

CompuScholar, Inc.
Support for **CSTA Computer Science Standards**

CSTA Standards:

Name:	Computer Science Teachers Association (2017). CSTA K-12 Computer Science Standards, Revised 2017.
Grade Level:	9 - 10
Standards Link:	http://www.csteachers.org/standards

CompuScholar Courses in this Grade Band:

Course Title:	Digital Savvy , ISBN 978-0-9887070-8-5 Course Description and Syllabus
Course Title:	Web Design , ISBN 978-0-9887070-3-0 Course Description and Syllabus
Course Title:	Java Programming (Abridged) , ISBN 978-0-9887070-4-7 Course Description and Syllabus
Course Title:	Java Programming (AP) , ISBN 978-0-9887070-2-3 Course Description and Syllabus
Course Title:	Windows Programming with C# , ISBN 978-0-9887070-0-9 Course Description and Syllabus
Course Title:	Unity Game Programming , ISBN 978-0-9887070-7-8 Course Description and Syllabus
Course Title:	Python Programming , ISBN 978-1-946113-00-9 Course Description and Syllabus

Note 1: The CSTA is not currently conducting crosswalks for specific courses against CSTA standards. Therefore, per CSTA terms of use, CompuScholar does not publish alignments to specific courses, but has broad support for CSTA goals.

CSTA Standards, 9 - 10th Grade

IDENTIFIER	STANDARD	COMPUSCHOLAR STATEMENT OF SUPPORT
3A-CS-01	Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	Our courses contain appropriate discussion of relevant abstractions and protocols.
3A-CS-02	Compare levels of abstraction and interactions between application software, system software, and hardware layers.	Our courses contain appropriate discussion of the relationship between applications, operating systems and computing hardware.
3A-CS-03	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	Our courses contain appropriate debugging steps and systematic testing approaches.

3A-NI-04	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.	Our courses contain appropriate discussion of networking components and addressing.
3A-NI-05	Give examples to illustrate how sensitive data can be affected by malware and other attacks.	Our courses contain appropriate discussion of security concerns and data protection.
3A-NI-06	Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	Our courses contain appropriate discussion of security risks, strategies and trade-offs.
3A-NI-07	Compare various security measures, considering tradeoffs between the usability and security of a computing system.	Our courses contain appropriate discussion of security risks, strategies and trade-offs.
3A-NI-08	Explain tradeoffs when selecting and implementing cybersecurity recommendations.	Our courses contain appropriate discussion of security risks, strategies and trade-offs.
3A-DA-09	Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.	Our courses contain appropriate discussion of binary numbers and encoding systems.
3A-DA-10	Evaluate the tradeoffs in how data elements are organized and where data is stored.	Our courses contain appropriate descriptions of data storage elements and structures.
3A-DA-11	Create interactive data visualizations using software tools to help others better understand real-world phenomena.	Our courses contain appropriate real-world examples using authentic data.
3A-DA-12	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.	Our courses contain appropriate simulations of real-world phenomena and data collection.
3A-AP-13	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	Our courses demonstrate a variety of algorithms using common-knowledge examples and topics of interest.
3A-AP-14	Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	Our courses describe lists and other data structures, where appropriate.
3A-AP-15	Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.	Our courses describe a variety of flow-control structures and discuss trade-offs and best practices for using each one.
3A-AP-16	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	Our courses contain creative development opportunities with an iterative design process to develop a project of personal interest.

3A-AP-17	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	Our courses cover procedural programming, OOP, and a variety of design approaches.
3A-AP-18	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	Our courses contain many development opportunities with a variety of procedures and objects.
3A-AP-19	Systematically design and develop programs for broad audiences by incorporating feedback from users.	Our courses contain team projects that incorporate peer review, feedback and iterative development.
3A-AP-20	Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.	Our courses discuss a variety of common licensing models, where appropriate.
3A-AP-21	Evaluate and refine computational artifacts to make them more usable and accessible.	Our courses contain team projects that incorporate peer review, feedback and iterative development.
3A-AP-22	Design and develop computational artifacts working in team roles using collaborative tools.	Our courses contain team projects that follow standard SDLC stages and development roles.
3A-AP-23	Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	Our courses discuss and implement requirements, design and test documents.
3A-IC-24	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	Our courses contain lessons on the impact of computing on today's society.
3A-IC-25	Test and refine computational artifacts to reduce bias and equity deficits.	Our courses contain team projects that incorporate peer review, feedback and iterative development.
3A-IC-26	Demonstrate ways a given algorithm applies to problems across disciplines.	Our courses contain appropriate descriptions of algorithms with real-world examples.
3A-IC-27	Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	Our courses contain team projects that involve collaboration and that can be applied to any topic of interest.
3A-IC-28	Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	Our courses discuss intellectual property and related laws and ethical concerns.
3A-IC-29	Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.	Our courses describe personal and online safety and digital footprints left behind by online activity.
3A-IC-30	Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.	Our courses describe personal and online safety and digital footprints left behind by online activity.