

## CompuScholar, Inc.

### Alignment to Massachusetts **Digital Literacy and Computer Science (DLCS)**

#### 6th - 8th Grade Curriculum Framework

#### Massachusetts Standards:

<b>Course Title:</b>	Digital Literacy and Computer Science
<b>Grade Level:</b>	6th - 8th Grade
<b>Standards Link:</b>	<a href="#">2016 DLCS Curriculum Framework</a>

#### CompuScholar Course Details:

<b>Course 1:</b>	Digital Savvy, ISBN 978-0-9887070-8-5, 2019 Edition
<b>Course 2:</b>	Python Programming, ISBN 978-1-946113-00-9, 2019 Edition

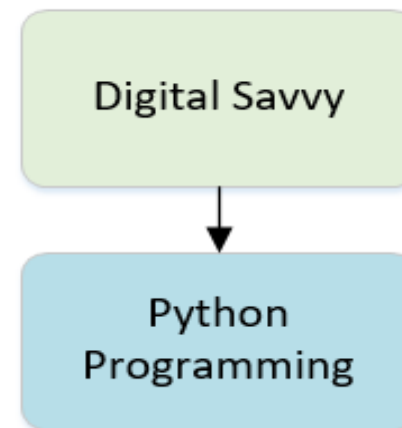
#### Overview

Digital Literacy and Computer Science for 6th - 8th grades is organized into four strands of focused study. CompuScholar's "Digital Savvy" and "Python Programming" courses cover 100% of these requirements when combined in the recommended course track (pictured on right).

**Note 1:** Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

**Note 2:** Citation(s) for a "Lesson" refer to the "Lesson Text" elements and associated "Activities" within the course, unless otherwise noted. The "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

#### 6<sup>th</sup> – 8<sup>th</sup> Grade Course Track



## Grades 6 – 8: Computing and Society (CAS)

6-8.CAS.a	Safety and Security	Digital Savvy Citation(s)	Python Citation(s)
6-8.CAS.a.1	Identify threats and actively protect devices and networks from viruses, intrusion, vandalism, and other malicious activities.	Chapter 8, Lessons 1 - 3	Suppl. Chapter 2, Lessons 2 - 3
6-8.CAS.a.2	Describe how cyberbullying can be prevented and managed.	Chapter 8, Lesson 4	Suppl. Chapter 2, Lesson 1
6-8.CAS.a.3	Explain the connection between the persistence of data on the Internet, personal online identity, and personal privacy.	Chapter 8, Lesson 1 Chapter 18, Lesson 4	Suppl. Chapter 4, Lesson 2
6-8.CAS.a.4	Describe and use safe, appropriate, and responsible practices (netiquette) when participating in online communities (e.g., discussion groups, blogs, social networking sites).	Chapter 8, Lesson 4 Chapter 16, Lesson 1 Chapters 17 and 18	Suppl. Chapter 2, Lesson 1
6-8.CAS.a.5	Differentiate between appropriate and inappropriate content on the Internet.	Chapter 8, Lesson 4	Suppl. Chapter 2, Lesson 1
6-8.CAS.b	Ethics and Laws	Digital Savvy Citation(s)	Python Citation(s)
6-8.CAS.b.1	Explain how copyright law and licensing protect the owner of intellectual property.	Chapter 2, Lesson 2 Chapter 8, Lesson 5	Suppl. Chapter 2, Lesson 2
6-8.CAS.b.2	Explain possible consequences of violating intellectual property law and plagiarism.	Chapter 8, Lesson 5	Suppl. Chapter 2, Lesson 2
6-8.CAS.b.3	Apply fair use for using copyrighted materials (e.g., images, music, video, text).	Chapter 8, Lesson 5	Suppl. Chapter 2, Lesson 2
6-8.CAS.b.4	Identify the legal consequences of sending or receiving inappropriate content (e.g., cyberbullying, harassment, sexting).	Chapter 8, Lessons 4 - 5	Suppl. Chapter 2, Lessons 1, 3
6-8.CAS.b.5	Differentiate among open source and proprietary software licenses and their applicability to different types of software and media.	Chapter 2, Lesson 2 Chapter 8, Lesson 5	Suppl. Chapter 2, Lesson 2

<b>6-8.CAS.b.6</b>	Demonstrate compliance with the school's Acceptable Use Policy [AUP].	Chapter 8, Lesson 4	Suppl. Chapter 2, Lesson 1
<b>6-8.CAS.b.7</b>	Identify software license agreements and application permissions.	Chapter 8, Lesson 5	Suppl. Chapter 2, Lesson 2
<b>6-8.CAS.b.8</b>	Explain positive and malicious purposes of hacking.	Chapter 8, Lesson 1	Suppl. Chapter 2, Lesson 3
<b>6-8.CAS.b.9</b>	License original content and extend license for sharing in the public domain (e.g., creative commons).	Chapter 2, Lesson 2	
<b>6-8.CAS.c</b>	<b>Interpersonal and Societal Impact</b>	<b>Digital Savvy Citation(s)</b>	<b>Python Citation(s)</b>
<b>6-8.CAS.c.1</b>	Describe current events and emerging technologies in computing and the effects they may have on education, the workplace, individuals, communities, and global society.	Chapter 2, Lesson 5 Supplemental Chapter 1	Suppl. Chapter 4, Lessons 1, 3
<b>6-8.CAS.c.2</b>	Identify and discuss the technology proficiencies needed in the classroom and the workplace, and how to meet the needs.	Chapter 24	Suppl. Chapter 3, Lessons 4, 5
<b>6-8.CAS.c.3</b>	Relate the distribution of computing resources in a global society to issues of equity, access, and power.	Supplemental Chapter 1, Lessons 1 and 3	Suppl. Chapter 4, Lessons 1, 3
<b>6-8.CAS.c.4</b>	Evaluate how media and technology can be used to distort, exaggerate, and misrepresent information.	Chapter 7, Lesson 3 Supplemental Chapter 1, Lesson 1	Suppl. Chapter 4, Lesson 1
<b>6-8.CAS.c.5</b>	Evaluate the bias of digital information sources, including websites.	Chapter 7, Lesson 3 Supplemental Chapter 1, Lesson 1	Suppl. Chapter 4, Lesson 1

## Grades 6 – 8: Digital Tools and Collaboration (DTC)

6-8.DTC.a	Digital Tools	Digital Savvy Citation(s)	Python Citation(s)
6-8.DTC.a.1	Identify and explain the strengths, weaknesses, and capabilities of a variety of digital tools.	Chapters 9 - 12, 15, etc.	Chapter 1, Lesson 2 Suppl. Chapter 1
6-8.DTC.a.2	Identify the kinds of content associated with different file types and why different file types exist (e.g., formats for word processing, images, music, three-dimensional drawings.).	Chapter 4, Lesson 1	
6-8.DTC.a.3	Integrate information from multiple file formats into a single artifact.	Chapters 14 and 25	
6-8.DTC.a.4	Individually and collaboratively use advanced tools to design and create online content (e.g., digital portfolio, multimedia, blog, webpage).	Chapters 9 - 12, 14, 15 - 21, 25	Chapter 13
6-8.DTC.a.5	Individually and collaboratively develop and conduct an online survey.	Surveys can be the topic of Chapter 14 and 25 projects	
6-8.DTC.b	Collaboration and Communication	Digital Savvy Citation(s)	Python Citation(s)
6-8.DTC.b.1	Communicate and publish key ideas and details individually or collaboratively in a way that informs, persuades, and/or entertains using a variety of digital tools and media-rich resources.	Chapters 11, 14, 19-21, 25	Chapter 13
6-8.DTC.b.2	Collaborate synchronously and asynchronously through online digital tools.	Chapters 14, 16, 25	Chapter 13
6-8.DTC.b.3	Demonstrate ability to communicate appropriately through various online tools (e.g., e-mail, social media, texting, blog comments).	Chapters 14, 16 - 18, 15	

6-8.DTC.c	Research	Digital Savvy Citation(s)	Python Citation(s)
6-8.DTC.c.1	Perform advanced searches to locate information using a variety of digital sources (e.g., Boolean Operators, limiters like reading level, subject, media type).	Chapter 7, Lessons 1 - 2	
6-8.DTC.c.2	Evaluate quality of digital sources for reliability, including currency, relevancy, authority, accuracy, and purpose of digital information.	Chapter 7, Lesson 3	
6-8.DTC.c.3	Gather, organize, and analyze information from digital sources by quoting, paraphrasing, and/or summarizing.	Chapter 7, Lesson 3 Chapters 14 and 25	
6-8.DTC.c.4	Create an artifact, individually and collaboratively, that answers a research question and communicates results and conclusions.	Chapters 14 and 25	
6-8.DTC.c.5	Use digital citation tools to cite sources using a school- or district-adopted format (e.g., Modern Language Association [MLA]), including proper citation for all text and non-text sources (e.g., images, audio, video).	Chapter 7, Lesson 3	

### Grades 6 – 8: Computing Systems (CS)

6-8.CS.a	Computing Devices	Digital Savvy Citation(s)	Python Citation(s)
6-8.CS.a.1	Describe the main functions of an operating system.	Chapter 3	
6-8.CS.a.2	Recognize that there is a wide range of application software.	Chapter 2, Lessons 1 - 3	
6-8.CS.a.3	Identify and describe the function of the main internal parts of a basic computing device (e.g., motherboard, hard drive, Central Processing Unit [CPU]).	Chapter 1, Lesson 2	
6-8.CS.a.4	Identify and describe the use of sensors, actuators, and control systems in an embodied system (e.g., a robot, an e-textile, installation art, smart room).	Chapter 1, Lesson 2	

<b>6-8.CS.a.5</b>	Individually and collaboratively design and demonstrate the use of a device (e.g., robot, e-textile) to accomplish a task.	Supplemental Chapter 3, Lesson 3	
<b>6-8.CS.a.6</b>	Use a variety of computing devices (e.g., probes, sensors, handheld devices, Global Positioning System [GPS]) to individually and collaboratively collect, analyze, and present information for content-related problems.	Supplemental Chapter 3, Lesson 3	
<b>6-8.CS.a.7</b>	Identify steps involved in diagnosing and solving routine hardware and software problems (e.g., power, connections, application window or toolbar, cables, ports, network resources, video, sound) that occur during everyday computer use.	Chapter 5, Lesson 3	
<b>6-8.CS.b</b>	<b>Human and Computer Partnerships</b>	<b>Digital Savvy Citation(s)</b>	<b>Python Citation(s)</b>
<b>6-8.CS.b.1</b>	Explain why some problems can be solved more easily by computers or humans based on a general understanding of types of tasks at which each excels.	Supplemental Chapter 1, Lesson 4	Suppl. Chapter 4, Lesson 4
<b>6-8.CS.b.2</b>	Describe how humans and machines interact to solve problems that cannot be solved by either alone (e.g., “big data” experiments that involve drawing conclusions by analyzing vast amounts of data).	Supplemental Chapter 1, Lesson 4	Suppl. Chapter 4, Lesson 4
<b>6-8.CS.c</b>	<b>Networks</b>	<b>Digital Savvy Citation(s)</b>	<b>Python Citation(s)</b>
<b>6-8.CS.c.1</b>	Explain the difference between physical (wired), local and wide area, wireless, and mobile networks.	Chapter 6, Lessons 1 - 2	
<b>6-8.CS.c.2</b>	Model the components of a network, including devices, routers, switches, cables, wires, and transponders.	Chapter 6, Lessons 1 - 2	
<b>6-8.CS.c.3</b>	Describe how information, both text and non-text, is translated and communicated between digital devices over a computer network.	Chapter 6, Lessons 4 and 6 Supplemental Chapter 2, Lessons 1 and 3	

6-8.CS.d	Services	Digital Savvy Citation(s)	Python Citation(s)
6-8.CS.d.1	Identify capabilities of devices that are enabled through services (e.g., a wearable device that stores fitness data in the cloud, a mobile device that uses location services for navigation).	Chapter 2, Lesson 5	

### Grades 6 – 8: Computational Thinking (CT)

6-8.CT.a	Abstraction	Digital Savvy Citation(s)	Python Citation(s)
6-8.CT.a.1	Describe how data is abstracted by listing attributes of everyday items to represent, order and compare those items (e.g., street address as an abstraction for locations; car make, model, and license plate number as an abstraction for cars).	Chapter 23, Lesson 1 Supplemental Chapter 2, Lesson 3	Chapter 10, Lessons 1, 2
6-8.CT.a.2	Define a simple function that represents a more complex task/problem and can be reused to solve similar tasks/problems.	Chapter 22, Lesson 3 Supplemental Chapter 2, Lesson 2	Chapter 9
6-8.CT.a.3	Use decomposition to define and apply a hierarchical classification scheme to a complex system, such as the human body, animal classification, or in computing.		Chapter 10, Lessons 1, 2
6-8.CT.b	Algorithms	Digital Savvy Citation(s)	Python Citation(s)
6-8.CT.b.1	Design solutions that use repetition and conditionals.	Chapter 23, Lessons 2 -3 Supplemental Chapter 2, Lesson 2	Chapter 4
6-8.CT.b.2	Use logical reasoning to predict outputs given varying inputs.	Chapter 23, Lessons 1 -3 Supplemental Chapter 2, Lesson 2	Chapter 3 and throughout the course

<b>6-8.CT.b.3</b>	Individually and collaboratively decompose a problem and create a sub-solution for each of its parts (e.g., video game, robot obstacle course, making dinner).	Chapter 22, Lesson 3 Supplemental Chapter 2, Lesson 2	Chapters 10, 11, 12, 13
<b>6-8.CT.b.4</b>	Recognize that more than one algorithm can solve a given problem.	Chapter 22, Lesson 3 Supplemental Chapter 2, Lesson 2	Suppl. Chapter 3, Lesson 3
<b>6-8.CT.b.5</b>	Recognize that boundaries need to be taken into account for an algorithm to produce correct results.	Chapter 22, Lesson 3 Supplemental Chapter 2, Lesson 2	Chapter 11 Activity
<b>6-8.CT.c</b>	<b>Data</b>	<b>Digital Savvy Citation(s)</b>	<b>Python Citation(s)</b>
<b>6-8.CT.c.1</b>	Demonstrate that numbers can be represented in different base systems (e.g., binary, octal, and hexadecimal) and text can be represented in different ways (e.g., American Standard Code for Information Interchange [ASCII]).	Supplemental Chapter 2, Lessons 1 and 3	Suppl. Chapter 3, Lesson 1
<b>6-8.CT.c.2</b>	Describe how computers store, manipulate, and transfer data types and files (e.g., integers, real numbers, Boolean Operators) in a binary system.	Supplemental Chapter 2, Lessons 1 and 3	Suppl. Chapter 3, Lessons 1, 2
<b>6-8.CT.c.3</b>	Create, modify, and use a database (e.g., define field formats, add new records, manipulate data), individually and collaboratively, to analyze data and propose solutions for a task/problem.	Chapter 12	
<b>6-8.CT.c.4</b>	Perform a variety of operations such as sorting, filtering, and searching in a database to organize and display information in a variety of ways such as number formats (scientific notation and percentages), charts, tables, and graphs.	Chapter 12	
<b>6-8.CT.c.5</b>	Select and use data-collection technology (e.g., probes, handheld devices, geographic mapping systems) to individually and collaboratively gather, view, organize, analyze, and report results for content-related problems.	Data-collection devices can be incorporated into Chapter 14 and 25 projects, if desired	



6-8.CT.d	Programming and Development	Digital Savvy Citation(s)	Python Citation(s)
6-8.CT.d.1	Individually and collaboratively compare algorithms to solve a problem, based on a given criteria (e.g., time, resource, accessibility).	Chapter 22, Lesson 3 Supplemental Chapter 2, Lesson 2	Suppl. Chapter 3, Lesson 3
6-8.CT.d.2	Use functions to hide the detail in a program.		Chapter 9
6-8.CT.d.3	Create a program, individually and collaboratively, that implements an algorithm to achieve a given goal.	Chapters 22, 23, 25	Chapters 9, 12, 13, etc.
6-8.CT.d.4	Implement problem solutions using a programming language, including all of the following: looping behavior, conditional statements, expressions, variables, and functions.	Chapters 22, 23, 25	Chapters 2, 3, 4, 6, 9, etc.
6-8.CT.d.5	Trace programs step-by-step in order to predict their behavior.		Chapter 5, Lessons 2, 3
6-8.CT.d.6	Use an iterative approach to development and debugging to understand the dimensions of a problem clearly.	Chapter 13, Lesson 2	Chapter 13
6-8.CT.e	Modeling and Simulation	Digital Savvy Citation(s)	Python Citation(s)
6-8.CT.e.1	Create a model of a real-world system and explain why some details, features and behaviors were required in the model and why some could be ignored.	Supplemental Chapter 2, Lesson 5	Chapters 12 and 13 Activities
6-8.CT.e.2	Use and modify simulations to analyze and illustrate a concept in depth (e.g., light rays/mechanical waves interaction with materials, genetic variation).	Supplemental Chapter 2, Lesson 5	Chapters 12 and 13 Activities
6-8.CT.e.3	Select and use computer simulations, individually and collaboratively, to gather, view, analyze, and report results for content-related problems (e.g., migration, trade, cellular function).	Supplemental Chapter 2, Lesson 5	Chapters 12 and 13 Activities