CompuScholar, Inc.

Alignment to the California CTE "ICT"
Games and Simulation Pathway

California Standards Information:

CTE Page	California CTE Standards Page
Standards Link:	CTE ICT Curriculum Standards

CompuScholar Courses:

Course Title:	**Unity Game Programming**, ISBN 978-0-9887070-7-8 Course Description and Syllabus

Course Description

California's CTE "Information and Communication Technologies (ICT)" program defines a "Games and Simulations Pathway" for students. CompuScholar's **Unity Game Programming** course can be used as a primary resource to meet these standards.

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.

CTE / ICT Games and Simulations Pathway Standards

D1.0 Identify and describe critical game and simulation studies, the resulting societal impact, and the management, industry, and career requirements.	**CITATION(S)**
D1.1 Categorize the different gaming genres and gaming systems.	Supplemental Chapter 2
D1.2 Describe the historical significance of electronic and nonelectronic games.	Supplemental Chapter 2
D1.3 Describe the role of play in human culture.	N/A
D1.4 Describe the psychological impact of games on individuals and groups.	N/A
D1.5 Describe the business model commonly used in the game development industry.	N/A
D1.6 Examine and categorize the significant processes in the production of interactive games.	Chapter 13
D1.7 Identify the core tasks and challenges that face a game or simulation design team.	Chapter 13

D1.8 Describe legal issues that affect games, developers and players.	Supplemental Chapter 1
D1.9 Describe the impact of the game and simulation industry on the economy.	N/A

D2.0 Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools.	**CITATION(S)**
D2.1 Demonstrate an understanding of the vocabulary for discussing games and play by listing and describing the general procedure and requirements of game and simulation design.	Chapter 13 and throughout the course
D2.2 Describe the game development life cycle.	Chapter 25, Lesson 1
D2.3 Develop a game design document or blueprint.	Chapter 13, Lesson 4
D2.4 Understand the general principles of storytelling and the use of storyboarding in game design.	Chapter 13, Lesson 1, 3
D2.5 Know how to use tools and software commonly used in game/simulation development and become familiar with popular game tools and different gaming engines.	Chapter 1
D2.6 Demonstrate an understanding of the techniques used to evaluate game mechanics, game play, flow, and game design.	Chapter 13
D2.7 Describe the complex interaction between games and players and the role it plays in the popularity of a game.	Chapter 13, Lessons 1 - 3
D2.8 Experience the methods used to create and sustain player immersion.	Chapter 13, Lesson 3
D2.9 Demonstrate an understanding of interface design, hardware constraints on games, including processors and I/O devices, and nonhardware constraints.	Chapter 4, Lesson 3 Chapter 22
D2.10 Make informed decisions about game physics: how the game world works, how the players interact with the game world, and how the players interact with one another.	Chapters 5, 19

D3.0 Create a working game or simulation individually or as part of a team.	**CITATION(S)**
D3.1 Create a storyboard describing the essential elements, plot, flow, and functions of the game/simulation.	Chapter 13, Lesson 1 Chapter 14, Activity 1
D3.2 Create a design specification document to include interface and delivery choices, rules of play, navigation functionality, scoring, media choices, start and end of play, special features, and development team credits.	Chapter 13, Lesson 4 Chapter 14, Activity 2
D3.3 Using simple game development tools, create a game or simulation.	Unity IDE is used to create games throughout the course
D3.4 Present the game or simulation.	Chapters 14, 26 and throughout the course

D4.0 Identify, describe, and implement standard game/simulation strategy and rules of play.	**CITATION(S)**
D4.1 Understand strategic outlining in game designs.	Chapter 13
D4.2 Know elements of puzzle design.	N/A
D4.3 Use key strategic considerations in game design.	Chapter 13
D4.4 Understand the process of creating and designing player actions.	Chapter 13
D4.5 Create and design the game flow as it relates to story and plot.	Chapter 13
D4.6 Assess common principles and procedures in game flow design.	Chapter 13
D4.7 Describe rule creation elements of player challenge.	Chapter 13

D5.0 Integrate music, sound, art, and animation as it applies to the environmental design of the game/simulation.	**CITATION(S)**
D5.1 Understand the methodologies for integrating digital media into a game or simulation.	Chapter 2, Lesson 3 Chapters 17, 18
D5.2 Identify commonly used art and animation production tools in the game design industry.	Chapter 17, 23
D5.3 Understand the general concepts of environmental design.	Chapter 20
D5.4 Describe how environmental design is used in conjunction with game level design.	Chapter 20

D6.0 Explain the role and principles of event modeling and interface design and apply those principles in a game/simulation design and project.	**CITATION(S)**
D6.1 Define the meaning of simulation and pertinent issues facing game designers.	N/A
D6.2 Describe applied event modeling as it relates to game design.	Chapter 3, Lesson 4
D6.3 Identify and describe the basic Human Computer Interface (HCI) design principles.	Chapter 22
D6.4 Apply the “eight golden rules” of interface design.	N/A
D6.5 Understand the use of inventory systems in game design.	N/A

D7.0 Acquire and apply appropriate programming skills for rendering a single player or multiuser game or simulation project, including program control, conditional branching, memory management, scorekeeping, timed event strategies, and implementation issues.	**CITATION(S)**
D7.1 Identify functions of information processing and describe basic network terminology and network security and demonstrate an understanding of operating systems, environments, and platforms.	Chapters 2, 24 See also Digital Savvy
D7.2 Plan program design and evaluate assigned game programming tasks.	Chapters 14, 25, 26
D7.3 Code and test programs.	Chapter 11 and throughout the course
D7.4 Create and maintain documentation and perform program maintenance.	Chapter 25, Lessons 1 - 2
D7.5 Implement enhanced program structures.	Chapters 9, 12
D7.6 Implement multimedia programming.	Chapters 17, 18

D8.0 Acquire and apply appropriate artificial intelligence (AI) techniques used by the game development industry.	**CITATION(S)**
D8.1 Describe AI and how it relates to game and simulation design and development.	Chapter 21
D8.2 Design, program, and implement intelligent agents for action games.	Chapter 21
D8.3 Use AI techniques, like finite state machines, to produce the illusion of intelligence in the behavior of nonplayer characters (NPCs).	N/A
D8.4 Create intelligently designed games that would educate as well as engage the players.	Suppl. Chapter 3, Lesson 4