Nevada Computer Science

Computer Science: Grades 9-12 Advanced

Algorithms and Programming

1 **Describe how artificial intelligence drives many software and physical systems.** A9-12.AP.A.1

2 **Implement an artificial intelligence algorithm to play a game against a human opponent or solve a problem.** A9-12.AP.A.2

3 **Use and adapt classic algorithms to solve computational problems.** A9-12.AP.A.3

4 **Evaluate algorithms in terms of their efficiency, correctness, and clarity.** A9-12.AP.A.4

5 **Compare and contrast fundamental data structures and their uses.** A9-12.AP.V.1

6 **Illustrate the flow of execution of a recursive algorithm.** A9-12.AP.C.1

7 **Construct solutions to problems using student-created components, such as procedures, modules and/or objects.** A9-12.AP.M.1

8 **Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.** A9-12.AP.M.2

9 **Demonstrate code reuse by creating programming solutions using libraries and APIs.** A9-12.AP.M.3

10 **Plan and develop programs for broad audiences using a software life cycle process.** A9-12.AP.PD.1

11 **Explain security issues that might lead to compromised computer programs.** A9-12.AP.PD.2

12 **Develop programs for multiple computing platforms.** A9-12.AP.PD.3

13 **Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project.** A9-12.AP.PD.4

14 **Develop and use a series of test cases to verify that a program performs according to its design specifications.** A9-12.AP.PD.5

	15	**Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).** A9-12.AP.PD.6
	16	**Evaluate key qualities of a program through a process such as a code review.** A9-12.AP.PD.7
	17	**Compare multiple programming languages and discuss how their features make them suitable for solving different types of problems.** A9-12.AP.PD.8
Computing Systems	1	**Categorize the roles of operating system software.** A9-12.CS.HS.1
	2	**Illustrate ways computing systems implement logic, input, and output through hardware components.** A9-12.CS.T.1
Data and Analysis	1	**Use data analysis tools and techniques to identify patterns in data representing complex systems.** A9-12.DA.CVT.1
	2	**Select data collection tools and techniques to generate data sets that support a claim or communicate information.** A9-12.DA.CVT.2
	3	**Evaluate the ability of models and simulations to test and support the refinement of hypotheses.** A9-12.DA.IM.1
Impacts of Computing	1	**Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.** A9-12.IC.C.1
	2	**Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.** A9-12.IC.C.2
	3	**Predict how computational innovations that have revolutionized aspects of our culture might evolve.** A9-12.IC.C.3
	4	**Debate laws and regulations that impact the development and use of software.** A9-12.IC.SLE.1
Networks and the Internet	1	**Describe the issues that impact network functionality (e.g., bandwidth, load, delay, and topology).** A9-12.NI.NCO.1
	2	**Compare ways software developers protect devices and information from unauthorized access.** A9-12.NI.C.1