

Computer Science Implementation Toolkit

Background

IC 20-30-5-23 states that:

- a) After June 30, 2021, each public high school, including each charter school, shall offer at least one (1) computer science course as a one (1) semester elective in the public high school's curriculum at least once each school year for high school students.
- b) After June 30, 2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12.

Getting Started

Below are steps to follow as you begin your efforts to bring computer science to your students.

1. Identify your Computer Science (CS) Champion(s). Who will take the lead in developing your plan for computer science? Who will coordinate CS curriculum in your building? Reach out to an [Indiana CS Champ](#) for ideas/inspiration. Identify any CS that might already be happening in your school/district.
2. Identify your implementation strategy. Will you be utilizing an integrated or standalone approach? Who will teach computer science in your building?
3. Determine the computer science curriculum you will use. Will you develop your own curriculum? Will you adopt a curriculum from a third party? How will you ensure that all necessary standards are met?
4. Investigate professional development opportunities relevant to your chosen curriculum and register teachers to attend as appropriate.
5. Start implementing!
6. Reflect. Determine areas for improvement. Identify additional supports that are needed. Contact the state [Computer Science Specialist](#), as-needed, for assistance.

Specific Information By Grade Level

High School

The following high school courses may be utilized to comply with IC 20-30-5-23:

4803: Introduction to Computer Science

4801: Computer Science I

5236: Computer Science II
5252: Computer Science III: Special Topics
5249: Computer Science III: Software Development
5250: Computer Science III: Databases
5251: Computer Science III: Informatics
5253: Computer Science III: Cybersecurity
5261: PLTW Cybersecurity
4570: AP Computer Science A
4568: AP Computer Science Principles
4586: IB Computer Science Standard Level
4584: IB Computer Science Higher Level
8118/8116: Cambridge International AS and A Level Computer Science

Standards for Indiana computer science courses can be found [here](#). High school course titles and descriptions can be found [here](#).

Additional Considerations:

- Some high school computer science courses qualify for CTE funding. More information can be found [here](#) in the “CTE Administration and Funding” section.
- Computer science courses can now satisfy a science requirement for the Core 40 diploma. Details can be found [here](#).

Middle School

Computer science standards for the 6-8 grade band were adopted by the State Board of Education in 2016 and can be found [here](#). Schools may choose to take an integrated approach when implementing these standards, and computer science may be integrated into any other content area(s). Middle schools may also choose a standalone computer science implementation strategy. For this purpose, 0488 Computer Science - Middle Level was added to the list of middle school course options. The course framework for 0488 Computer Science - Middle Level can be found [here](#).

Elementary School

Computer science standards for the K-2 and 3-5 grade bands were adopted by the State Board of Education in 2016 and can be found [here](#). Schools may choose to take an integrated approach when implementing these standards, and computer science may be integrated into any other content area(s). Elementary schools may also choose a standalone computer science implementation strategy if desired.

Additional Information and Resources

Curriculum Options

A [CS Curriculum and Resource Guide](#) has been developed for schools to utilize when investigating resources and curriculum options. The guide is organized by grade band and is intended to give schools an overview of prominent curriculum providers and resources. While this guide is intended to be a helpful resource for schools, it does not necessarily represent all available curriculum providers and does not indicate any particular recommendation by the Indiana Department of Education.

Professional Development

Significant funding was allocated to computer science professional development by the Indiana General Assembly. As CS professional development opportunities become available to Indiana teachers, details and registration information will be posted [here](#).

Teacher Licensing

Additional licensing flexibility has been included for a variety of computer science courses. Computer science assignment code information can be found [here](#).

Extended Learning Opportunities

- [Computer Science Honor Society](#) - encourages secondary students' enthusiasm for computer science, honors academic excellence, and promotes service.
- [National Cybersecurity Center Student Alliance](#) - a Career and Technical Student Organization (CTSO) that focuses on cybersecurity.
- [CyberPatriot](#) - a program created by the Air Force Association (AFA) to inspire K-12 students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines critical to our nation's future.
- [State Robotics Initiative](#) - a project by TechPoint Foundation for Youth to provide STEM learning opportunities to every Indiana student through an economical, entry-level robotics platform.
- [Girls Who Code](#) - a free afterschool computer science program for girls in grades 3-12.
- [CoderDojo Indiana](#) - a network of coding clubs for students of ages 7-17.

A variety of resources can be found on the IDOE Computer Science [page](#).

Possible Implementation Strategies

Below are samples of possible vertical articulations that could be used within your district. These samples were identified to highlight the flexibility school districts have to determine the implementation strategy that best suits the structure and resources of the district.

Grade	Sample 1	Sample 2	Sample 3
K	Integrated into Other Disciplines	Rotation or Specials Class	Integrated into Other Disciplines
1			
2			
3			
4			Rotation or Specials Class
5			
6	Integrated into Other Disciplines	0488 Computer Science - Middle Level	Integrated into Other Disciplines
7		4803 Intro to Computer Science	
8			
9	4803 Intro to Computer Science	4568 AP CS Principles	4803 Intro to Computer Science
10	4801 Computer Science I	4570 AP Computer Science A	4801 Computer Science I
11	5236 Computer Science II	5249 CS III: Software Development	5236 Computer Science II
12	Relevant WBL Experience	5238 Adv. CTE, College Credit	5253 Computer Science III: Cybersecurity