

CALIFORNIA
CORRELATION OF STANDARDS WITH
GOODHEART-WILLCOX
VIDEO GAME DESIGN FOUNDATIONS © 2014
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Arts, Media, and Entertainment
D. Game Design and Integration Pathway Standards

Students who follow the Game Design and Integration pathway prepare for careers within the game design industry and in related technical fields. Students will develop foundational knowledge in game design, animation, graphics, and computer software and hardware. They will apply skills in Mathematics, Physics, English Language Arts, Social Science, and Entrepreneurship. Most importantly, students will learn the twenty-first century skills of creativity, critical thinking, communication, collaboration, and technical expertise, which will increase employment capacity across the job market. In the Game Design and Integration Pathway students prepare for both entry-level employment and additional postsecondary training needed for advancement in the highly competitive game design industry. They prepare for occupations such as Game Tester/Analyst, 2-D and 3-D Animator, Storyboard, Level Artist, Texture Artist, Cinematic Artist, Game Designer, Game Programmer, and Production Team Manager. Students completing this pathway develop the skills and knowledge to be creative partners in video game design while building capacity for employment in all areas of the creative workforce.

Sample occupations associated with this pathway:

- 2-D/3-D Animator
- Computer Game Designer/Developer
- Electronic Simulation Consultant

STANDARDS		CORRELATING PAGES
D1.0 Demonstrate understanding of current trends and the historical significance of both electronic and non-electronic games. Students will analyze different game systems and identify how these systems have influences consumer technology.		
D1.1	Research and analyze different game genres, including multiplayer games.	61, 64–65
D1.2	Define and use necessary vocabulary related to games, their genres, game platforms, and game hardware.	60–65
D1.3	Research, compare, and categorize different game platforms and game hardware	93–104, 206–227
D1.4	Analyze the technology transfer from video games to other industries, such as education, medical, corporate training, and military simulation.	228–234
D1.5	Present a mock-up of a future generation game platform and hardware system based on research of current and emerging technologies and future predictions.	104
D2.0 Analyze the core tasks and challenges of video game design and explore the methods used to create and sustain player immersion.		
D2.1	Identify and define the roles and responsibilities of each member of a video game design team.	32–44
D2.2	Break down and identify the fundamental building blocks of game play: player goals, player actions, rewards, and challenges.	60–65
D2.3	Research various input controls and display types then identify how these impact game play.	63
D2.4	Research and define the term “player immersion.”	22, 89
D2.5	Explore and explain the factors that create player immersion in a game.	89, 290–291

D2.6	Compare and contrast player-centric design and designer-centric design in video games.	242–245
D2.7	Describe a designer-centric game to highlighting features other than game play and entertainment value.	244
D2.8	Prototype a small game using real-world objects, such as dice, cards, balls, pen and paper, etc.	327
D3.0 Acquire and apply appropriate game programming concepts and skills to develop a playable video game.		
D3.1	Implement common programming concepts, including logic operators, conditional statements, loops, variables, events, actions, and handling user input	170–176
D3.2	Understand the basics of game physics, including collision and motion.	177–179
D3.3	Examine the use of math and physics (such as gravity and friction) in game development.	24
D3.4	Explore the basics of random number generation.	86–87
D3.5	Implement a small video game utilizing mathematics and physics that features at least one moving object (such as a spaceship) which rotates along an axis and moves in whichever direction it is facing after rotation. The game must include collision physics.	180–193
D4.0 Students will demonstrate mastery of game art and multimedia, including music, sound, art, and animation.		
D4.1	Demonstrate understanding of the elements of art, including line, shape, color, value, texture, space, and balance, to set the mood and feel of a scene.	41–43
D4.2	Research and describe the different perspectives used in video games, including first person, second person, and third person perspectives.	118–123
D4.3	Explain how to create the illusion of 3-D in a 2-D environment.	143–144
D4.4	Create 2-D art and 3-D models.	140–152
D4.5	Create an animation sequence.	155–158
D4.6	Design a game environment using lines, fills, and color to set a specific mood and feel of a scene.	24–25
D4.7	Create, record, and edit audio for a game.	Software Design Guide Activity 6-2, pg. 205–210 Software Design Guide Activity 6-4, pg. 233–235
D4.8	Define and discuss intellectual property, copyrights, trademarks, and piracy as they relate to art and multimedia assets in a game.	275–278
D4.9	Understand the basics of character design and development, world design, and level design.	320–327
D4.10	Create a storyboard for a game cut-scene applying the basic principles of design and concept of cinematography.	325–326
D5.0 Demonstrate an understanding of testing techniques used to evaluate, assess, rate, and review quality assurance of video games.		
D5.1	Test and analyze games to determine the quality of rules, interfaces, navigation, performance, and game play.	284–294, 315–319
D5.2	Identify the key elements in a game and make intelligent judgments about whether the game succeeded or failed in its objectives.	286–294, 315–319

D5.3	Compare and contrast the differences between functionality and usability of software.	315–319
D5.4	Evaluate games in terms of accessibility issues.	315–318
D5.5	Demonstrate technical reading and writing skills.	26–28
D5.6	Test a classmate’s game project and create a bug report for the game. For each error submitted, write steps in sufficient detail so it is identifiable and reproducible to the developer. Use a metric to identify how critical the error is based on its negative impact on game play.	315–319
D6.0 Understand the general procedures, documentation, and requirements of large scale game design projects. Examine and categorize the significant processes in the production of games.		
D6.1	Identify processes of design and development from concept to production, including content creation, filling team roles, design documentation, communication, and scheduling for video game design teams.	302–332
D6.2	Discuss the iterative nature of game and simulation design.	306
D6.3	Developing design plans, character sketches, documentation, and storyboards.	320–327
D6.4	Enumerate individual tasks of a project using basic time management skills to complete each task and track its completion.	32–44
D6.5	Describe the importance of interrelationship between development schedule and budget constraints in a video game design project.	302
D6.6	Compare and contrast common uses of different game development tools.	327–332
D6.7	Create a set of original design documents and build a small game.	320–327
D7.0 Understand the fundamentals of business and marketing, including entrepreneurship, global marketing, and localization.		
D7.1	Identify, define, and discuss the different ways games are funded, distributed, marketed, and sold.	343–366
D7.2	Identify and describe licensing management for different game platforms, tools, and intellectual properties.	105
D7.3	Identify successful business models and analyze various facets of those models, such as market analysis, marketing strategy, and product value.	322
D7.4	Understand the components of marketing campaigns for games, including advertising in traditional and social media.	346, 349–350, 358–359
D7.5	Understand the role community management plays in marketing and business models.	Software Design Guide Activity 10-1, pg. 377–380
D7.6	Discuss the relationships between publishers, developers, distributors, marketers, and retailers.	343–366
D7.7	Evaluate game journalism and professional reviews in terms of bias.	285–286
D7.8	Explore and describe the effects of globalization on the design and production of video games.	366–369
D7.9	Evaluate how video games adhere to government rating systems.	106–108
D7.10	Create a plan for a game to target a specific audience within three different countries while adhering to their governments’ rating systems.	Software Design Guide Capstone Project, pg.399–415

D8.0 Understand the impact of games and the role of play in human culture. Analyze the ethics and global impact of the game industry.		
D8.1	Discuss the word “play” and its many definitions.	83, 250–254
D8.2	Investigate and discuss how play can help humans acquire knowledge and social skills.	254–257
D8.3	Describe the benefits of games and simulations, including online economies and community building.	262–263
D8.4	Compare and contrast the different opinions on the effects of games on behavior, cognitive development, and motor skills.	81–82, 90–93
D8.5	Describe how frequent exposure and/or access to video games has reshaped the level of technical proficiency of our workplace.	Software Design Guide Activity 1-5, pg.21–22
D8.6	Explore and discuss the impact of video games on the economy.	342–371
D8.7	Design a game you believe will have a positive impact on the world.	Software Design Guide Capstone Project, pg.399–415
D9.0 Identify career goals and develop a career plan that explores employment opportunities in the video game industry.		
D9.1	Demonstrate personal and interpersonal skills appropriate for the workplace, such as responsibility dependability, punctuality, positive attitude, initiative, respect for self and others, and professional dress.	20–32
D9.2	Investigate how the skills acquired in game design/development can be applied to other industries.	31–32
D9.3	Use personal assessment tools to identify personal and professional strengths and weaknesses.	Software Design Guide Activity 1-1, pg. 11–13 Software Design Guide Activity 1-2, pg. 14–16
D9.4	Analyze job and career requirements as related to career interests and opportunities in the game industry.	369–371
D9.5	Investigate the common employment contracts in the game industry, such as Nondisclosure Agreements, “Work for Hire” agreements, and “Noncompete” clauses.	278–279
D9.6	Create a resume and use it during a mock interview. At the end of the interview process, apply negotiation skills as they relate to salary and benefits packages.	371
D10.0 Students will build a game that demonstrates teamwork and project management by creating a game design production plan that describes the game play, outcomes, controls, rewards, interface, and artistic style of a video game.		
D10.1	Use design documents to create a game design production plan.	320–327
D10.2	Solicit and accept constructive criticism.	19
D10.3	Use computer tools to create game programming, art, and audio.	118–158
D10.4	Create and use animated objects in a game.	155–158
D10.5	Create sound and music to enhance the game experience.	Software Design Guide Activity 6-2, pg. 205–210 Software Design Guide Activity 6-4, pg. 233–235
D10.6	Test and debug the completed game.	315–319
D10.7	Apply listening, speaking, and collaborative, communication skills to effectively convey information.	20–32

D10.8	Demonstrate a professional level of written and oral communication as necessary in the game industry.	26-29