

CompuScholar, Inc.
 Correlations to the Nevada CTE Computer Science Standards
Levels 1, 2, 3, Grades 9 - 12
"Java Programming"

Nevada Course Details:

Course Name:	Computer Science
Primary Cluster:	CTE - Computer Science
CIP Code(s):	11.0701 - Levels 1, 2, 3
Credit:	1
Grade Level:	9th-12th
Program Standards Link:	Program Standards - Computer Science (2018)
Framework Link:	Curriculum Frameworks - Computer Science (2018)

CompuScholar Course

Course Title:	Java Programming
Course ISBN:	978-1-946113-99-3
Course Year:	2021

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.

Note 3: Citation(s) to Supplemental ("Suppl.") lessons or chapters can be found in Supplemental chapters at the end of each course.

Course Description

CompuScholar's **Java Programming** is a computer science course based on the Java language. The curriculum can be flexibly used for introductory computer science or AP Computer Science A preparation.

This document demonstrates how the course meets standards within the Nevada CTE Computer Science sequence for ALL Levels 1, 2, and 3. For individual alignment documents listing ONLY Level 1, 2 or 3, please visit the Nevada alignments page below.

<https://www.compuscholar.com/nevada>

Course Standards

CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 1.1 : APPLY ALGORITHMS		
1.1.1 Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests	Chapter 13 Chapter 18, Lessons 4, 5 Chapter 20	1
1.1.2 Describe how artificial intelligence drives many software and physical systems	Suppl. Chapter 3, Lesson 3	2
1.1.3 Implement an artificial intelligence algorithm to play a game against a human opponent or solve a problem	Suppl. Chapter 3, Lesson 3 Chapter 27 (student-directed project, if desired).	2
1.1.4 Use and adapt classic algorithms to solve computational problems	Chapter 13 Chapter 18, Lessons 4, 5 Chapter 20	2
1.1.5 Develop classic algorithms in code to solve computational problems	Chapter 13 Chapter 18, Lessons 4, 5 Chapter 20	2, 3
1.1.6 Evaluate algorithms in terms of their efficiency, correctness, and clarity	Chapter 20 Chapter 33	3
PERFORMANCE STANDARD 1.2 : IMPLEMENT CONTROLS		
1.2.1 Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made	Chapter 8, Lesson 4 Chapter 12, Lessons 1, 2 Chapter 18, Lessons 1, 2	1
1.2.2 Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions	Chapter 27 (student-directed project with full SDLC).	1, 2
1.2.3 Illustrate the flow of execution of a recursive algorithm	Chapter 24	3
1.2.4 Implement conditional controls in code	Chapter 8, Lessons 2 - 4	3
1.2.5 Implement recursive algorithms in code	Chapter 24	3
PERFORMANCE STANDARD 1.3 : UTILIZE VARIABLES		
1.3.1 Demonstrate the use of both linked lists and arrays to simplify solutions, generalizing computational problems instead of repeatedly using simple variables	Chapter 18 Chapter 19	1
1.3.2 Compare and contrast fundamental data structures and their uses	Chapter 19, Lesson 1 Suppl. Chapter 1, Lesson 5	1
1.3.3 Implement arrays in code	Chapter 18	2, 3
1.3.4 Implement ArrayLists and LinkedLists in code	Chapter 19	2, 3

PERFORMANCE STANDARD 1.4 : CONSTRUCT SOLUTIONS USING MODULARITY		
1.4.1 Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects	Chapters 5, 14, 15	1
1.4.2 Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs	Chapters 14, 15, 16, 22, 23	1
1.4.3 Construct solutions to problems using student-created components, such as procedures, modules and/or objects	Chapters 14, 15, 16, 22, 23	2
1.4.4 Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution	Chapter 13, Lesson 3 Chapter 20 Chapter 24, Lessons 2, 3 Suppl. Chapter 1, Lesson 3	2
1.4.5 Demonstrate code reuse by creating programming solutions using libraries and APIs	Java Class Library used throughout the course (e.g. Chapter 5, Lesson 5,	2, 3
PERFORMANCE STANDARD 1.5 : DEMONSTRATE PROGRAMMING AND DEVELOPMENT		
1.5.1 Systematically design and develop programs for broad audiences by incorporating feedback from users	Chapter 27 (student-directed project includes feedback) Suppl. Chapter 2, Lesson 1	1
1.5.2 Evaluate licenses that limit or restrict the use of computational artifacts when using resources such as libraries	Chapter 1, Lesson 4	1
1.5.3 Evaluate and refine computational artifacts to make them more usable by all and accessible to people with disabilities	N/A (Covered in our Web Design and Digital Savvy courses)	1
1.5.4 Design and develop computational artifacts while working in team roles and using collaborative tools	Chapter 27 Suppl. Chapter 3, Lesson 4	1
1.5.5 Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs	Chapter 13, Lessons 1, 2 Chapter 27 Suppl. Chapter 1, Lessons 2, 6 Suppl. Chapter 2, Lesson 1	1
1.5.6 Plan and develop programs for broad audiences using a software life cycle process	Chapter 27 Suppl. Chapter 2, Lesson 1	2
1.5.7 Explain security issues that might lead to compromised computer programs	Chapter 1, Lesson 5	2
1.5.8 Develop programs for multiple computing platforms	Chapter 2, Lessons 1, 2	2
1.5.9 Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project	Chapter 27 Chapter 29 Suppl. Chapter 1, Lesson 2 Suppl. Chapter 2, Lesson 1	2
1.5.10 Develop and use a series of test cases to verify that a program performs according to its design specifications	Chapter 11, Lesson 1 Chapter 27, Lesson/Activity 3 Suppl. Chapter 2, Lesson 1	2

1.5.11 Modify an existing program to add additional functionality and discuss intended and unintended implications, e.g., breaking other functionality	Many Chapter Activities, e.g. :Chapter 10 Activity Chapter 21 Activity Chapter 27, Lesson/Activity 3	2
1.5.12 Evaluate key qualities of a program through a process such as a code review	Chapter 11, Lesson 1 Chapter 27, Lesson/Activity 3	3
1.5.13 Compare multiple programming languages and discuss how their features make them suitable for solving different types of problems	Chapter 2, Lesson 1	3

CONTENT STANDARD 2.0 : UNDERSTAND COMPUTING SYSTEMS	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 2.1 : DESCRIBE DEVICES		
2.1.1 Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects	Chapter 1, Lessons 1 - 2	1
PERFORMANCE STANDARD 2.2 : COMPARE HARDWARE AND SOFTWARE		
2.2.1 Compare levels of abstraction and interactions between application software, system software, and hardware layers	Chapter 1, Lesson 3	1
2.2.2 Categorize the roles of operating system software	Chapter 1, Lesson 3	2
PERFORMANCE STANDARD 2.3 : EXPLAIN TROUBLESHOOTING		
2.3.1 Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors	Chapter 11, Lesson 1 Chapter 27, Lesson 3	1
2.3.2 Illustrate ways computing systems implement logic, input, and output through hardware components	Chapter 1, Lesson 2	2

CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 3.1 : EVALUATE STORAGE SOLUTIONS		
3.1.1 Translate between different bit representations of real-world phenomena, such as characters, numbers, and images, e.g., convert hexadecimal colors to decimal percentages, ASCII/Unicode representation	Chapter 7, Lesson 2 Suppl. Chapter 1, Lesson 1	1
3.1.2 Evaluate the tradeoffs in how data elements are organized and where data is stored	Chapter 19, Lesson 1 Suppl. Chapter 1, Lesson 5	1
3.1.3 Demonstrate the ability to store bit representation of real-world phenomena, characters, numbers, and images	Chapter 7, Lesson 2 Suppl. Chapter 1, Lesson 1	2

PERFORMANCE STANDARD 3.2 : CREATE USING COLLECTION, VISUALIZATION, AND TRANSFORMATION		
3.2.1 Create interactive data visualizations or alternative representations using software tools to help others better understand real-world phenomena	Chapter 27 (student-directed topics) Suppl. Chapter 1, Lesson 4	1
3.2.2 Use data analysis tools and techniques to identify patterns in data representing complex systems	Chapter 33, Lesson 2 Suppl. Chapter 1, Lesson 4	1
3.2.3 Select data collection tools and techniques to generate data sets that support a claim or communicate information	Chapter 33, Lesson 2 Suppl. Chapter 1, Lesson 4	3
PERFORMANCE STANDARD 3.3 : CREATE USING INFERENCE AND MODELS		
3.3.1 Create computational models that represent the relationships among different elements of data collected from a phenomenon, process, or model	Chapter 33, Lesson 2 Chapter 27 (student-directed topics) Suppl. Chapter 1, Lesson 4	1
3.3.2 Evaluate the ability of models and simulations to test and support the refinement of hypotheses	Chapter 33, Lesson 2 Suppl. Chapter 1, Lesson 4	3

CONTENT STANDARD 4.0 : UNDERSTAND IMPACTS OF COMPUTING	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 4.1 : EVALUATE THE IMPACT OF COMPUTING ON CULTURE		
4.1.1 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices	Suppl. Chapter 3	1
4.1.2 Test and refine computational artifacts to reduce bias and equity deficits	N/A	1
4.1.3 Demonstrate ways a given algorithm applies to problems across disciplines	Chapter 13, Lessons 3, 4 Chapter 20 Chapter 24, Lessons 2, 3	1
4.1.4 Explain the potential impacts of artificial intelligence on society	Suppl. Chapter 3, Lesson 3	1
4.1.5 Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society	Suppl. Chapter 3, Lessons 1 - 2	2
4.1.6 Create computational artifacts to maximize their beneficial effects and minimize harmful effects on society	Chapter 1, Lesson 4 Suppl. Chapter 3, Lessons 1 - 2	3
4.1.7 Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society	N/A (see Digital Savvy)	3
4.1.8 Predict how computational innovations that have revolutionized aspects of our culture might evolve	Suppl. Chapter 3, Lesson 2	3
PERFORMANCE STANDARD 4.2 : INCREASE SOCIAL INTERACTIONS		
4.2.1 Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields	Chapter 27 Suppl. Chapter 3, Lesson 4	1
4.2.2 Use tools and methods for collaboration to increase the productivity of a team	Chapter 27 Suppl. Chapter 3, Lesson 4	3

PERFORMANCE STANDARD 4.3 : EXPLAIN SAFETY, LAW, AND ETHICS RELATED TO COMPUTING		
4.3.1 Explain the beneficial and harmful effects that intellectual property laws can have on innovation	Chapter 1, Lesson 4	1
4.3.2 Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users	Suppl. Chapter 3, Lesson 1	1
4.3.3 Evaluate the social and economic implications of privacy in the context of safety, law, or ethics	Chapter 1, Lessons 4 - 5 Suppl. Chapter 3, Lesson 1	1
4.3.4 Discuss the role of ethics in emerging technologies	Chapter 1, Lesson 4 Suppl. Chapter 3, Lessons 2 - 3	2
4.3.5 Debate laws and regulations that impact the development and use of software	Chapter 1, Lessons 4 - 5	3

CONTENT STANDARD 5.0 : UNDERSTAND NETWORKS AND THE INTERNET	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 5.1 : EVALUATE NETWORK, COMMUNICATION, AND ORGANIZATION		
5.1.1 Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing	Suppl. Chapter 4, Lessons 1 - 4	1
5.1.2 Describe the issues that impact network functionality, e.g., bandwidth, load, delay, topology	Suppl. Chapter 4, Lessons 2, 4	3
PERFORMANCE STANDARD 5.2 : DESCRIBE CYBERSECURITY		
5.2.1 Illustrate how sensitive data can be affected by malware and other attacks	Chapter 1, Lesson 5 Suppl. Chapter 3, Lesson 1	1
5.2.2 Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts	Chapter 1, Lesson 5 Suppl. Chapter 3, Lesson 1	1
5.2.3 Compare various security measures, considering tradeoffs between the usability and security of a computing system	Chapter 1, Lesson 5 Suppl. Chapter 3, Lesson 1	1
5.2.4 Explain tradeoffs when selecting and implementing cybersecurity recommendations	Chapter 1, Lesson 5 Suppl. Chapter 3, Lesson 1	1
5.2.5 Compare ways software developers protect devices and information from unauthorized access	Chapter 1, Lesson 5 Suppl. Chapter 3, Lesson 1	3

Employability Skills for Career Readiness Standards

CONTENT STANDARD 1.0: DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS	CITATION(S)	LEVEL(S)
PERFORMANCE STANDARD 1.1: DEMONSTRATE PERSONAL QUALITIES AND PEOPLE SKILLS		
1.1.1 Demonstrate a positive work ethic by coming to work every day on time, a willingness to take direction, and motivation to accomplish the task at hand	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3

1.1.2 Demonstrate integrity by abiding by workplace policies and laws and demonstrating honesty and reliability	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
1.1.3 Demonstrate teamwork skills by contributing to the success of the team, assisting others, and requesting help when needed	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
1.1.4 Demonstrate positive self-representation skills by dressing appropriately and using language and manners suitable for the workplace	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
1.1.5 Demonstrate diversity awareness by working well with all customers and coworkers	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
1.1.6 Demonstrate conflict-resolution skills by negotiating diplomatic solutions to interpersonal and workplace issues	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
1.1.7 Demonstrate creativity and resourcefulness by contributing new ideas and working with initiative	Chapter 27 (Team project with team roles & deliverables) Suppl. Chapter 2, Lesson 2	1, 2, 3
PERFORMANCE STANDARD 1.2: DEMONSTRATE PROFESSIONAL KNOWLEDGE AND SKILLS		
1.2.1 Demonstrate effective speaking and listening skills by communicating effectively with customers and employees and following directions	Chapter 27 Suppl. Chapter 2, Activity 1	1, 2, 3
1.2.2 Demonstrate effective reading and writing skills by reading and interpreting workplace documents and writing clearly	Chapter 27 Suppl. Chapter 2, Activity 1	1, 2, 3
1.2.3 Demonstrate critical-thinking and problem-solving skills by analyzing and resolving problems that arise in completing assigned tasks	Hands-on tasks are completed throughout the course	1, 2, 3
1.2.4 Demonstrate healthy behaviors and safety skills by following safety guidelines and managing personal health	N/A (See Digital Savvy)	1, 2, 3
1.2.5 Demonstrate understanding of workplace organizations, systems, and climates by identifying “big picture” issues and fulfilling the mission of the workplace	Chapter 27, Lessons 1, 2 Suppl. Chapter 2, Lessons 1 - 2	1, 2, 3
1.2.6 Demonstrate lifelong-learning skills by continually acquiring new industry-related information and improving professional skills	Suppl. Chapter 2, Lessons 2 - 3	1, 2, 3
1.2.7 Demonstrate job acquisition and advancement skills by preparing to apply for a job and seeking promotion	Suppl. Chapter 2, Lesson 2	1, 2, 3
1.2.8 Demonstrate time, task, and resource management skills by organizing and implementing a productive plan of work	Chapter 27 Suppl. Chapter 2, Lesson 1	1, 2, 3
1.2.9 Demonstrate mathematics skills by using mathematical reasoning to accomplish tasks	Chapter 7, Lesson 2 Chapter 8, Lesson 1 Chapter 9, Lessons 2, 3 Chapter 13, Lesson 3	1, 2, 3

1.2.10 Demonstrate customer service skills by identifying and addressing the needs of all customers and providing helpful, courteous, and knowledgeable service	N/A (See Digital Savvy)	1, 2, 3
PERFORMANCE STANDARD 1.3 : DEMONSTRATE TECHNOLOGY KNOWLEDGE AND SKILLS		
1.3.1 Demonstrate proficiency with job-specific technologies by selecting and safely using technological resources to accomplish work responsibilities in a productive manner	Online technical resources used throughout the course	1, 2, 3
1.3.2 Demonstrate proficiency with information technology by using computers, file management techniques, and software/programs effectively	Computers, file management and software used throughout the course	1, 2, 3
1.3.3 Demonstrate proper Internet use and security by using the Internet appropriately for work	Internet used safely and securely to access online course material	1, 2, 3
1.3.4 Demonstrate proficiency with telecommunications by selecting and using appropriate devices, services, and applications	Appropriate devices and applications used throughout the course	1, 2, 3