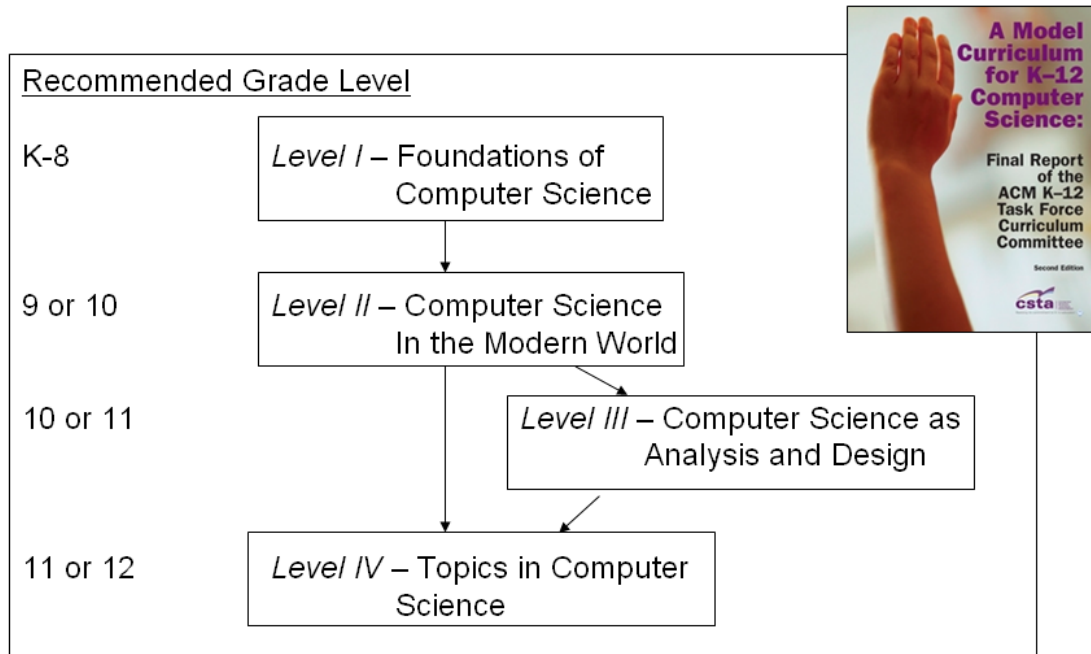


A Model Curriculum for K-12 Computer Science: Final Report of the ACM K-12 Task Force Curriculum Committee

Tucker, A. (editor), Deek, F., Jones, J., McCowan, D., Stephenson, C., and Verno, A. Association for Computing Machinery (ACM), New York, New York, October, 2003 (Second Ed., 2006)
<http://csta.acm.org/Curriculum/sub/CurrFiles/K-12ModelCurr2ndEd.pdf>



Goals of the Model Curriculum

1. Prepare students to understand the nature of computer science and its place in the modern world.
2. Show students that computer science interleaves principles and skills.
3. Enable students to use computer skills in their problem-solving activities in other subjects.
4. Complement IT and AP computer science curricula in any schools where they are currently offered.

Level II – Computer Science in the Modern World

http://csta.acm.org/Curriculum/sub/CurrFiles/Level_2_Objectives_Outline.pdf

1. Principles of computer organization.
2. Algorithmic problem solving.
3. Computer networks.
4. Internet and Web.
5. Hierarchy and abstraction.
6. Computer science and mathematics.
7. Computers as models of intelligent behavior.
8. Interdisciplinary utility of computers.
9. Ethical issues.
10. Careers in computing.

Level III – Computer Science as Analysis and Design

http://csta.acm.org/Curriculum/sub/CurrFiles/Level_III_Objectives_Outlines.pdf

1. Program design and problem solving.
2. Simple data structures.
3. Discrete mathematics.
4. Design for usability.
5. Fundamentals of hardware design.
6. Languages, software, and translation.
7. Limits of computing.
8. Principles of software engineering.
9. Social issues.
10. Careers in computing.

A Model Curriculum for K-12 Computer Science

Level 1 – Foundations of Computer Science – Draft June, 2008

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What is K-8 Computer Science, and how should it be taught?

Familiarity with information technology (IT)—keyboarding, productivity software, content-creation tools, web browsers, operating systems, and the like—is important for all K-8 students and can form the basis of an introduction to computer science.

Algorithmic thinking is an essential component of computer science; expressing algorithms using computer programming creates a strong introduction to computer science at the K-8 level.

K-8 computer science is much more than using computer applications and learning about algorithms and programming. It includes human-computer interaction, computer hardware, the role of computer systems in society and other fields of study, and how computer software is created.

K-8 computer science is interactive, creative, and empowering to students.

Level 1 – Foundations of Computer Science

1. Computers as machines
 - 1a. Parts of a personal computer
 - 1b. Repair, tools, troubleshooting, safe use
 - 1c. Electricity, circuits, logic gates, bytes
2. Software applications and standards
 - 2a. Keyboard and mouse
 - 2b. Operating system fundamentals
 - 2c. Networks, the Internet, the World Wide Web
 - 2d. Standard software (productivity and content creation apps, web browsers, etc.)
3. Problem solving with computers
 - 3a. Representing information digitally
 - 3b. Algorithms
 - 3c. Computer Programming
4. Social context of computing
 - 4a. Ethics, privacy, safety, security – “Digital Citizenship”
 - 4b. Evaluating information from networked sources
 - 4c. History and important people of computing
 - 4d. Computing in careers