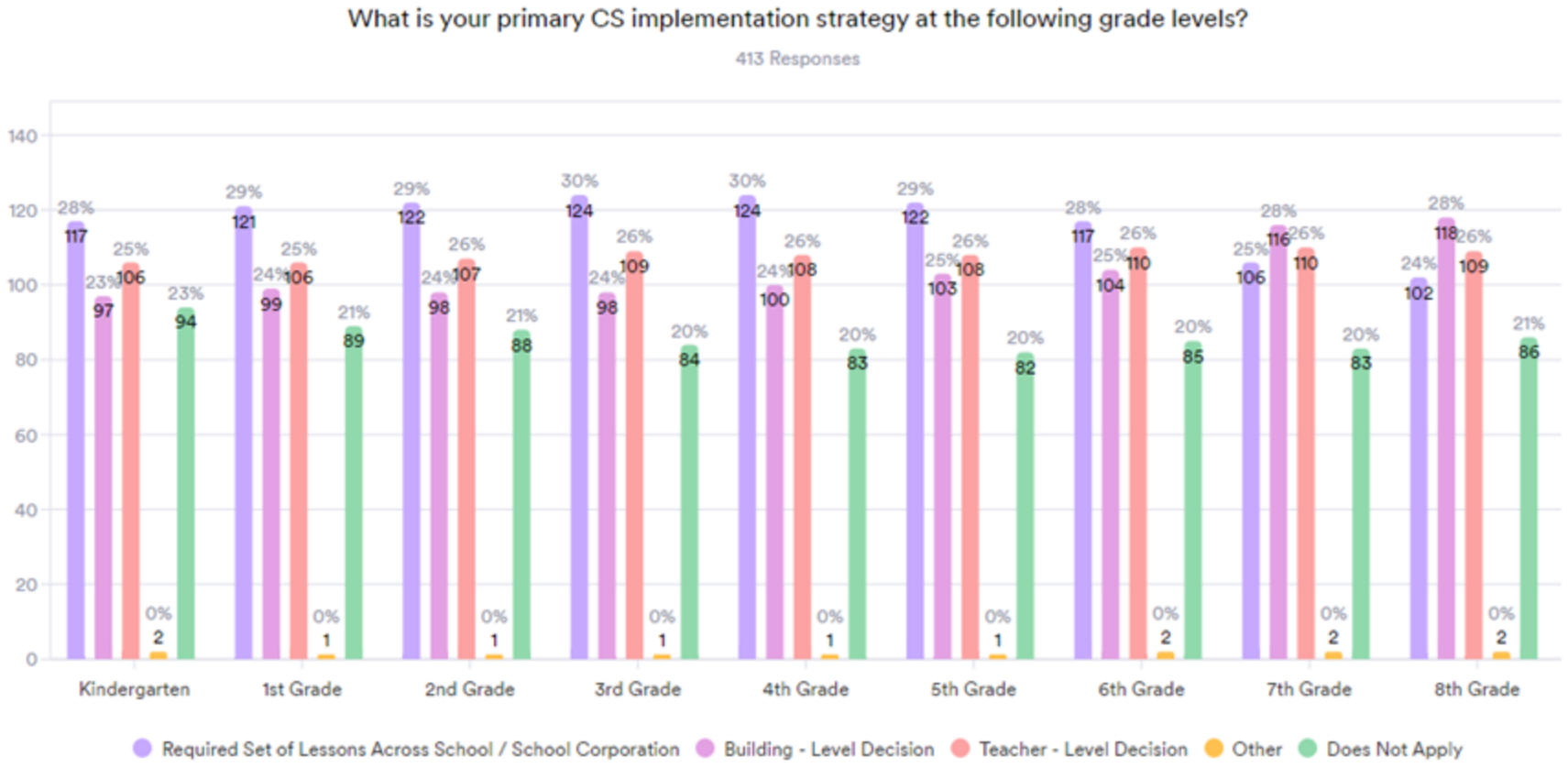
84% Students in 84% of **small** schools have access.

- 24% of students enrolled in computer science in Indiana were female.
- Students of all races and ethnicities are similarly likely to take foundational computer science.


Where does CS instruction take place at the following grade levels?
413 Responses
250
200
150
100
50
0
Kindergarten
1st Grade
2nd Grade
3rd Grade
4th Grade
5th Grade
6th Grade
7th Grade
8th Grade
46% 195
11% 47
18% 75
2% 8
24% 101
47% 201
11% 46
18% 77
2% 7
22% 94
48% 203
11% 45
18% 77
2% 7
22% 93
49% 209
11% 48
17% 74
2% 7
21% 88
48% 205
13% 55
17% 72
2% 7
20% 86
49% 204
14% 58
16% 66
1% 6
20% 86
45% 192
16% 67
16% 67
2% 10
21% 87
42% 176
17% 71
19% 80
2% 9
20% 84
41% 171
17% 72
20% 83
2% 10
20% 86
Required Specials, Rotation, or Standalone Class
Integrated Into Science
Integrated Into Other Content Area(s)
Other
Does Not Apply

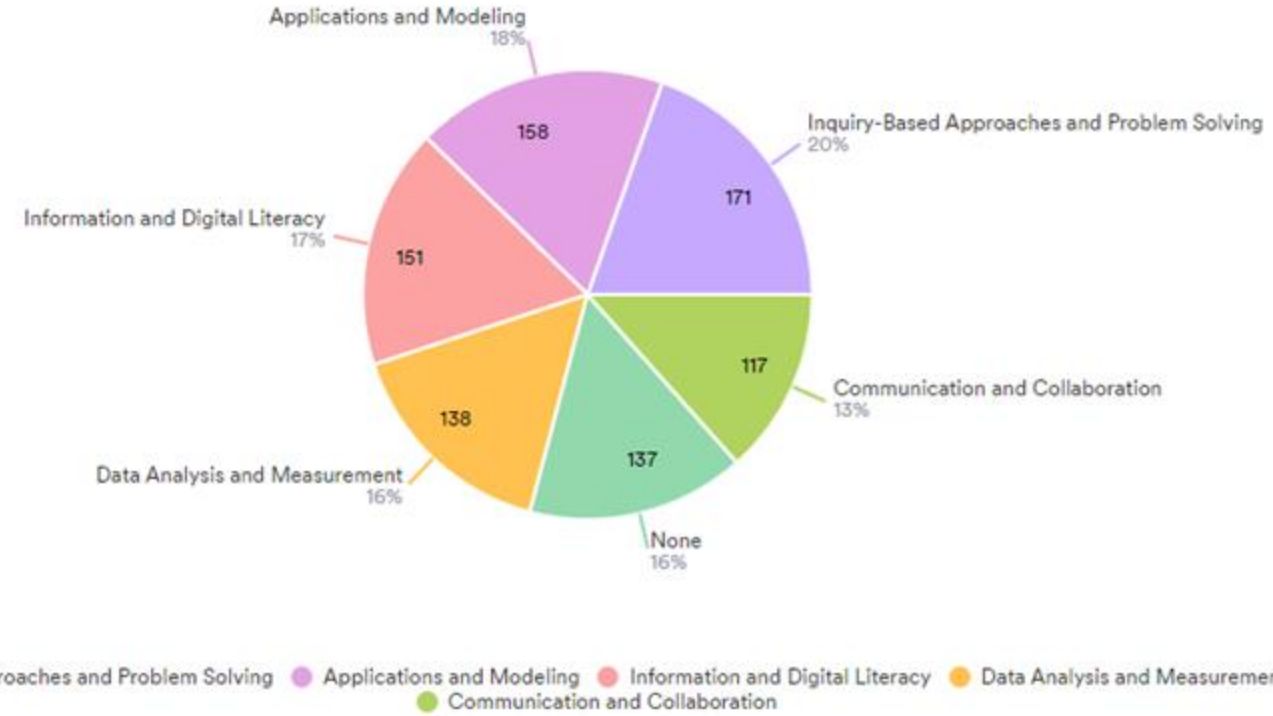
K-8 STANDARDS BASED CS INSTRUCTION




What is your primary CS implementation strategy at the following grade levels?
413 Responses
140
120
100
80
60
40
20
0
Kindergarten
1st Grade
2nd Grade
3rd Grade
4th Grade
5th Grade
6th Grade
7th Grade
8th Grade
28% 117
23% 97
25% 106
0% 2
23% 94
29% 121
24% 99
25% 106
0% 1
21% 89
29% 122
24% 98
26% 107
0% 1
21% 88
30% 124
24% 98
26% 109
0% 1
20% 84
30% 124
24% 100
26% 108
0% 1
20% 83
29% 122
25% 103
26% 108
0% 1
20% 82
28% 117
25% 104
26% 110
0% 2
20% 85
25% 106
28% 116
26% 110
0% 2
20% 83
24% 102
28% 118
26% 109
0% 2
21% 86
Required Set of Lessons Across School / School Corporation
Building - Level Decision
Teacher - Level Decision
Other
Does Not Apply

Which domain(s) of the integrated STEM standards do you need support/resources in implementing?

872 Responses



Computer Science Standards

STANDARDS IMPLEMENTATION TIMELINE

Implementation Timeline:
Updated Indiana Academic Standards for Science & Computer Science

SBOE Approval
June 2023

Implementation
School Year
2023-2024

Assessment
School Year
2023-2024

2023 K-8 CS STANDARDS

Notable Updates: K-8 CS IAS

- Strong alignment with CSTA Standards
- Learning outcomes for each core concept
- Standards identified as **Essential (E)**
- Refined vertical alignment

K-8 COMPUTER SCIENCE STANDARDS

The Indiana Academic Standards for K-8 Computer Science were adopted by the Indiana State Board of Education in June 2023 to be implemented during this past (2023-2024) school year.

The K-8 Computer Science are grade banded and assessed as part of the ILEARN science assessments in grades four and six.

As students move through grade levels, they will work with and experience the standards at grade bands (K-2, 3-5, and 6-8).

STANDARDS CONTINUED

The standards are based on the five core concepts:

1. Data and Information (DI)
2. Computing Devices and Systems (CD)
3. Programs and Algorithms (PA)
4. Networking and the Internet (NI)
5. Impact and Culture (IC)

Integrating the core practices and concepts in computer science learning experiences empowers students to think and communicate as a computer scientist, preparing them to solve real-world problems.

K-8 CS FRAMEWORKS

K-2.CD.1	Use approp
K-2.CD.2	Des
K-2.CD.3	Sel pre

K-2

3-5.CD.1	Mod
3-5.CD.2	Det
3-5.CD.3	Des
3-5.CD.4	Des

3-5

6-8.CD.1	Design projects tha
6-8.CD.2	Systematically iden flowchart).
6-8.CD-3	Recommend impro
6-8.CD.4	Describe what dist use models of intel

6-8

GRADE BAND LANDING PAGE

ORGANIZED BY CORE CONCEPTS

ILEARN ASSESSMENT

SBOE Approval June 2023	Implementation School Year 2023-2024	Assessment School Year 2023-2024

- CS standards are assessed as part of the ILEARN Grade 4 and Grade 6 Science assessments.
- Grade 4 will cover standards from grade band 3-5.
- Grade 6 will cover standards from grade band 6-8.
- Spring 2024 assessment blueprints and item specifications are available.

CSPDWEEK - PARTNERSHIP FOR SUCCESS

CSTA CSTA Indiana nextech | INDIANA DEPARTMENT of EDUCATION | CSPD WEEK

2022 — 209 K-12 educators participated in the inaugural year.

2023 — Of 306 participants, over 100 teach kindergarten-grade 5 CS.

2024 — Increased enrollment capacity to reach 400 educators.

PROFESSIONAL DEVELOPMENT INFRASTRUCTURE

- Indiana University
- PRISM Project at Rose-Hulman
- CodeHS
- Nextech
- BloomBoard

New Graduation Requirement

BEGINNING WITH THE 2029 COHORT

9 course options with a combination of Principles of Computing and an advanced digital technology course can be used to fulfill the CS requirement, including advanced course options.

Courses must, to the extent feasible, be taught in-person and cover the following areas:

- Algorithms and programming
- Computing systems
- Data and analysis
- Impacts of computing
- Networks and the Internet

BEGINNING WITH THE 2029 COHORT

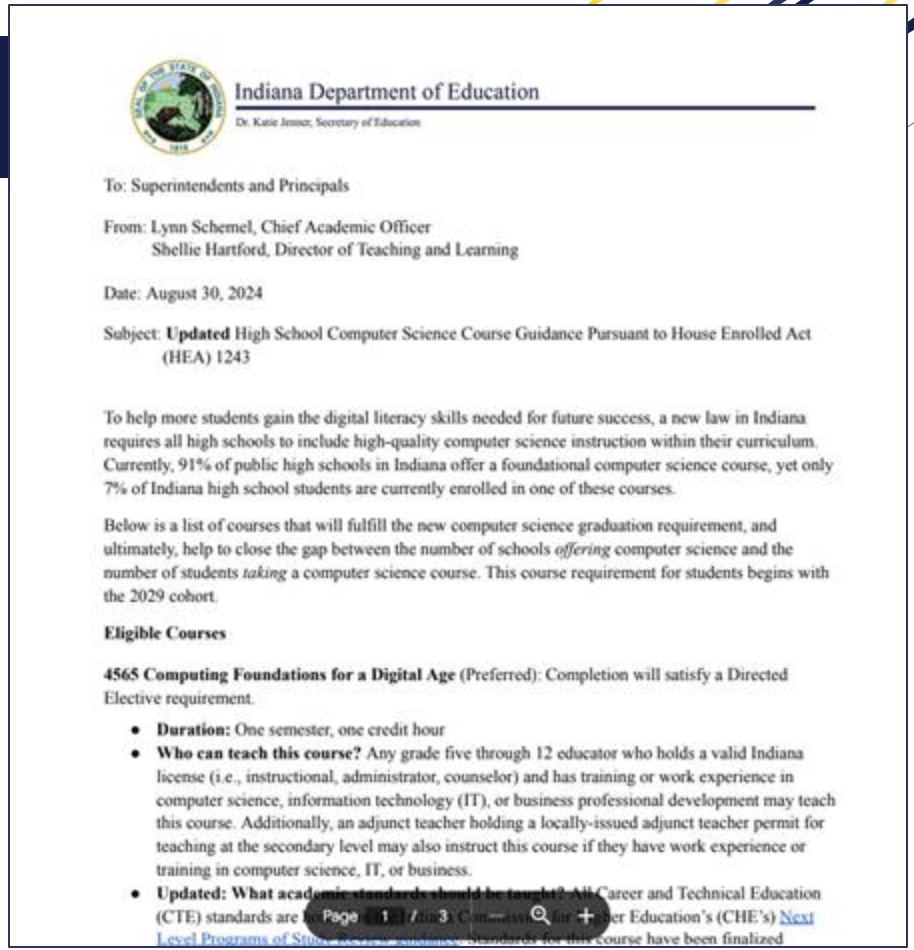
Can be taught in eighth grade or in high school

IDOE has developed a high-quality curricular materials list, which schools can leverage to inform curriculum adoption, instructional practices, and professional development.

**List will be updated in late January/early February 2025*

CS MEMO

Published in Dr. Jenner's newsletter on August 30, 2024. The memo outlines courses to meet the requirements.



Indiana Department of Education

Dr. Katie Jenner, Secretary of Education

To: Superintendents and Principals

From: Lynn Schemel, Chief Academic Officer
Shellie Hartford, Director of Teaching and Learning

Date: August 30, 2024

Subject: **Updated** High School Computer Science Course Guidance Pursuant to House Enrolled Act (HEA) 1243

To help more students gain the digital literacy skills needed for future success, a new law in Indiana requires all high schools to include high-quality computer science instruction within their curriculum. Currently, 91% of public high schools in Indiana offer a foundational computer science course, yet only 7% of Indiana high school students are currently enrolled in one of these courses.

Below is a list of courses that will fulfill the new computer science graduation requirement, and ultimately, help to close the gap between the number of schools *offering* computer science and the number of students *taking* a computer science course. This course requirement for students begins with the 2029 cohort.

Eligible Courses

4565 Computing Foundations for a Digital Age (Preferred): Completion will satisfy a Directed Elective requirement.

- **Duration:** One semester, one credit hour
- **Who can teach this course?** Any grade five through 12 educator who holds a valid Indiana license (i.e., instructional, administrator, counselor) and has training or work experience in computer science, information technology (IT), or business professional development may teach this course. Additionally, an adjunct teacher holding a locally-issued adjunct teacher permit for teaching at the secondary level may also instruct this course if they have work experience or training in computer science, IT, or business.
- **Updated: What academic standards should be taught?** All Career and Technical Education (CTE) standards are [illegible] Education's (CHE's) Next Level Programs of Study [illegible] standards for this course have been finalized

Page 1 / 3

The “T” in STEM

CS is the ‘T’ in STEM

S Scientific inquiry informs the engineering process.

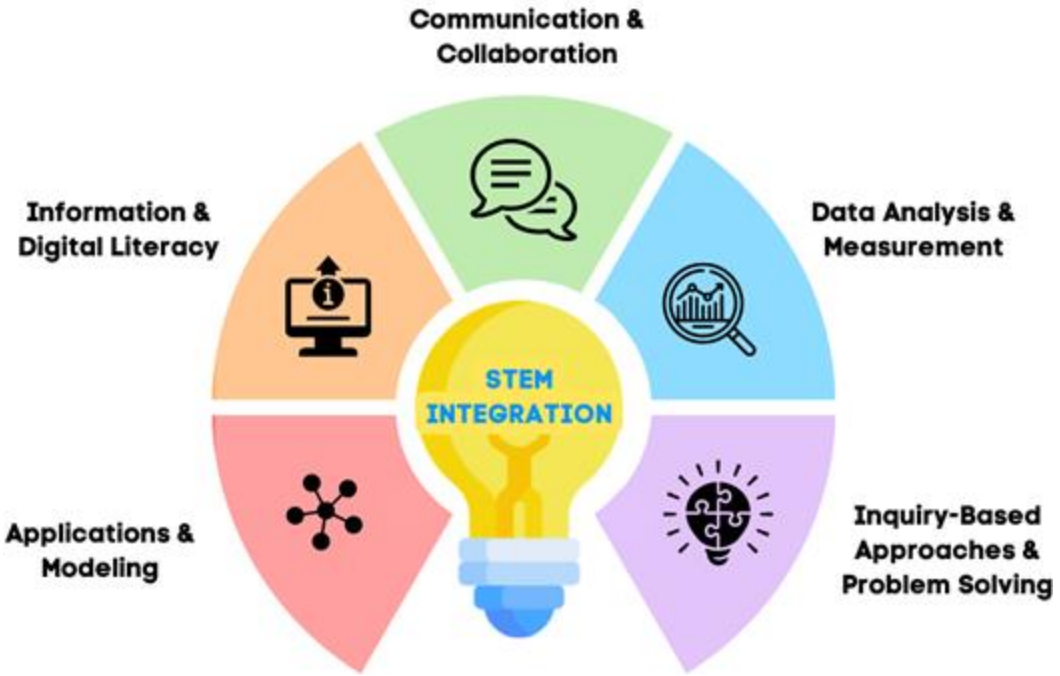
E Design under constraint.

T Humans create technology to satisfy wants and needs.

M Study of relationships among quantities, numbers, and space.

Artificial Intelligence | Robotics | Data Science

K-12 INTEGRATED STEM STANDARDS INCLUDE CS



Integrated STEM Standards:

- Lean into the K-8 student practices in science and CS.
- Apply computational thinking in modeling and data analysis.
- Highlight the importance of CS as a STEM discipline.

I-STEM: SCIENCE, TECHNOLOGY, ENGINEERING, & MATH

- Partnership with the Education Service Centers of Indiana to strengthen our ***STEM*** teacher pipeline
- Participating classroom teachers integrating Indiana's new STEM standards into their instruction and/or teaching a STEM subject may be eligible to receive a **stipend.**
- **1100+ people currently enrolled since the launch in June 2023!**

Visit Keep Indiana Learning for more details!

I-STEM

Indiana STEM Educator Expansion

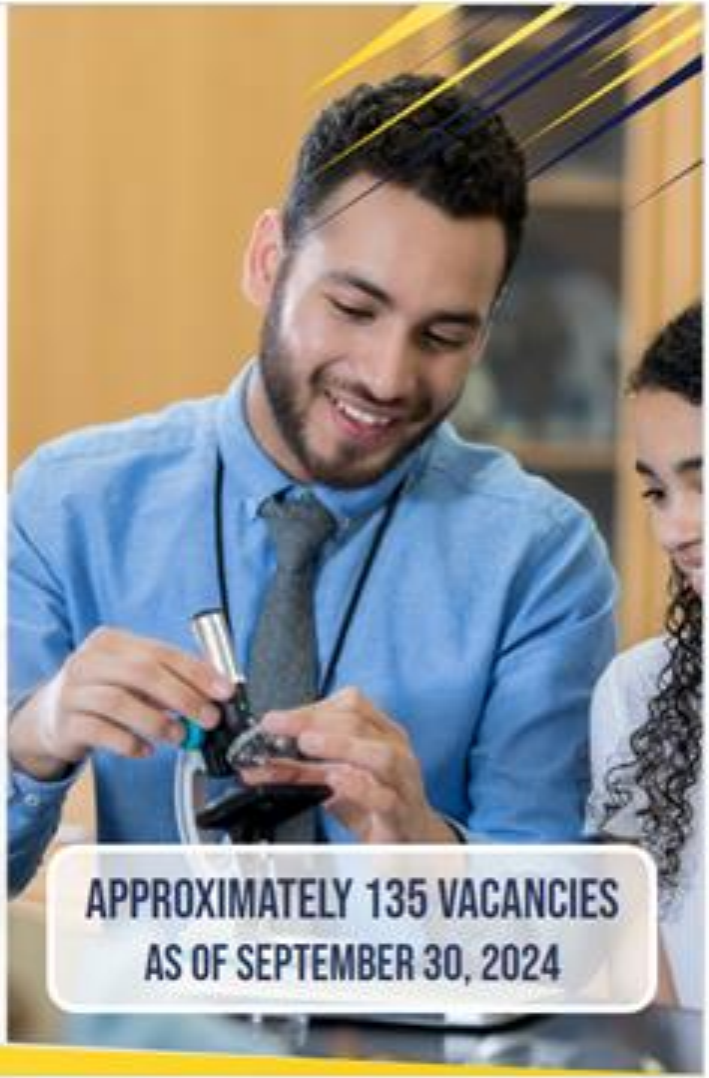
ESCI

INDIANA DEPARTMENT OF EDUCATION

Over 1,100
Currently Enrolled

Over 375
Completions

- Designed to *increase* the number of qualified STEM teachers
- Funds **tuition, books,** and **material fees** for **current educators** and **bachelor's degree holders** to become licensed to teach STEM
- **Additional stipends** are also available to incentivize employment in rural districts, etc.



@EducateIN

AI

AI Literacy

Educators and leaders have the power to alter the landscape of preparing students for their future in an ever-changing, technologically-advancing world.

AI Powered Platform Pilot Grant

AI Platforms	Corporations	Schools	Student Impact
5	36	112	45K

RESEARCH AND REPORTING

CONTINUED AI SUPPORT THROUGH THE DLG

AI Platforms

6

Corporations

35

AI-SUPPORTED ALTERNATIVE EDUCATION

- 7 AI Platforms
- 24 School Corporations
- Student Impact: 5,333
- Educator Impact: 238

ARTIFICIAL INTELLIGENCE LEARNING SERIES

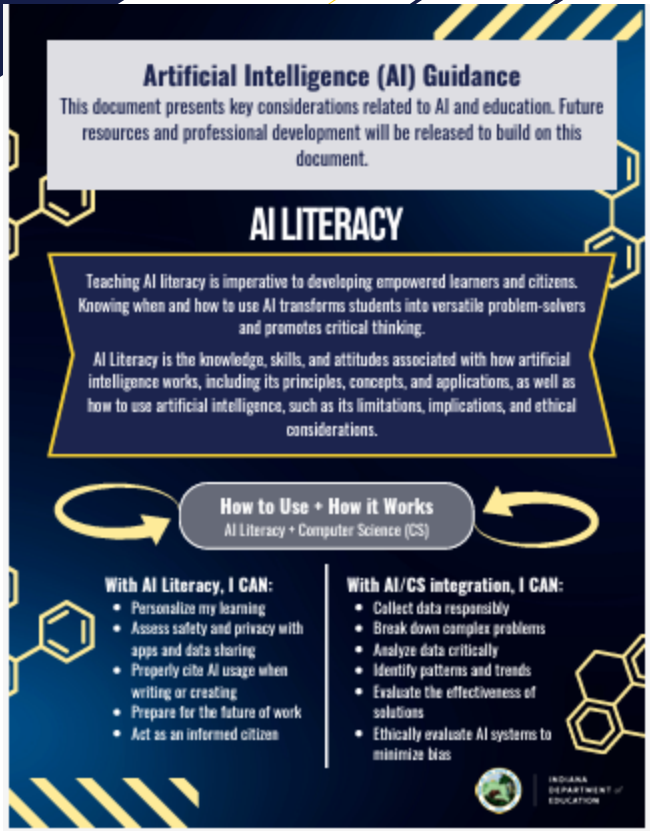
Vendor Presentations on Platforms

Monday, September 30 - Friday, October 4

View On Demand in the Indiana Learning Lab

AI GUIDANCE DOCUMENT

Published in Dr. Jenner's newsletter on April 26. The document outlines areas to consider for both students and educators including resources. Reach out to the IDOE Digital Learning team for more information.



THANK YOU!

CONTACT INFO:
SHELLIE HARTFORD
DIRECTOR OF TEACHING & LEARNING
SHARTFORD@DOE.IN.GOV

Get Involved!

How can I and my campus community get involved?

1. Connect with the Indiana Learning Lab.
2. Invite us to your campus – for preservice teacher workshops.
3. Access and distribute BCPCS resources.

LearningLab

Bringing the Power of the Lab to Indiana's Pre-service Educators

Stephanie Waring

Sr. Director of Research & Higher Ed.

FIVESTAR

@INLearningLa

Fall 2024 Outreach

INDIANA DEPARTMENT of EDUCATION

FIVESTAR

- **Webinars or in-person visits to 17 Indiana colleges and universities - 23 individual classrooms**
  - Focus is on getting pre-service teachers into the Lab and assisting them in getting the most from the Lab.
- **Powerful Feedback!**
  - Attendees express interest in using the Lab for lesson planning, finding resources, and developing their teaching skills.
  - Attendees value the Lab's searchability, favoriting feature, and the availability of free resources.

Plans for Further Impact

INDIANA DEPARTMENT of EDUCATION

FIVESTAR

- **IDOE is exploring ways to more directly serve pre-service teachers in the Lab**
  - Webinars on classroom management are a possibility.
- **Potential for EPP grant-funded work to be added to the Lab.**
- **Host us in your class for a 30-minute session!**
  - Availability October-December 2024 (Spring dates TBA)
  - Sign up at: bit.ly/LabEPP2024

Preservice Teacher Workshops

- In-class visits or out-of-class workshops;
- Students earn stipends for 3-hour workshops;
- Organizers (you!) earn stipends too;
- Workshop content negotiated with you;
- Contact sdrumm@iu.edu to start the planning process.

EPP Support

CS Cohort

CS Cohort: EPP Faculty CS Community

What would you like to take away from the CS Cohort?

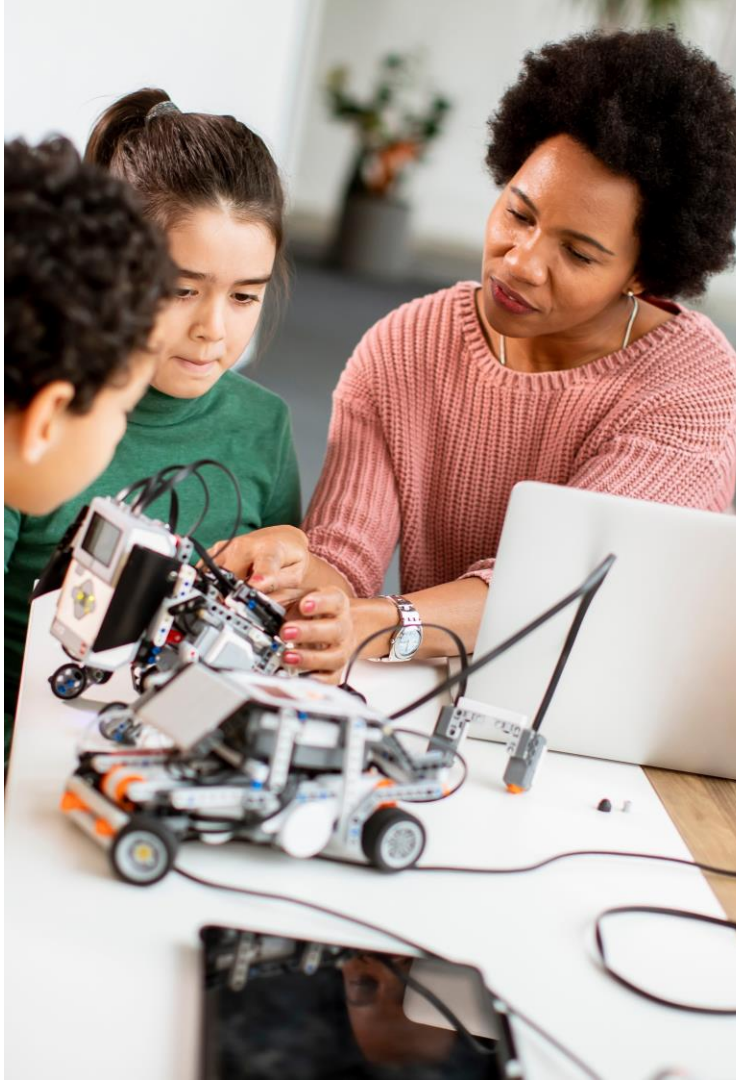
bit.ly/menti4cs

What would you like to take away from the CS Cohort?

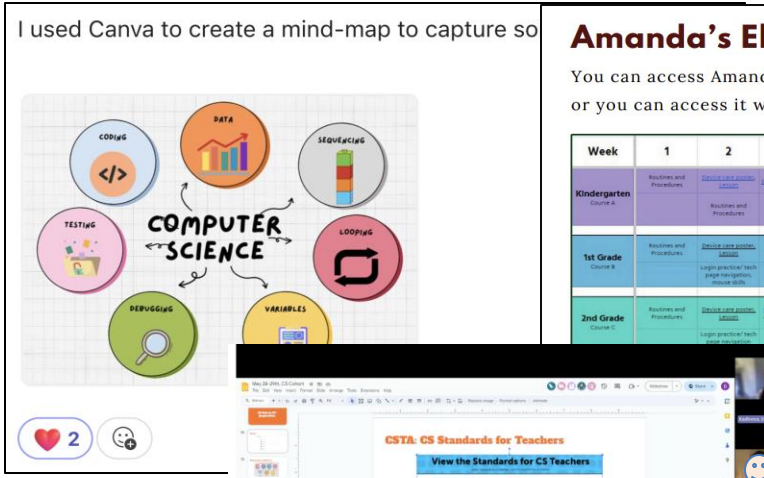
Let's check the responses

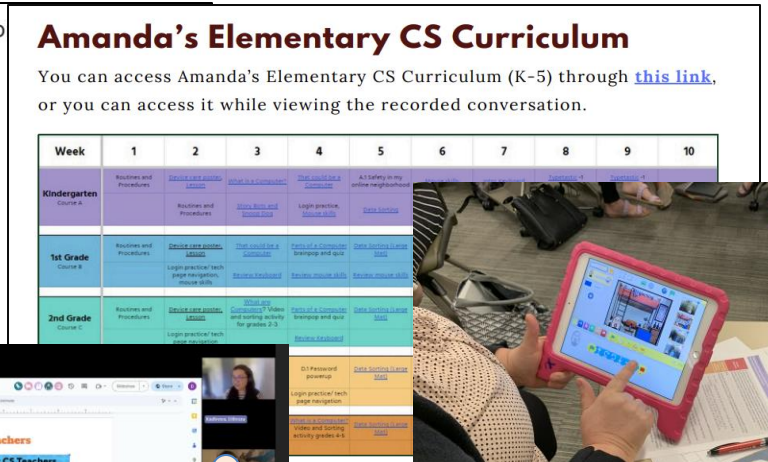
Our goals

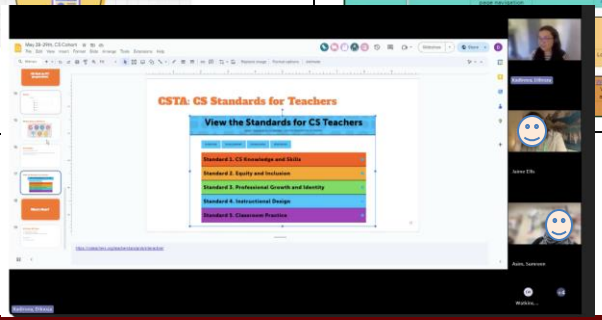
- **Support & connect** elementary teacher educators (EPP faculty)
- **Share** expertise
- **Expand** professional development opportunities
- **Foster** sustainable professional learning environment
- **Broaden** preservice CS teaching competencies

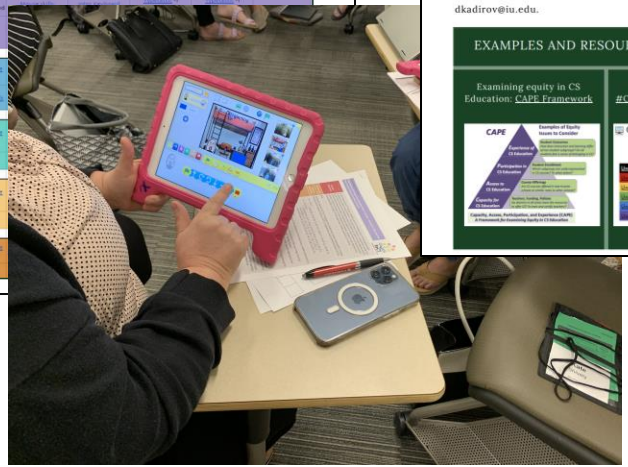


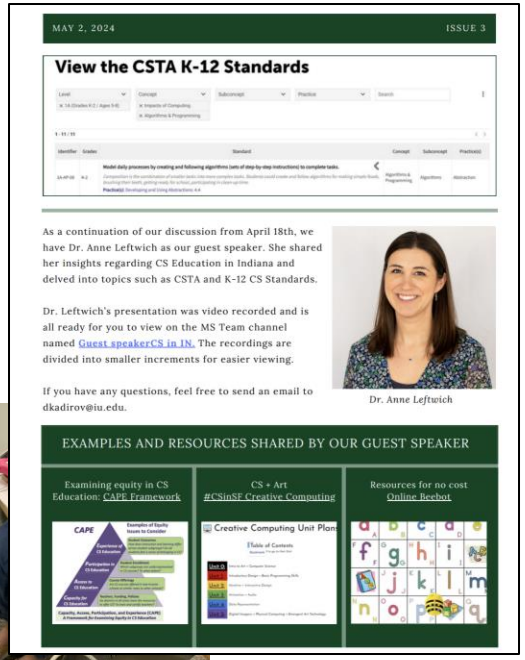
Photos from our CS Cohort SP- SA 24



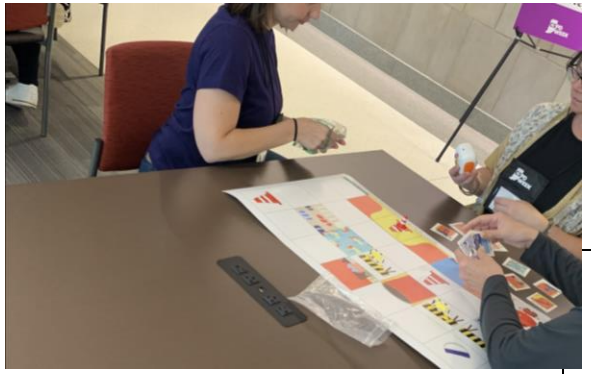








CS Cohort: Photos from our CS Cohrt SP24



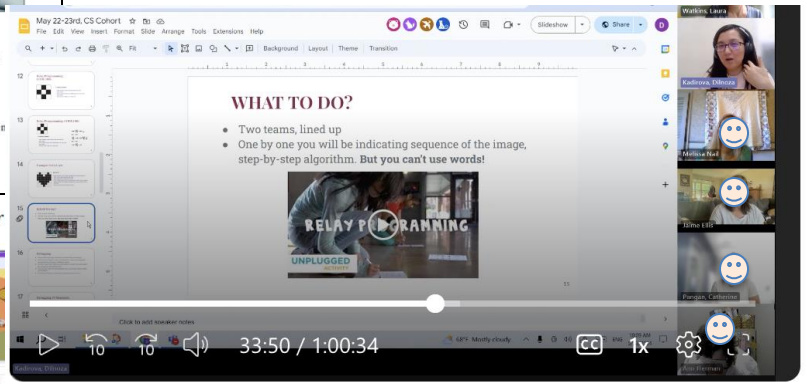
Group Meetings

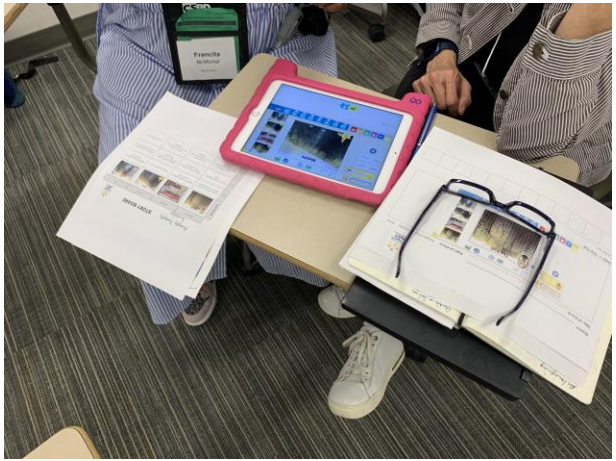
Based on the "When is Good" results group meetings are scheduled for:

- May 22 @ 1-2 pm
- May 23 @ 9:30-10:30 am
- May 23 @ 3:30-4:30 pm

Note: You're coming only to one of them. You should have received an en
and a calendar invite with the details.

Questions?: contact Dilnoza via email: dkadirov@iu.edu or MS message





Elementary Teacher Educators' CS Cohor

CONTENT

CODE ALONG
(see page #1)

GUEST SPEAKER

- CSTA
- CAPE
- #CSinSF
- and more

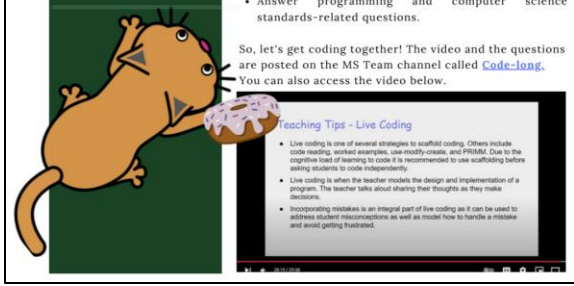
(see page #2)

Code Along

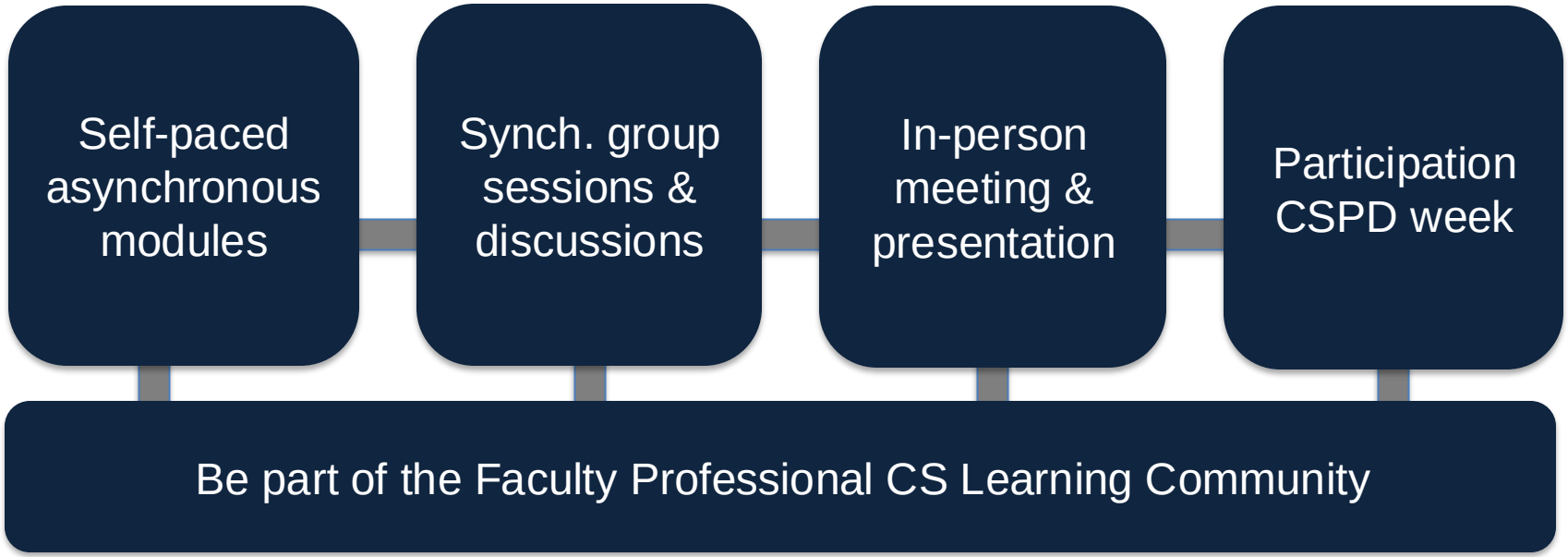
We're keeping the coding momentum going! We'll be watching a code-along video recording where we'll create a cat-and-mouse game. This activity is self-paced, and you'll:

- Watch the video and create your game.
- Code along with the instructions provided in the video.
- Share the link to your game.
- Answer programming and computer science standards-related questions.

So, let's get coding together! The video and the questions are posted on the MS Team channel called Code-long.
You can also access the video below.



What's in CS Cohort?



What will you do in the CS Cohort?

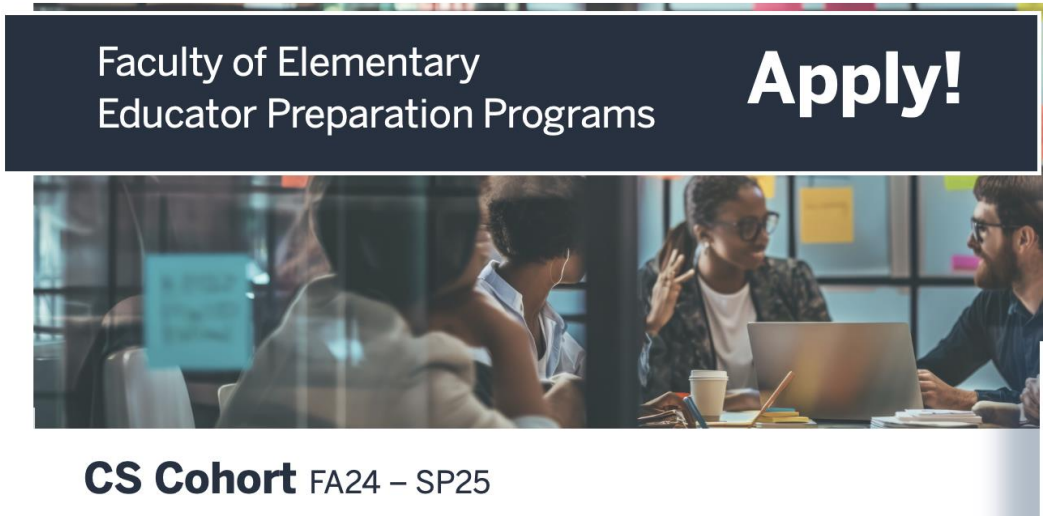
- **Collaborate** with colleagues around the state
- **Gain** expertise in CS education
- **Have access to** teaching resources
- **Create & share** your CS resources

Receive a stipend!*

*detail will be indicated in the application form

Stay Tuned!

The application for CS Cohort FA24-SP25 is coming soon.

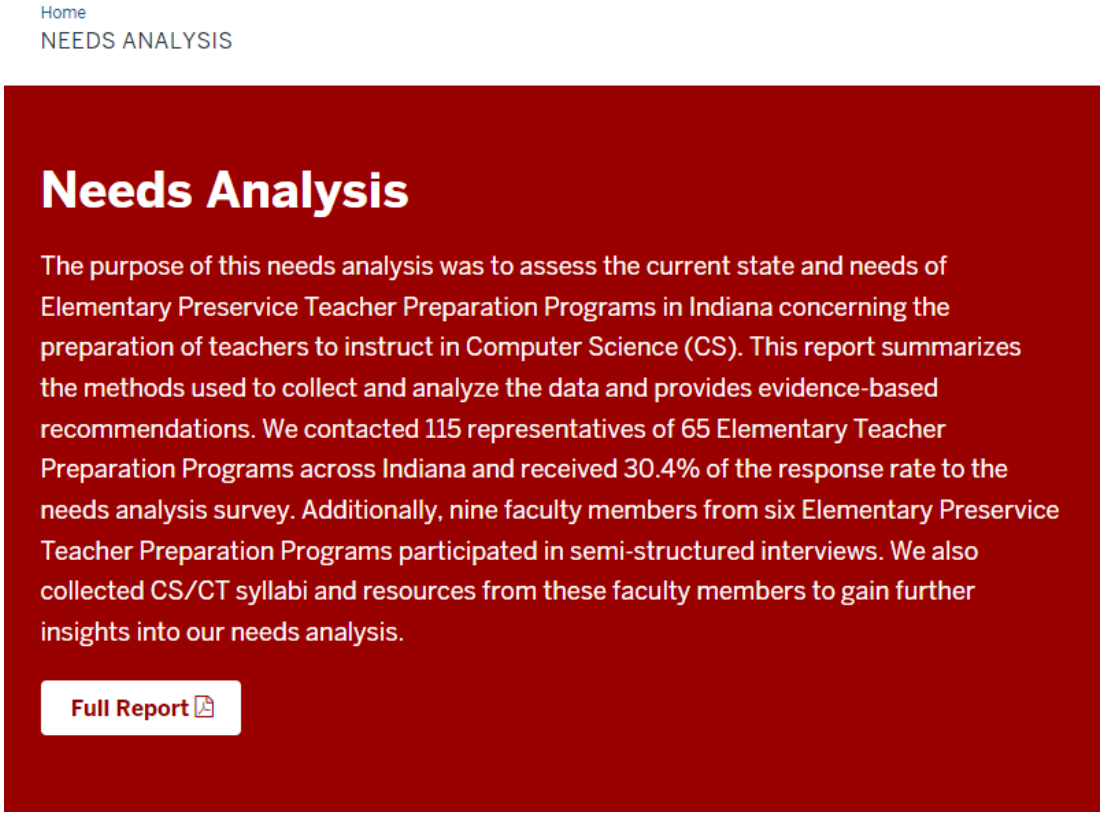


BCPCS Website

cs4in.iu.edu

CRLT BCPCS IUB

Needs Analysis



Resources

Curriculum for PST:

- Introduction to CS
- Data Science for Education

Curriculum for PST and K-8 students:

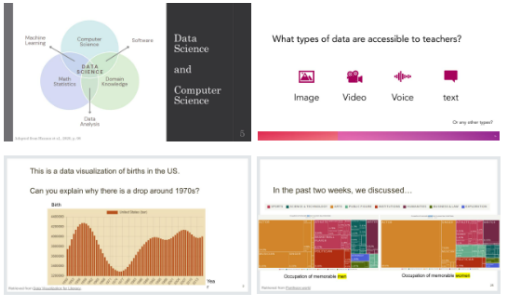
- CS for Social Good
- Rethinking Circle Time
- AI Goes Rural
- Primary AI

Data Science in Education

One of the current CS education focuses is the integration of Data Science (DS) concepts into K-12 curricula, as reflected in one of the major concepts in the CSTA Standards for K-12: data and analysis. DS is an emerging field of interdisciplinary integration in three areas: Mathematics/Statistics, CS, and domain knowledge. In our daily lives, technologies are constantly collecting and using data (e.g., website browsing history, shopping history). Artificial Intelligence (AI) is an increasingly critical element of our daily lives. AI relies on data to generate decisions and predictions. Therefore, where and how we use data to inform these models, data science, is a critical topic for future generations to ensure that AI is ethical and representatively addressing the problem. By introducing DS to K-12 learners, they will be able to gain awareness in this data-driven world.

This is a three-unit lesson design targeting preservice teacher education. Each unit has two 75-minute courses with basic concepts of DS, AI, and data literacy through hands-on activities.

DS Education for preservice teachers lesson plans



Lesson plans designed by Lin Chu, PhD student in Instructional Systems Technology

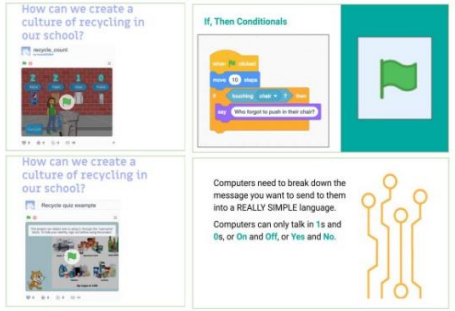
CS for Social Good

Block coding is a way of learning programming in K-12. It can be done through plugged activities using Scratch or unplugged activities. One way to implement Computer Science and teach students coding by through having them design solutions to real-world problems. The CSforSocialGood curriculum consists of two units. The first unit is Introduction to Block Coding, and it includes 9 lessons. The second unit (8 lessons) focuses on Problem-Based Learning (PBL) and integrates block coding to solve real-world problems.

The workshop includes unplugged and plugged activities using manipulatives such as sorting cards and Scratch. These activities demonstrate the programming concepts and how they can be taught in the 6th-grade curriculum through problem-solving activities.

Lesson plans for 6th-middle school students

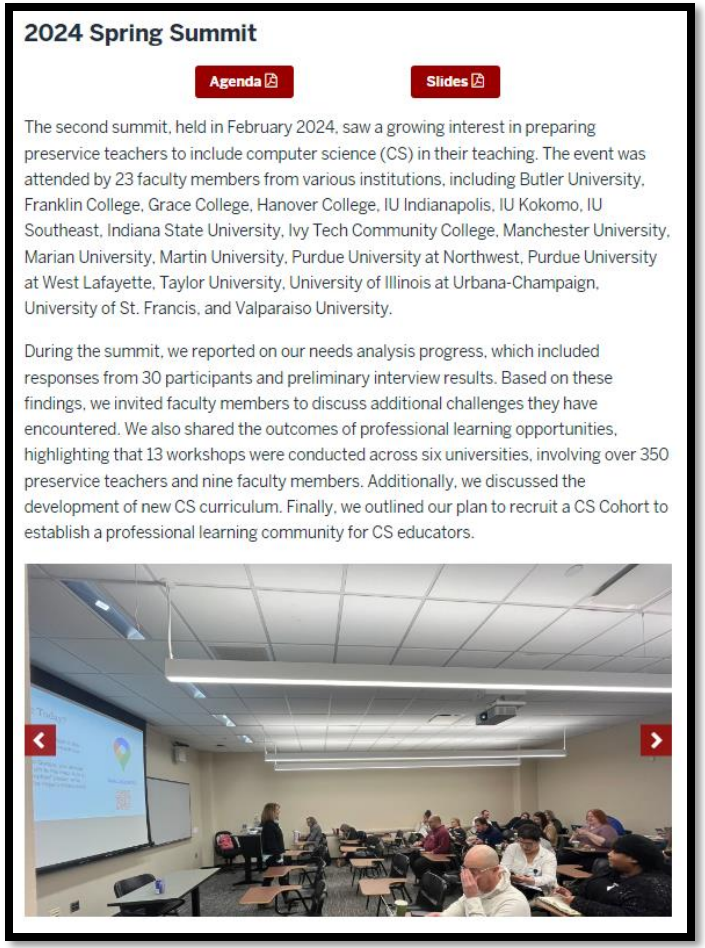
Preservice teacher PD slides



Lesson plans designed by Dilnoza Kadirova, PhD Candidate in Instructional Systems Technology

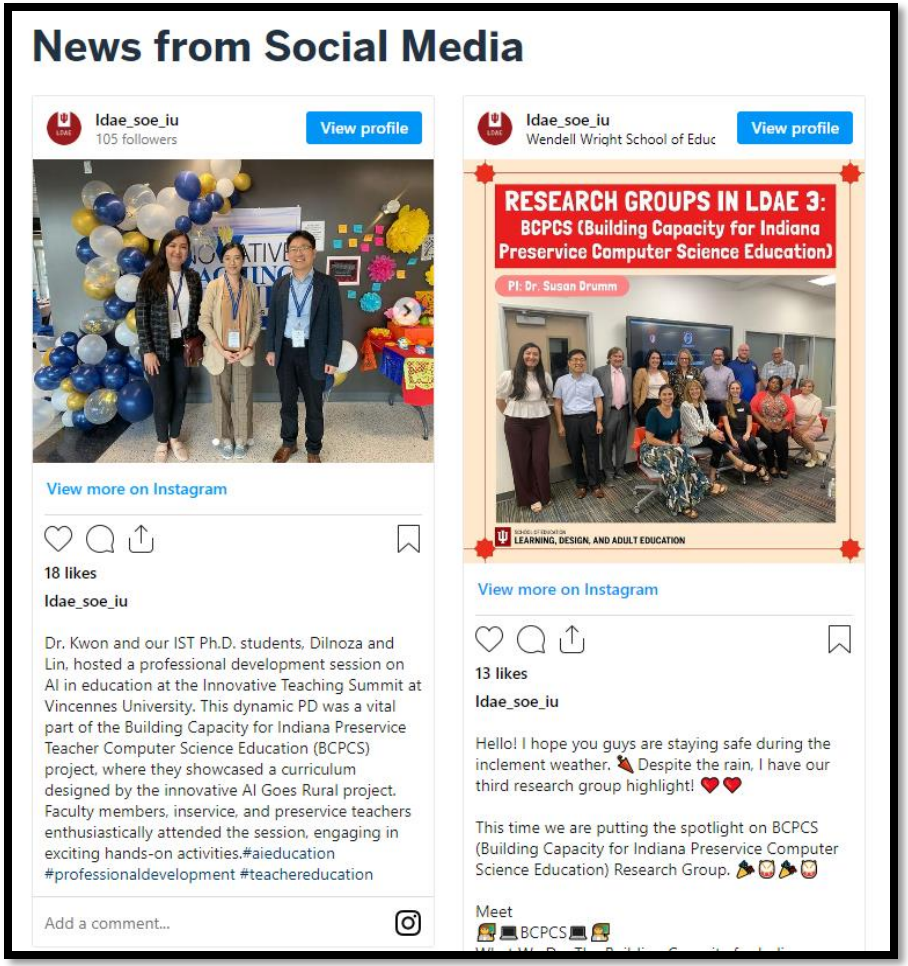
Past Summit

- Agenda and slides are included



News

- School visits
- Conference
- Summit events



INDIANA UNIVERSITY BLOOMINGTON