SCCS

STATE COMMITTEE ON COMPUTER SCIENCE

IN PARTNERSHIP WITH THE **OHIO DEPARTMENT OF EDUCATION** AND **OHIO DEPARTMENT OF HIGHER EDUCATION**

Making Ohio a National Leader in Computer Science Education

Organizational Meeting

Committee Facilitator Kelly Gaier Evans - Battelle
Chair: Mike Duffey, Ohio Department of Higher Education
Vice Chair: John Wiseman, Ohio Department of Education
February 16, 2022 from 9:30-12:30 p.m.
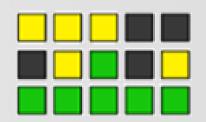
Approval of Minutes

Chair, Mike Duffey

- November 17, 2021
- December 15, 2021

Need:

- Motion to approve minutes
- Second

Community Building

What is your favorite game? (board games, video games, card games)?

What's an **unintended consequence** that you have seen occur?
How could it have been prevented?

Framing our time

Our work thus far…

November 2021   State of CS in Ohio

December 2021   Challenges and Root Causes

January 2022   Postponed

The Five Why's

Define the Problem				
↓				
Why?	→	**Answer**	→	**Recommendation**
	↙			
Why?	→	**Answer**	→	**Recommendation**
	↙			
Why?	→	**Answer**	→	**Recommendation**
	↙			
Why?	→	**Answer**	→	**Recommendation**
	↙			
Root Why?	→	**Root Answer**	→	**Recommendation**

Moving from Challenges to Recommendations

November & December	February 16th and March 9th	March 30th and April 20th	April 11th and June 1st	June 1st - 2nd

- Our charge
- State of CS
- Surfaced opportunities and challenges
- Root cause analysis of challenges

Moving from Challenges to Recommendations

November & December → **February 16th and March 9th** → **March 30th and April 20th** → **April 11th and June 1st** → **June 1st - 2nd**

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- Root cause analysis of challenges

- Discuss/plan recommendation on how to measure and report on K-12 CS education
- Discuss/plan recs for statewide challenges preventing districts from offering CS
- HW: feedback
- All recs revised & shared
- Discussion to include or not to include in state plan

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March 30th and April 20th
- Discuss/plan recs for challenges preventing districts from offering CS
- Discuss/plan recs on how to measure and report on CS teacher supply
- HW: feedback
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- Discuss/plan recs for challenges in the K-12 to workforce CS pipeline.
- Discuss/plan recs on how to measure and report on post-secondary CS education
- HW: feedback
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- Retreat
- Review entire set of recs
- Review and revise drafted state plan

Our work today

9:30 -10:00 a.m.   Welcome and recap
- Approval of minutes (both Nov and Dec)
- Community building
- Frame our Time Together and overview of the agenda
- Recap the charge and our progress (data, challenges)

10:00-11:00 a.m. First Challenge: There is widespread disagreement and confusion on what Computer Science is and is not.
- How does Ohio operationalize CS education in K-12 currently?
- What recommendations does this committee have for reporting on CS access and participation?

11:00-11:10 a.m. Coffee and stretch break

11:10-12:20   Challenges that prevent the state from becoming a leader in Computer Science education | Discussing Recommendations

12:20-12:30   Homework and Wrap up

Our Charge – HB 110 - continued

(D) Within the plan, the committee … shall include all of the following:

(1) An **examination of the challenges that prevent school districts from offering computer science courses**;

(2) A requirement that the department of education **collect any data regarding computer science courses offered by school districts** and school buildings operated by school districts, including the names of the courses and whether the courses were developed using the standards and model curriculum …and post the collected data on its web site.

(3) A requirement that the committee determine **the best ways to compile data on computer science courses, teachers, and undergraduate students studying computer science** in universities.

(4) **Any findings the committee determines appropriate** based on its consideration of the topics described in division (B) of this section.

Our Charge – HB 110 – the state budget

We have a unique opportunity to help make Ohio a national leader in computer science education and workforce pipeline.

(1) Best practices and challenges associated with the implementation of primary and secondary computer science curriculum in this state;
(2) Demographic data for students who receive instruction in computer science;
(3) Benchmarks to create a sustainable supply of teachers certified to provide instruction in computer science;
(4) Best practices to form public and private partnerships for funding, mentoring, and internships for teachers providing instruction in computer science;
(5) Requiring all students to complete a computer science course prior to high school graduation;
(6) Establishing a work-based learning pilot program that includes high schools, universities, and local industry and permits the department and the chancellor to develop pathways to align computer science education in the state with the state's workforce needs;
(7) Any other topic determined appropriate by the committee

HB 110: https://ohiohouse.gov/legislation/134/hb110 (Pages 703-705)

Norms

- We all have different filters, share yours
- Always assume positive intent
- Be curious and ask questions
- Be here now
- Communicative respectfully
- Safe space to contribute ideas (disagree w/content not the person)
- Treat everyone with courtesy and respect
- Embrace data, where it is and isn't available
- Come to meetings fully prepared which includes any homework or review of materials sent prior**

Identified challenges

CS operationalized in K-12

Challenge:

Computer Science taxonomy/Naming
issue   is it Digital?
* Workforce/Career Pathway
  Not driving naming
    * K-12 + higher Ed Disagreement
    * CS defined differently/limited
        *everyone needs Digital lit
Why?
1. Branding/Identification - Students identify
2. Limited Understanding
3. Lack of State Leadership
        Educating/Communicating
4. We don't know how to
   Identify/Explain   x in terms of
                          Careers
                      x Disciplines
5. Building Culture

Challenge:

Challenge:

Challenge:

Overarching Foundational Challenge:

There is widespread disagreement and confusion on what is Computer Science is and is not.

The homework

- What is Computer Science?
- What is not Computer Science?
- What creates confusion for you?

What we heard the homework

High level – a **shared understanding** of next steps:

- Instead of adjusting the language in statute for Computer Science, **the committee should agree on a common approach to operationalizing computer science** when developing their concrete recommendations for the state.

- Computer Science is often confused with IT because there is overlap between the knowledge base required for both. **The committee should extract the key IT concepts that are foundational to Computer Science.**

- Computer science is broad and when the committee talks about challenges preventing school districts from offering computer science courses - **there has to be clarity on which courses are reported as computer science to help inform recommendations** more thoughtfully.

What we heard the homework

High level – a **shared lens for operationalizing** computer science:

- Computer science is structured problem solving and the core concepts around troubleshooting, logical reasoning, computational thinking and decision making. There are foundational skills that will help students become critical thinkers as adults and transition from K-12 to postsecondary to workforce.

- Computer science is a logical way to process information and data to solve problems through writing algorithms or debugging algorithms. It is focused on the design and development rather than the learning of basic computer and technology skills.

Ohio Dept of Education sets course codes in a common system.

Schools are required to choose a course code from that system describing the course they are offering.

What are the Computer Science course options?

- The Ohio System is called EMIS.

- The EMIS manual has three tables that relate to Technology, Computer Science, and Career Tech Ed – Information Technology (CTE IT)
    - Computer Science codes are on Table 16
    - Technology codes are on Table 18
    - CTE IT Codes are on Table 29

NOTES
- Legally, schools are not required to teach or use the Ohio CS standards.
- Some courses in EMIS explicitly call out a connection to the CS standards.

Technology Section

Table 16. Computer Science Codes (29xxxx)

Subject Code	Description	Suggested Subject Area for Credit	Core Subject Area (for proper cert)
	The following are computer science courses in accordance with Ohio Revised Code §3319.236. ~~The following courses do not earn high school technology credit. This instruction may also be provided by a teacher to multiple groups of students rather than in a self-contained classroom setting. The K-8 content across Ohio's Technology standards defines achievement in meeting the No Child Left Behind 8th Grade Technology Literacy Requirement. Instruction is most effective when integrated with curricular components of other academic content areas.~~		
290245	Computer Science K-8 / Includes content in the appropriate grade range portion of Ohio's Learning Standards for Computer Science.	N/A	—
	~~Computer Science codes include computer/multimedia literacy, software, Internet, systems/networking and programming. All courses should be based on advanced topics aligned with the 9-12 section of the Ohio Technology academic content standards. Credit cannot be given for concepts below 9th – 12th grade.~~		

Subject Code	Description	Suggested Subject Area for Credit	Core Subject Area (for proper cert)
290180	**Computer Service ~~Repair~~** / This course includes configuration, troubleshooting and repair of network hardware, clients and peripherals. In addition, content should include installation of operating systems including updates, computer security and customer service. ~~Course includes troubleshooting, repair, system/network reconfiguration, help desk practices, etc.~~	TEC	—
299999	**Other Computer Science ~~Technology~~** / A high school level course that addresses content from the 9-12 section of Ohio's Learning Standards for Computer Science and is different in scope from any of the other Subject Codes described above. ~~A course that is given for High School credit to be applied toward the diploma, but that is different in scope from any of the other SUBJECT CODES described above.~~	TEC	—

Subject Code	Description	Suggested Subject Area for Credit	Core Subject Area (for proper cert)
290250	**Computer Science ~~Principles~~** / In this course, students develop an understanding of how computing is used to solve problems and enable innovation across fields and how these solutions can impact society. Students explore using computational thinking skills and tools to solve problems and create artifacts. Effective communication and collaboration skills are developed as students work individually and in group explorations. ~~This course is designed to develop an understanding of the usage and impact of computer science as an innovative computational tool for solving problems in many fields. Effective communication and collaboration skills are developed as students individually and in group explorations solve simulations of real world problems. The course focuses on the importance of solving problems and the impacts of those solutions to their community, society, and the world.~~	TEC, ~~MTH~~	—
290310	**Computer Science with In-Depth Study ~~A~~** / This course addresses computer science topics that include problem solving strategies, organization of data, algorithmic thinking and programming, analysis of potential solutions and the impacts of computing. The course provides the opportunity for a more in-depth study of selected computer science content. ~~The study of programming methodology with an emphasis on problem solving and algorithm development. Also includes study of data structures and abstraction, but not to the extent as covered in Computer Science AB.~~	TEC, ~~MTH~~	—
~~290320~~	**~~Computer Science AB~~** / ~~Includes all topics of Computer Science A, as well as a more formal and more in-depth study of algorithms, data structures and data abstraction.~~	~~TEC, MTH~~	~~—~~
290325	**Specific Topics in Computer Science** / This course provides a focused examination of specific computer science topics (e.g., cybersecurity, robotics, data science).	TEC	—
290170	**Networking** / In this course, students understand the concepts and use of network servers and devices (e.g., host, firewall, router, switch). Students understand the advantages and disadvantages of network models (e.g., peer-peer, client-server). Content addresses network design fundamentals including network type (e.g., LAN, WAN, MAN). Students also learn the application of network topologies (e.g., Star, bus, hybrid). At an *advanced* level, students design and build simple networks, understand server virtualization and network security. ~~Course includes operating systems, printers/print servers, network configuration and servers, etc.~~	TEC	—

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Technology Section

Table 16. Computer Science Codes (29xxxx)

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Subject Code	Description	Suggested Subject Area for Credit	Core Subject Area (for proper cert)
	Computer Science Principles In this course, students develop an understanding of how computing is used to solve problems and enable innovation across fields and how these solutions can impact society. Students explore using computa-	TEC, MTH	—
290310	ting. The course provides the opportunity for a more in-depth study of selected computer science content. The study of programming		

Computer Science K-8 (290245)
Includes content in the appropriate grade range portion of Ohio's Learning Standards for Computer Science.

Computer Repair (290180)
This course includes configuration, troubleshooting and repair of network hardware, clients and peripherals. In addition, content should include installation of operating systems including updates, computer security and customer service.

K-12 Technology Section – Ohio Courses in EMIS
Table 18 Technology Education Codes

K-12 Technology Section – Ohio Courses in EMIS
Table 18 Technology Education Codes

Computer Programming (290200)
This course includes the study and use of programming languages (e.g., C++, C#, Java, Python).

Computer/Multimedia Literacy 4-6 (290040)
Instruction that includes content in the 4-6 portion of Ohio's Learning Standards for Technology, focusing on the use of educational technology for learning. Students develop skills and knowledge for using digital learning tools to access, create, evaluate, apply and communicate ideas and information.

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Career Tech Ed – Ohio Courses in EMIS
Table 29 Information Technology Codes

Table 29. Career Field 12...

Subject Code	Description
145120	**3-D Techniques...** Students will us... source programmi... or standalone en... visual productio... test three dimens...
145115	**Animation** Students will use... production of an... and storyboard a... dents will use c... ware to create fir... They will accom... voice, backgrou... multiple scenes.

Subject Code	Description
145015	**Information Techno...** The capstone course knowledge, attitudes Technology program Capstones often inclu... ties that occur both in the school and throug... bine classroom learni... delivered through a va... tive education or inter...
145020	**Computer and Mobi...** Students will learn to... variety of commercial... these applications, mo... to handle user issues. ... vice in professional ... groups, and corporate...
145025	**Computer Hardwar...** Students will learn to i... ware systems. They w... and learn techniques ... Communication skills ... tions will be emphasiz...
145030	**Computer Software...** Students will apply kr... source operating syste... vices. Students will in... and using remote assi... and troubleshoot oper... security, and operating...
145100	**Creating and Editing...** Students will learn to c... projects, web sites, an... strate methods of creat... cial and open source s...
145080	**Database Administr...** Students will learn ab... rency security, reliabil... volved in the administ... Students will design, c... ity. Knowledge and sl... houses, and data minir...

Subject Code	Description
145085	**Database Applications ...** Students will use develop... tabase systems theory, a... will learn to import and... make advanced queries, a... dents will develop macro... ing menu-driven applic... modeling, diagraming, q... veloped
145095	**Design Techniques** Students will learn techni... through use of digital ca... accomplish this, they will... cluding layering, color co... current commercial and o...
145090	**Game Design** This course will prepare s... commercial and open so... will learn industry stand... write programs that inte... stances. Students will lea... sion detection, game phy...
145005	**Information Technolog...** This first course in the IT... with a working knowledg... necessary for work and c... will learn safety, security... networking. Students wi... computer hardware and o...
145125	**Interactive Application...** Students will learn skills ... ing components for web a... ing commercial and open ... will master web interactiv...
145105	**Multimedia and Image...** Students will apply princi... dures, and multimedia te... and export graphics for v... will address issues related... security. Students will u... languages, programs, and...

Subject Code	Description
145035	**Networking** Students will install... and peripherals. Stud... model, network topo... networks, know how ... figure the equipmen... and usage of networ...
145045	**Network Managem...** Students will perform... configuring network... by IEEE standards... model, students will... and develop knowle... will demonstrate ma... less networking, TC... shooting.
145040	**Network Operating...** Students will perform... ing support for users... sional offices, small... corporate informatic... configure, and upda... ing systems.
145050	**Network Security** This course will ado... Students will learn ... hardware, and netw... theory, cryptography... curity, and methods ...
145065	**Object Oriented Pr...** Students will learn t... that have data fields ... Students will imple... method, inheritance, ... serialization. A varie... applications will be ...
145060	**Programming** In this course studer... active applications. ... quence, selection, ... solutions to problem... ence in using comm... applications.

Subject Code	Description		Suggested Subject Area for Credit	Core Subject Area (for proper cert)
145055	**Routing and Switching** Student will learn the functions, characteristics, and operations of routers and switches. Students will learn about wireless network standards and components and the role that routers play in enabling communications across multiple networks. Students will trouble-shoot the routing process. Students will examine the use of Virtual Local Area Networks (VLANs) to create logically separate networks.		CTA	—
145075	**Systems Analysis and Design** Students will learn the theory and practice of software testing and develop an understanding of the analysis and design phases of soft-ware development. Students will effectively use appropriate pro-gramming languages and software patterns to improve software development. A variety of commercial and open source programs, applications, and tools will be used.		CTA	—
145110	**Video and Sound** Students will create professional video and audio productions for dis-tribution in traditional and new media channels. Students will plan, produce, edit, and launch media products. Students will develop scripts and storybo... sounds using micro... and edit to achieve ... animation and grap...		CTA	—
145070	**Visual Programm...** Students will create ... gramming techniqu... tions. Students will ... web applications, ... open source progra...			
145010	**Web Design** Students will learn ... suing an in-depth ... (HTML) and Casc... such as FTP, TCP... create a website w... graphics, hypertext...			
145999	**Integrated Produc...** Students will enga... gies to imagine and ... students will be int... high-paying careers... ical systems; inven... and mechanical eng... tion systems; and t... world's most press...			

Subject Code	Description	Suggested Subject Area for Credit	Core Subject Area (for proper cert)
146005	**Cybersecurity** Students will learn the components of cybersecurity and the role each plays in preventing, detecting and mitigating vulnerabilities and at-tacks. Components include the security of the network infrastructure, security of the systems, and the prevention, detection, and mitigation of common vulnerabilities and attacks. Throughout this course, stu-dents will examine and implement security safeguards for desktop, network, and application security.	CTA	—
146010	**Cybersecurity Defense and Reinforcement** Students will learn the process of systematic defense for information technology systems. They will apply knowledge and skills required to secure network resources including infrastructure, operating sys-tems, data, and applications. Students will apply the knowledge of disaster recovery and business continuity.	CTA	—
146015	**Cybersecurity Testing and Response** Students will apply the skills of systematic testing and planned re-sponse to mitigate security concerns in information technology sys-tems. They will describe the need for security, identify and explain security risks, and implement security safeguards. Students will man-age threats, deploy countermeasures, and establish strategies to pro-tect business information using risk and incident management.	CTA	—

Career Tech Ed – Ohio Courses in EMIS
Table 29 Information Technology Codes

Information Technology (145005)

This first course in the IT career field is designed to provide students with a working knowledge of computer concepts and essential skills necessary for work and communication in today's society. Students will learn safety, security, and ethical issues in computing and social networking. Students will also learn about input/output systems, computer hardware and operating systems, and office applications.

Cybersecurity Defense and Reinforcement (146010)

Students will learn the process of systematic defense for information technology systems. They will apply knowledge and skills required to secure network resources including infrastructure, operating systems, data, and applications. Students will apply the knowledge of disaster recovery and business continuity.

Seeking clarity....

How can we see access and participation in k-12 Computer Science across Ohio?

Ohio's Computer Science Data Dashboard

Interactive Dashboard
Ohio Department of Education

Enrollment in any course K-12 classified as computer science in EMIS, available for years 2016-2020
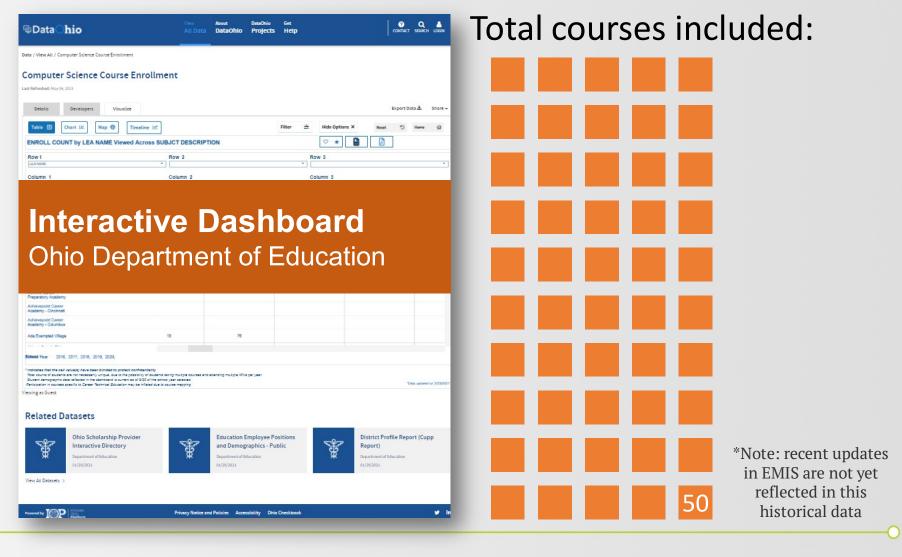
All courses the Ohio Department of Education has classified as computer science based on the definition of Computer Science identified in legislation for Ohio[2].

Such classification is made by Ohio Department of Education content specialists alongside external stakeholders.

Computer Science course codes were updated this fall.

Ohio's Data Dashboard

Interactive Dashboard
Ohio Department of Education

Total courses included:

*Note: recent updates in EMIS are not yet reflected in this historical data

50

Ohio's Data Dashboard

Total courses included:
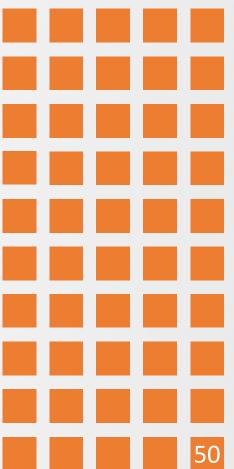
Table 16. Computer Science Codes (29xxxx)	Course code	Enrollment SY 2020
Networking	290170	145
Computer Repair *(Revised in 2021 - now Computer Service)*	290180	148
Computer Science Principles *(Revised in 2021 - now Computer Science)*	290250	1,696
Computer Science A *(Revised in 2021 - now Computer Science with in-depth Study)*	290310	1,859
Computer Science AB *(Revised in 2021 - No longer offering)*	290320	219
Other Computer Technology *(Revised in 2021 - now Other Computer Science)*	299999	11,110

50

Ohio's Data Dashboard

Total courses included:

50
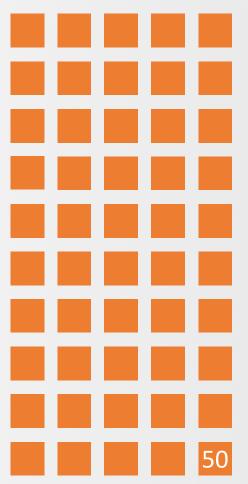
Table 18. Technology Education Codes(29xxxx)	Course code	Enrollment SY 2020
Computer/Multimedia Literacy K-3	290035	73,700
Computer/Multimedia Literacy 4-6	290040	77,544
Computer/Multimedia Literacy 7-8	290045	50,821
Computer/Multimedia Literacy	290050	11,689
Technology: Electronic Resources	290075	462
Technology-Productivity Tools	290100	22,656
Technology-Communication Tools	290110	3,778
Technology-Problem-Solving Tools	290120	2,666
Internet Searching	290130	503
Technology and Ethics	290140	499
Computer Graphics	290150	3,036
Web Site Development	290160	1,602
Computer Science (Revised in 2021 to "Computer Programming")	290200	6,037
Advanced Web Site Development (Revised in 2021 - No longer offering)	290165	39

Ohio's Data Dashboard

Total courses included:
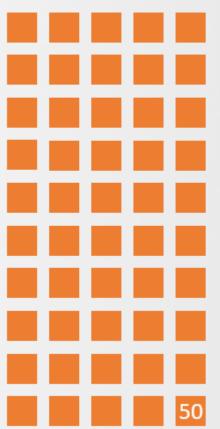
Table 29. Career Field 12: Information Technology Codes (14xxxx)	Course code	Enrollment SY 2020
Information Technology	145005	25,037
Web Design	145010	3,511
Computer and Mobile Applications	145020	695
Computer Hardware	145025	3,986
Computer Software	145030	1,927
Networking	145035	1,923
Network Operating Systems	145040	382
Network Management	145045	173
Network Security	145050	504
Routing and Switching	145055	326
Programming	145060	5,767
Object Oriented Programming	145065	531
Visual Programming	145070	495
Systems Analysis and Design	145075	105
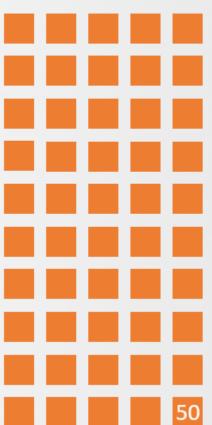
Ohio's Data Dashboard

Total courses included:

Table 29. Career Field 12: Information Technology Codes (14xxxx) CONT'D	Course code	Enrollment SY 2020
Database Administration	145080	192
Game Design	145090	1,180
Design Techniques	145095	1,781
Creating and Editing Digital Graphics	145100	1,449
Video and Sound	145110	1,458
Animation	145115	970
3-D Techniques	145120	281
Interactive Application Development	145125	145
Cybersecurity	146005	299
Cybersecurity Defense and Reinforcement	146010	51
Cybersecurity Testing and Response	146015	61

Ohio's Data Dashboard

Total courses included:

[grid of orange squares with "50" label]
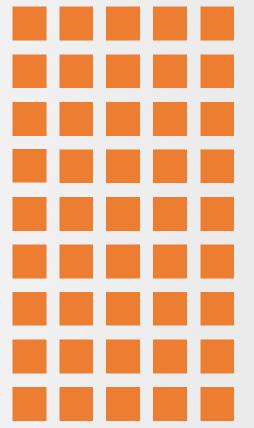
Table 24. Career Field 06: Engineering & Science Technologies Codes (17xxxx)	Course code	Enrollment SY 2020
Robotics	175004	2,821

Table 37. International Baccalaureate Courses for Diploma Program (32xxxx)	Course code	Enrollment SY 2020
IB Information Technology in a Global Society (ITGS)	321150	
IB Computer Science	321600	59

Table 5. Business Education (Non-Career Technical) Codes (03xxxx)	Course code	Enrollment SY 2020
Computer Programming and Software Development	31700	6,662

What we heard the homework

High level – our shared understanding of next steps:

- Instead of adjusting the language in statute for Computer Science, **the committee should agree on a common approach to operationalizing computer science** when developing their concrete recommendations for the state.

- Computer Science is often confused with IT because there is overlap between the knowledge base required for both. **The committee should extract the key IT concepts that are foundational to Computer Science.**

- Computer science is broad and when the committee talks about challenges preventing school districts from offering computer science courses - **there has to be clarity on which courses are reported as computer science to help inform recommendations** more thoughtfully.

Making recommendations….

Operationalizing K-12 Computer Science Education

By legislation:

Within the plan, the committee shall include….(3) A requirement that the committee determine the best ways to compile data on computer science courses, teachers, and undergraduate students studying computer science in universities.

Our task: Determine the best ways for Ohio to compile data and report on computer science courses (k-12).

Determine the best ways for Ohio to compile data and report on computer science courses (k-12).

Workplan

- Individually | 5 min
  - Free write every idea that comes to mind on how you would solve this task

- Collaboratively (by lens) | 15 min
  - Share your ideas with the rest of the group. Work together in your group to create a better solution. Capture on your poster

- *Jigsaw* into new groups | 15 min
  - Explain solution. Work together in your group to create a better solution. Capture on your poster
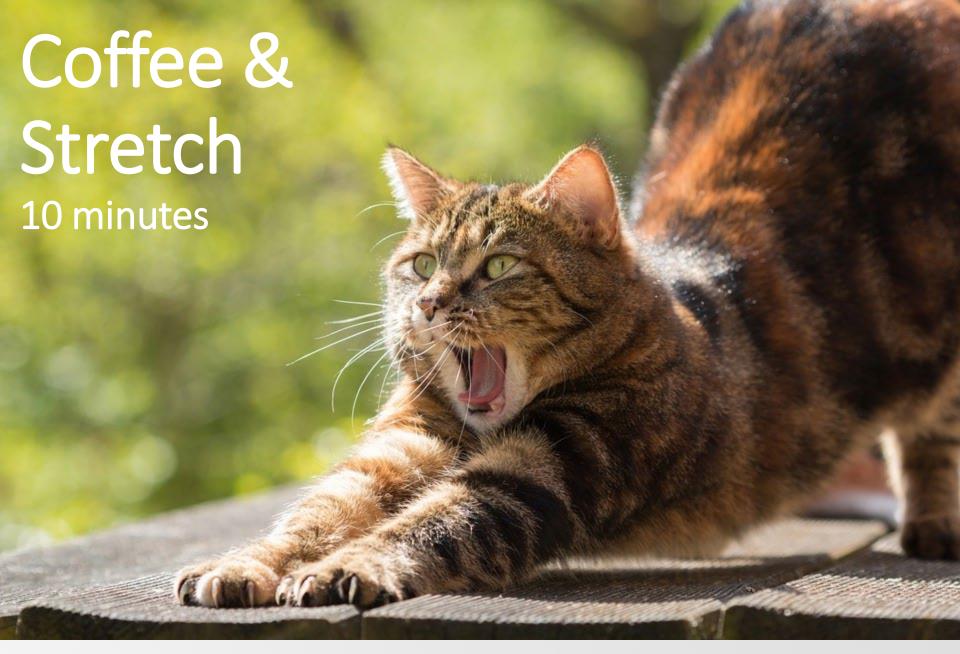
Determine the best ways for Ohio to compile data and report on computer science courses (k-12)

- Gallery walk – 6 minutes total (2 per poster)
  - Similarities/differences in approaches
  - What ideas do you like/dislike?
  - Clarifying questions you have?

Reflection

- What are the similarities/differences in each recommendation?

- Are their parts you like/dislike about various solutions?

- Clarifying questions

- What do you think is the best recommendation to tackle this task?

Coffee & Stretch

10 minutes
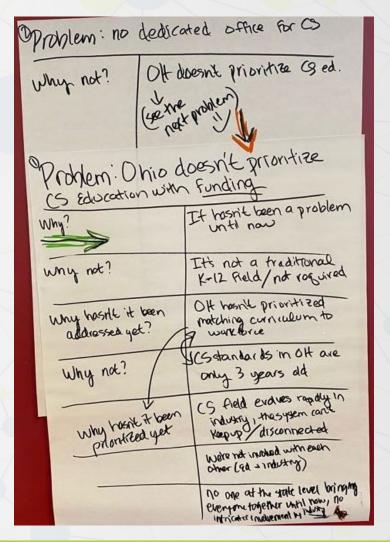
Identified challenges

Challenge:

The state has not prioritized Computer Science Education with resources.
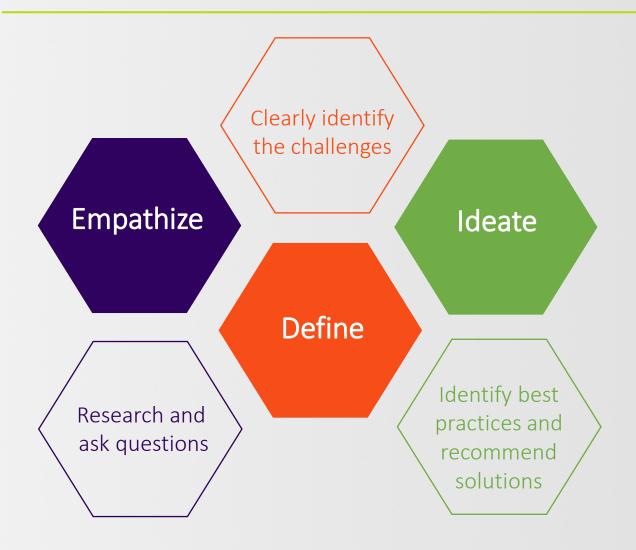
The Five Why's

Define the Problem				
↓				
Why?	→	Answer	→	Recommendation
	↙			
Why?	→	Answer	→	Recommendation
	↙			
Why?	→	Answer	→	Recommendation
	↙			
Why?	→	Answer	→	Recommendation
	↙			
Root Why?	→	Root Answer	→	Recommendation

Today focus on Empathize and Ideate

Clearly identify the challenges

Empathize

Ideate

Research and ask questions

Define

Identify best practices and recommend solutions

Initial impression (individually)

Solution one

Creation of an Office of Computer Science Education

Solution two

"One for CS" State of Ohio 1% K-12 funding investment in CS education

Challenge: The state has not prioritized Computer Science Education with resources.

Solution: Creation of an Office of Computer Science Education

Would this effectively solve this challenge?

1	2	3	4	5
No, it would create additional barriers/ problems.	No, it would keep Ohio stagnant.	Maybe	Yes, it would move Ohio forward without creating new barriers.	Yes, it would solve many existing barriers/ problems.

Challenge: The state has not prioritized Computer Science Education with resources.

Solution: "One for CS"   State of Ohio 1% K-12 funding investment in CS education.

Would this effectively solve this challenge?

1	**2**	**3**	**4**	**5**

No, it would create additional barriers/ problems.

No, it would keep Ohio stagnant.

Maybe

Yes, it would move Ohio forward without creating new barriers.

Yes, it would solve many existing barriers/ problems.

Challenge:

The state has not made Computer Science a requirement in K-12 education.

Initial impression (individually)

Solution one

Creation of a Student's Right to Access CS

Solution two

Establishment of CS as Graduation Requirement

Challenge: The state has not made Computer Science a requirement in K-12 education.

Solution: Creation of a Student's Right to Access CS

Would this effectively solve this challenge?

1	2	3	4	5
No, it would create additional barriers/ problems.	No, it would keep Ohio stagnant.	Maybe	Yes, it would move Ohio forward without creating new barriers.	Yes, it would solve many existing barriers/ problems.
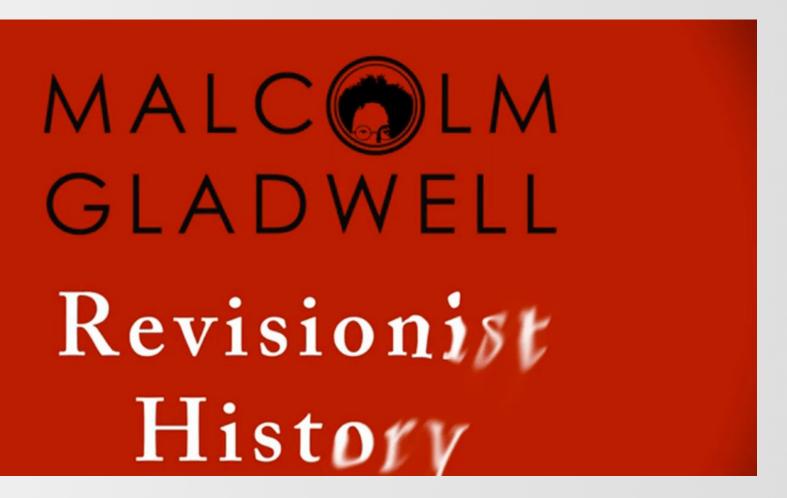
Challenge: The state has not prioritized Computer Science Education with resources.

Solution: *Establishment of CS as Graduation Requirement*

Would this effectively solve this challenge?

1	2	3	4	5
No, it would create additional barriers/ problems.	No, it would keep Ohio stagnant.	Maybe	Yes, it would move Ohio forward without creating new barriers.	Yes, it would solve many existing barriers/ problems.

Episode: A Serious Game | August 19 2021

Traffic jams had not occurred to him either.

Game time

Game goal: Create the best-case scenario implementation of a given CS Solution.

Each committee member will get to review other scenarios for homework, and you'll get a chance to offer your thoughts and feedback.

We'll explain the instructions first, and then you'll get your random assignment.

Rules

Part I: Empathize | 30 minutes total

- *Pieces | Character card, player board, and CS Solved Note Catcher*

- 10 min | Each team member should choose one character card. No repeats.

    Read scenario. On your player board, empathize with your character and answer prompts about scenario.

- 10 min | Starting in card order, each character shares:

    - one positive benefit for this stakeholder if this solution is realized
    - players must silently listen taking notes on their note catcher unless it is there turn to share
    - once each player has shared a positive benefit, repeat but this time each player shares a negative impact or unintended consequence.

- 10 min | Full team conversation for prompt A
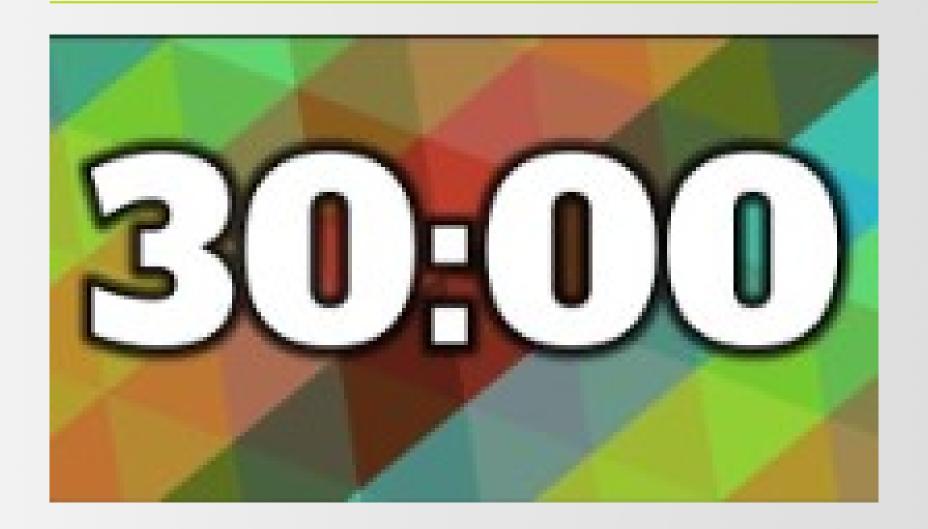
Part II: Ideate as a team | 30 minutes total

- *Piece(s) | CS Solved Note Catchers II*

- Full team conversation for prompt B, C, & D.

- Recorder will capture conversation. Part III provides a brief period of time to summarize your conversation in your teams own words for all other committee members to read.

Part III: Capture Team Summary of Solution | 10 minutes

- *Piece(s) | CS Solved Note Catchers I, II & III*

- Use the final 10 minutes to capture your summary using the third note catcher sheet.

- As homework, each team's summary of the solution and implementation plan is sent out to the full committee.

    - Each committee member, re-assesses the ability of the solution to solve the challenge. Adds notes to improve upon each solution.
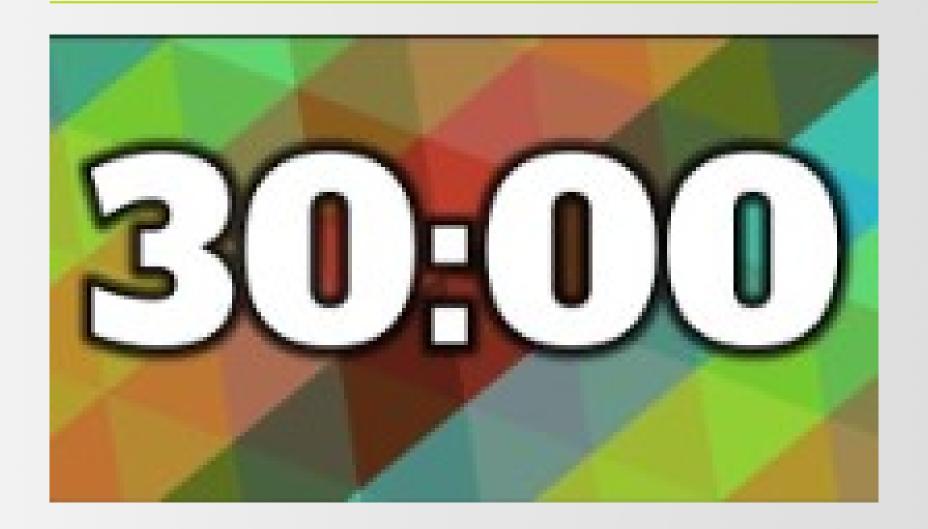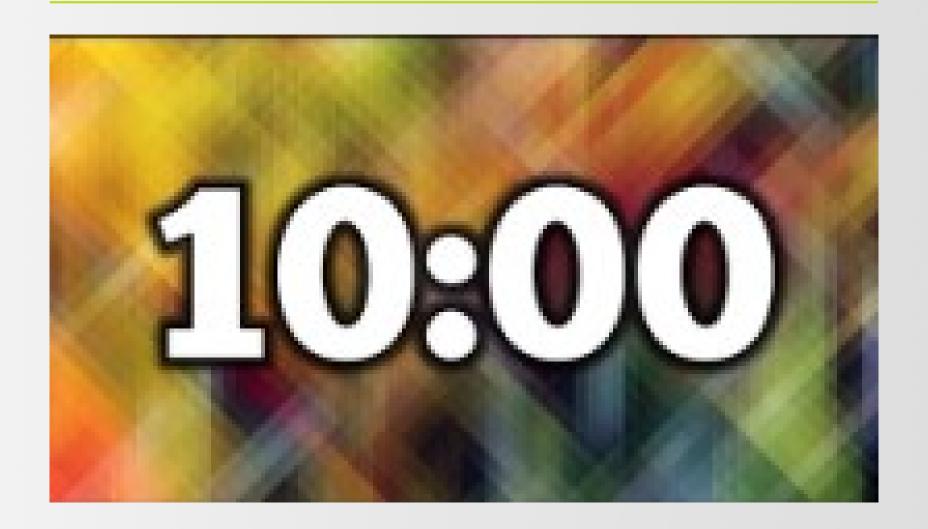
Part I Timer | 30 minutes

Part II Timer | 30 minutes

Part III Timer | 10 minutes

In closing...

What's next?

Today's Homework: Due March 1, 2022

Each committee member, read every team's capture document. Respond to each recommendation and implementation plan.

March 9, 2022
- ○ Sub-team (same teams from today)
  - ○ synthesizes the committee's individual feedback for the recommendation
  - ○ Improve upon the recommendation
  - ○ Report out on the recommendation
- ○ Full committee
  - ○ For each recommendation, discussion and sign off to: include, don't include, other action required

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Pre-work for March 30, 2022
- Pre -read on solutions to **challenges preventing districts from offering computer science**

Upcoming Meetings

March 9 | At COSI

Note – did conversations today, spark any questions around the Ohio CS standards? Add questions to the parking lot and we will get an update to you from the CS standards committee in March.

March 30
April 20
May 11
June 1 & 2

* Note: HB 110 gives us until October 2022, but plan to finish in spring.

Closing