CompuScholar, Inc.

Alignment to the Missouri Computer Science Performance Standards

6th - 8th Grade

Missouri Standards Information:

CS Page	Missouri Computer Science Education Page
Standards Link:	Computer Science Performance 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:	**Python Programming**, ISBN 978-1-946113-00-9
	Course Description and Syllabus

Middle schools will normally use a combination of our "Digital Savvy", "Python Programming" and "Web Design" courses as desired to meet 6th - 8th grade requirements. Entire courses can be completed in sequential years or elements of selected courses can be combined in a single year.

Missouri Computer Science Performance Standards (6th - 8th Grade)

Computing Systems	COMPUSCHOLAR ALIGNMENT
Devices	
6-8.CS.D.01 Evaluate the design of computing devices, based on the characteristics of each device and how users interact with it, to improve the overall user	Our Web Design course contains lessons on user interface design, storyboarding, and improvement of the user experience.
Hardware & Software	
6-8.CS.HS.01 Design projects that combine hardware and software to collect and exchange data.	N/A (CompuScholar courses avoid requiring hardware components due to the logistical and cost burdens that hardware places on schools).
Troubleshooting	
6-8.CS.T.01 Develop a systematic troubleshooting routine to identify the problem, research solutions and fix problems with computing devices, components and software.	Our courses contain dedicated troubleshooting and debugging information for relevant technology. The programming courses describe how to use a variety of debugging approaches, including code analysis, tracing (logging) and setting breakpoints in a debugger. Best practices and common troubleshooting tips are provided as needed.

Network & The Internet	COMPUSCHOLAR ALIGNMENT
Network Communication & Organization	
6-8.NI.NCO.01 Model the different ways that data is transferred across a network and the protocols used to transmit the data.	Our courses describe relevant Internet protocols (HTTP/HTTPS, POP/IMAP, SMTP, FTP) and network topologies.
Cybersecurity	
6-8.NI.C.01 Recognize and determine computer threats and be able to identify programs and methods to protect electronic information.	Our courses contain relevant lessons on security topics, including physical and electronic threats and mitigation strategies.
6-8.NI.C.02 Demonstrate how data is transmitted through multiple methods of encryption.	Our courses contain lessons on relevant security topics such as encryption (including SSL/TLS) and protection of online personal information.

Data Analysis	COMPUSCHOLAR ALIGNMENT
Storage	
6-8.DA.S.01 Represent data using multiple encoding schemes.	Our courses cover numbering systems such as binary, decimal and hexadecimal. We also discuss encoding of data, including ASCII character and color representations.
Collection, Visualization & Transformation	
6-8.DA.VT.01 Collect data using computational tools and display it for the end user in an easy to understand way.	Our team projects and other labs give students opportunities to research topics, obtain data sets, and produce digital artifacts or apps to visualize and explain the aggregated information.
Inference & Models	
6-8.DA.IM.01 Analyze methods to refine computational models based on received data.	Our courses contain lessons that allow students to experiment with input data and parameters to observe changed results.

Algorithms & Programming	COMPUSCHOLAR ALIGNMENT
Algorithms	
6-8.AP.A.01 Design algorithms with flow charts and/or pseudocode to show solutions to complex problems.	Our courses describe how to use flowcharts to design algorithms to solve specific problems.
Variables	
6-8.AP.V.01 Create clearly named variables to store and manipulate information.	Our courses carefully describe how to create, initialize, update and use variable data.
Control	
6-8.AP.C.01 Design and develop combinations of control structures, nested loops and compound conditionals.	Our courses cover traditional flow control structures (conditionals, loops, functions) and the trade-offs in design, including selecting between appropriate flow control logic.

Modularity	
6-8.AP.M.01 Decompose problems and subproblems into parts to facilitate the design, implementation and review of programs.	Our courses cover Object-Oriented Programming (OOP), modular programming with functions, and breaking complex tasks down to manageable logical blocks.
6-8.AP.M.02 Create procedures with parameters to organize code and to make it easier to reuse.	Our courses include opportunities for students to create their own functions/methods and organize related code into objects for reuse.
Program Development	
6-8.AP.PD.01 Use flowcharts and/or pseudocode to solve problems using algorithms.	Our courses describe how to use flowcharts to design algorithms to solve specific problems.
6-8.AP.PD.02 Use feedback from team members and users to refine solutions to meet user needs.	Our courses contain team projects that include a refinement phase. Students will receive feedback from peers and incorporate that feedback into the final project.
6-8.AP.PD.03 Give proper attribution to code, media, etc. that is used in their programs.	Our courses contain relevant lessons on intellectual property, citation of sources and use of 3rd party modules in a larger project.
6-8.AP.PD.04 Test and refine programs using a range of test cases.	Our courses contain team projects that include a testing phase using a written test plan.
6-8.AP.PD.05 Manage project tasks and timelines when collaboratively developing computational artifacts.	Our courses describe team roles and project planning. Team projects incorporate real-world experience with teamwork and basic SDLC concepts.

Impacts of Computing	COMPUSCHOLAR ALIGNMENT
Culture	
6-8.IC.C.01 Compare tradeoffs associated with computing technologies that have impacted people's activities, careers and lives when solving global problems using the power of computing.	Our courses contain relevant lessons on the impact of computing on society, personal life and career choices.
Social Interactions	
6-8.IC.SI.01 Collaborate through strategies such as crowdsourcing or surveys when creating a computational artifact.	Team projects allow students to work together to create programs or digital artifacts.
Safety, Law & Ethics	
6-8.IC.SLE.01 Describe tradeoffs between allowing information to be public and keeping information private and secure.	Our courses discuss the security of personal information in online environments.