

COMPUTER SCIENCE IS...

Computer science develops students' computational and critical thinking skills and shows them how to create, not simply use, new technologies. This fundamental knowledge prepares students for the 21st Century, regardless of their ultimate field of study or occupation. By applying computer science as a tool for learning and expression in a variety of disciplines or interests, students will actively participate in a world that increasingly is influenced by technology.

Michigan's vision for computer science education is that all learners will develop foundational computer science skills to solve problems and be constructive citizens. In doing so, students will:

- Learn new approaches to problem-solving;
- Harness the power of computational thinking; and
- Use computer science tools to create technology.

Many times, when people think of computer science they think of coding. While this is one aspect of computer science, it encompasses more than just coding. Similarly, people think of cybersecurity as its own discipline, whereas it is a concept area within computer science. Computer science curriculum may include some of the following topics and activities: algorithmic problem-solving; computing and data analysis; human-computer interaction; modeling and simulating real-world problems; creating and manipulating graphics; programming, including game design, web design, robotics; and ethical and social issues in computing.

Michigan's recently-adopted K-12 computer science standards outline learning expectations for Michigan students and are intended to guide local curriculum development. Through the adoption of these standards, Michigan recognizes that computer science learning opportunities must be available to *all* students, regardless of where they live in the state or the demographics of the schools they attend. Computer science is not just vocational; it is foundational.

Computer Science is Important in Careers

In the 21st Century, computer science is in many aspects of daily life. The knowledge and skills learned from studying computer science prepare students for careers in a variety of sectors. Examples of job and career applications include:



Manufacturing - designing and using simulations to improve products.



The Arts - designing new special effects for movies or composing digital music.



Healthcare - exploring the vast quantities of data produced by new DNA sequencing techniques, developing new remote monitoring systems for patients, or designing security and privacy for medical records.



Financial Services - designing and overseeing automated trading services.



Retail - analyzing data to predict trends and improve inventory management.



Information technology - designing security software and hardware systems or developing mobile communication devices, networks, and applications.



Weather Forecasting - developing and interpreting models that predict the behavior of hurricanes.