

CompuScholar, Inc.

Correlations to the Texas Essential Knowledge and Skills (TEKS): CTE "Video Game Design"

CompuScholar Course Details:

Course Title:	Unity Game Programming
Course ISBN:	9780988707085
Course Year:	2017

Texas Course Details:

Chapter	Chapter 130. Texas Essential Knowledge and Skills for Career & Technical Education
Subchapter	Subchapter C. Arts, A/V Technology, and Communications
Course	§130.93 Video Game Design
TEKS Coverage	100%

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

Note 2: This document is in draft status and citations may change prior to final release.

Introduction

Video Game Design will allow students to explore one of the largest industries in the global marketplace and the new emerging careers it provides in the field of technology. Students will learn gaming, computerized gaming, evolution of gaming, artistic aspects of perspective, design, animation, technical concepts of collision theory, and programming logic. Students will participate in a simulation of a real video game design team while developing technical proficiency in constructing an original game design.

Knowledge and Skills

(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:	CITATION(S)
(A) identify and demonstrate positive work behaviors and personal qualities needed to be employable	Chapter 25, Lesson 3
(B) demonstrate skills related to seeking and applying for employment	Supplemental Chapter 3, Lesson 5
(C) create a career portfolio to document information such as work experiences, licenses, certifications, and work samples	Supplemental Chapter 3, Lesson 5
(D) demonstrate skills in evaluating and comparing employment opportunities	Supplemental Chapter 3, Lesson 5

(2) The student applies academic knowledge and skills in video game design projects. The student is expected to:	CITATION(S)
(A) apply English language arts knowledge by demonstrating skills such as correct use of content, technical concepts, vocabulary, grammar, punctuation, and terminology to write and edit a variety of documents	Chapters 13, 14, 25, 26
(B) apply mathematics knowledge and skills such as using whole numbers, decimals, fractions, and knowledge of arithmetic operations	Chapter 6, Lesson 2

(3) The student understands professional communications strategies. The student is expected to:	CITATION(S)
(A) adapt language for audience, purpose, situation, and intent	Chapters 13, 14, 25, 26
(B) organize oral and written information	Chapters 13, 14, 25, 26
(C) interpret and communicate information	Chapters 13, 14, 25, 26
(D) apply active listening skills	Chapters 14, 26
(E) communicate with diverse individuals	Chapters 14, 26

(4) The student understands and employs problem-solving methods and conflict-management skills. The student is expected to:	CITATION(S)
(A) employ critical-thinking skills independently and in groups	Chapters 14, 26
(B) employ interpersonal skills in groups to solve problems	Chapters 14, 26

(5) The student applies cyber safety procedures. The student is expected to implement personal and professional safety rules and regulations.	CITATION(S)
(A) implement personal and professional safety rules and regulations	Supplemental Chapter 1, Lesson 3

(6) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:	CITATION(S)
(A) demonstrate leadership skills	Chapters 14, 26
(B) participate in a group setting	Chapters 14, 26

(7) The student applies ethical decision making and understands and complies with laws regarding use of technology in video game design. The student is expected to:	CITATION(S)
(A) exhibit ethical conduct related to interacting with others such as maintaining client confidentiality and privacy of sensitive content and providing proper credit for ideas	Supplemental Chapter 1, Lessons 2, 3
(B) discuss and apply copyright laws	Supplemental Chapter 1, Lesson 2
(C) model respect of intellectual property	Supplemental Chapter 1, Lesson 2
(D) demonstrate proper etiquette and knowledge of acceptable use policies	Supplemental Chapter 1, Lesson 1
(E) analyze the impact of the video game design industry on society	Supplemental Chapter 2 Supplemental Chapter 3, Lesson 3

(8) The student applies technical skills for efficiency. The student is expected to employ planning and time- management skills to complete work tasks.	CITATION(S)
[A] employ planning and time-management skills to complete work tasks	Chapters 14, 26

(9) The student develops an understanding of video game design. The student is expected to:	CITATION(S)
(A) demonstrate knowledge and appropriate use of computer operating systems	Students use operating systems, file management and related skills throughout the course
(B) demonstrate appropriate use of hardware components, software programs, and storage devices	Students use keyboard and mouse inputs, multiple software IDEs, file management and related skills throughout the course
(C) demonstrate knowledge of sound editing	Chapter 18
(D) demonstrate knowledge of file formats and cross- platform compatibility	Chapters 18, 23
(E) acquire and exchange information in a variety of electronic file sharing formats	Chapters 18, 23
(F) evaluate visual information by recognizing the use of principles and elements of design	Chapters 22, 23

(10) The student employs an appropriate design process to create and modify solutions to problems. The student is expected to:	CITATION(S)
(A) combine graphics, images, and sound	Chapters 14, 17, 18, 23, 26
(B) apply principles of design	Chapter 13 Chapter 22, Lesson 3
(C) develop and reference technical documentation	Chapters 13, 14, 25, 26
(D) edit products	Chapters 14, 26

(11) The student researches the history and evolution of video game design. The student is expected to:	CITATION(S)
(A) explain the history of video game design	Supplemental Chapter 2
(B) describe how changing technology is affecting the industry	Supplemental Chapter 2
(C) analyze the use of symbols in video game design of diverse cultures	Supplemental Chapter 2
(D) compare current video game design technologies with historical technologies	Supplemental Chapter 2
(E) compare various styles of video game design	Supplemental Chapter 2

(12) The student understands and applies video game design principles, elements, and techniques. The student is expected to:	CITATION(S)
(A) employ audience identification, script writing, character design, storyboarding, and audio and delivery formats	Chapters 13, 14, 18, 24, 26
(B) describe and use motion paths, scripting, programming, and interactivity	Chapter 21
(C) describe lighting and perspective	Chapter 23, Lesson 1
(D) describe and use production processes such as titles, credits, and special effects	Chapters 21, 24

(13) The student evaluates a product using critical-thinking skills. The student is expected to evaluate products and product quality against established criteria and rubrics.	CITATION(S)
[A] evaluate products and product quality against established criteria and rubrics	Chapters 14, 26

(14) The student presents oral or written evaluations of video game design projects. The student is expected to:	CITATION(S)
(A) identify the intended audience	Chapter 13
(B) describe aesthetics	Chapter 13
(C) explain the storyline	Chapter 13
(D) summarize subject matter	Chapter 13
(E) discuss the use of sound	Chapter 18

(15) The student creates video game design projects. The student is expected to use a variety of techniques and software programs.	CITATION(S)
[A] use a variety of techniques and software programs	Unity IDE, MonoDevelop, and image/sound editing programs taught and used at appropriate times throughout the course.

(16) The student differentiates current programming languages. The student is expected to:	CITATION(S)
(A) discuss the use of computer programming languages in other fields of study	Chapter 3, Lesson 1
(B) demonstrate knowledge of specific programming terminology and concepts	Terms and concepts taught and demonstrated with hands-on labs throughout the course.

(17) The student applies problem-solving strategies. The student is expected to apply design specifications, step-wise refinement, or algorithm development.	CITATION(S)
[A] apply design specifications, step-wise refinement, or algorithm development	Chapter 21

(18) The student develops coding with correct and efficient use of expressions. The student is expected to use user- defined functions; proper operator precedence; and sequential, conditional, and repetitive control structures.	CITATION(S)
[A] use user-defined functions; proper operator precedence; and sequential, conditional, and repetitive control structures	Chapter 9, Lesson 3 Chapter 6, Lesson 2 Chapter 7 Chapter 12
(19) The students applies constructive criticism to products. The student is expected to seek and respond to advice from peers and professionals in delineating technological tasks.	CITATION(S)
[A] seek and respond to advice from peers and professionals in delineating technological tasks	Chapters 14, 26
(20) The student uses research skills and electronic communication, with appropriate supervision, to create new knowledge. The student is expected to:	CITATION(S)
(A) participate with electronic communities as a learner, initiator, contributor, and teacher or mentor	Chapters 14, 26
(B) extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the foundation and enrichment curricula	Chapters 14, 26 Supplemental Chapter 3, Lesson 4
(C) participate in relevant, meaningful activities in the larger community and society to create electronic projects	Chapters 14, 26 Supplemental Chapter 3, Lesson 4
(21) The student uses technology applications to facilitate evaluation of communication processes and products. The student is expected to:	CITATION(S)
(A) write technology specifications for planning/evaluation rubrics documenting variables, prompts, and programming code internally and externally	Chapters 14, 26
(B) debug and solve problems using reference materials and effective strategies	Chapter 11
(22) The student understands technology concepts, systems, and operations as they apply to game programming. The student is expected to:	CITATION(S)
(A) identify basic game components, including the game engine, game play subsystems, data structures, models, and interfaces	Chapters 1, 12, 13, 19, 22
(B) generate random numbers in a program	Random numbers generated and used in multiple projects throughout the course

(C) create a program implementing conditional statements	Chapter 7
(D) develop an appropriate data model	Chapters 9, 10, 12, 15
(E) demonstrate an understanding of and apply object- oriented game programming	Chapter 9
(F) demonstrate an understanding of game programming essentials, including event-driven programming, communicating with messages, and device management	Chapter 3, Lesson 4 and throughout the course as needed
(G) demonstrate an understanding of the role of game events, the animation loop, and game timing	Chapter 3, Lesson 4 Chapter 17 Chapter 19, Lesson 1
(H) demonstrate an understanding of the role of game engines	Chapter 1
(I) apply basic game screen design and layout, including visual controls, user interfaces, menus, and options	Chapters 20, 22, 24
(J) use game control design to understand, access, and control input devices	Chapter 4, Lesson 3
(K) demonstrate an understanding of and apply game animation, including the principles of animation and frame- based animation	Chapter 17
(L) demonstrate an understanding of game events, including listeners, triggers, and timed events	Chapter 3, Lesson 4 Chapter 5, Lesson 4 Chapter 10, Lesson 4
(M) demonstrate an understanding of and implement collision detection, including models and sprite collisions	Chapter 5, Lesson 2 Chapter 5, Lesson 4
(N) demonstrate an understanding of player progression, including leveling, linear progression, and maintaining high score data	Chapter 13, Lesson 3
(O) demonstrate an understanding of algorithmic decision making	Chapters 7, 21