Career & Technology
Video Game Development – Innovative Course

Unit Name			1st 6 Weeks		
Academic Alignment with TEKS	**CTE TEKS**	**Content/Vocabulary**	**Guiding Questions**	**Activities**	**Resources and Web links**
Math §111.32. 1-11 Functions §111.33 1-3 English §110.42 B 1-5,7,13,15-18, 21 Science SS	Foundation- The student demonstrates knowledge and appropriate use of hardware components, software programs, and their connections.	**Characteristics and Scope of Technology** **The Core Concepts of Technology** • Systems • Resources • Requirements • Trade-offs • Processors • Controls **The Relationships Among Technologies and the connection between Technology and other fields** -interaction of systems -interaction of technological environments -knowledge from the other fields of study and technology	(A) demonstrate knowledge and appropriate use of operating systems, software applications, and communication and networking components; (B) compare, contrast, and appropriately use the various input, processing, output, and primary/secondary storage devices; (C) make decisions regarding the selection, acquisition, and use of software taking under consideration its quality, appropriateness, effectiveness,and efficiency; (D) delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platformconnectivity; (E) differentiate current programming languages, discuss the use of the languages in other fields of study, and demonstrate knowledge of specificprogramming terminology and concepts; (F) differentiate among the levels of programming languages including machine, assembly, high-level compiled and interpreted languages; (G) demonstrate coding proficiency in a contemporary programming language.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report

			(H) identify object-oriented data types and delineate the advantages and disadvantages of object data; (I) demonstrate coding proficiency in contemporary programming languages including an object-oriented language; (J) survey the issues accompanying the development of large software systems such as design and implementation teams, software validation/testing, and risk assessment.		
Math English §110.42 B 1-5,7,13,15-18, 21 Science SS	Foundation - The student uses data input skills appropriate to the task. The student is expected to:	Parts of a Computer and their functions Analogue Joystick Keyboard Scanner Voice/Sound Recorder Mouse Touch Screen DDR Pads Controllers BMP File Format Camera Color Bit Depth Control Devices Digital Joystick File System Graphics Cards	(A) demonstrate proficiency in the use of a variety of input devices such as keyboard, scanner, voice/sound recorder, mouse, touch screen (B) use digital keyboarding standards for the input of data.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report
Math	3. Foundation - The student complies with the laws and examines the issues regarding the use of technology in society. The student is	Copyright Laws Computer Ethics Work Cited/English AUP Email Etiquette	(A) discuss copyright laws/issues and model ethical acquisition and use of digital information, citing sources using established methods		

English §110.42 B 1-5,7,13,15-18, 21 Science SS §113.32 22-26 §113.33 20-21,24,27	expected to:	Email Abbreviations FTP Gmail Account Set-up Submitting work via internet Dark Basic Tutorials Dark Basic Programming	(B) demonstrate proper etiquette and knowledge of acceptable use policies when using networks, especially resources on the Internet and intranet; (C) investigate measures, such as passwords or virus detection/prevention, to protect computer systems and databases from unauthorized use and tampering; and (D) discuss the impact of computer programming on the World Wide Web community. (E) code modules for the World Wide Web (WWW) community.		
Math English §110.42 b-21 Science SS §113.32 22-26	4. Information and Acquisition - The student acquires electronic information in a variety of formats, with appropriate supervision. The student is expected to:	Dark Basic Tutorials Graphics Cards Fonts First Person Perspective Display Modes Color Bit Depth Color Values BMP File Format Bitmaps 3D Sound	(A) acquire information in and knowledge about electronic formats including text, audio, video, and graphics; (B) use a variety of resources, including foundation and enrichment curricula, together with various productivity tools to gather authentic data as a (C) design and document sequential search algorithms for digital information storage and retrieval.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report

Math §111.32. 1-11 Functions English §110.42 B 1-5,7,13,15-18, 21 Science SS	5. Information and Acquisition - The student evaluates the acquired electronic information. The student is expected to:	Dark Basic Tutorials Vocab Bounds Checking ASCII Codes AVI File Format	(A) determine and employ methods to evaluate the design and functionality of the process using effective coding, design, and test data; and (B) implement methods for the evaluation of the information using defined rubrics.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report
Math English §110.42 B 1-5,7,13,15-18, 21 Science SS §113.32 22-26	6. Information and Acquisition - The student acquires electronic information in a variety of formats, with appropriate supervision. The student is expected to:	Dark Basic Tutorials Graphics Cards Fonts First Person Perspective Display Modes Color Bit Depth Color Values BMP File Format Bitmaps 3D Sound	(A) acquire information in and knowledge about electronic formats including text, audio, video, and graphics; (B) use a variety of resources, including foundation and enrichment curricula, together with various productivity tools to gather authentic data as a design and document sequential search algorithms for digital information storage and retrieval.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7

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Math §111.34. Geometry 1-7 §111.35. Precalculus 4 §111.36. 1,5 English §110.42 B 1-5,7,13,15-18, 21 Science §112.42. c2,4,7c, §112.43 c2 SS	7. Solving Problems - The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:	Dark Basic Pro Programming File Management for Game Executable • Sounds • Images • Pictures • Code Algorithms High-Level Language Low-Level Language Assignment Operator Class-Member Operator Two-Way Selection Structure	(A) apply problem-solving strategies such as design specifications, modular top-down design, step-wise refinement, or algorithm development; (B) use visual organizers to design solutions such as flowcharts or schematic drawings; (C) develop sequential and iterative algorithms and codes programs in prevailing computer languages to solve practical problems modeled from school and community; (D) code using various data types; (E) demonstrate effective use of predefined input and output procedures for lists of computer instructions including procedures to protect from invalid input; (F) develop coding with correct and efficient use of expressions and assignment statements including the use of standard/user-defined functions data structures, operators/proper operator precedence, and sequential/conditional/repetitive control structures; (G) create and use libraries of generic modular code to be used for efficient programming; (H) identify actual and formal parameters and use value and reference parameters;	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report

			(I) use control structures such as conditional statements and iterated, pretest, and post test loops; J) use sequential, conditional, selection, and repetition execution control structures such as menu-driven programs that branch and allow user input (K) identify and use structured data types of one-dimensional arrays, records, and text files. (L) use appropriately and trace recursion in program design comparing invariant, iterative, and recursive algorithms; (M) manipulate data structures using string processing; (N) use notation for language definition such as syntax diagrams or Backus-Naur forms; (O) identify, describe, and use sequential/non-sequential files; multidimensional arrays and arrays of records; and quadratic sort algorithms such as selection, bubble, or insertion, and more efficient algorithms including merge, shell, and quick sorts; (P) create robust programs with increased emphasis on design, style, clarity of expression and documentation for ease of maintenance, program expansion, reliability, and validity; Q) apply methods for computing iterative		

			approximations and statistical algorithms; (R) define and develop code using the concepts of abstract data types including stacks, queues, linked lists, trees, graphs, and information hiding; (S) identify and describe the correctness and complexity of algorithms such as divide and conquer, backtracking, or greedy algorithms; (T) develop software to solve a school or community problem such as customer relations, design, modular programming, documentation, validation, marketing, or support; (U) research advanced computer science concepts such as applied artificial intelligence, expert systems, robotics, depth-first/breadth-first and heuristic search strategies, multitasking operating systems, or computer architecture, such as reduced instruction set computer (RISC) and complex instruction set computer (CISC).		
Math English §110.42 B 1-5,7,13,15-18, 21	8. Solving Problems - The student uses technology applications to facilitate evaluation of work, both process and product. The student is expected to:	Game Design and Writing Code System Errors Big Bang Theory – why you enter small segments of code and then test often. Examples Lecture/Demonstration	(A) design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product; (B) use correct programming style to enhance the readability and functionality of the code such as spacing, descriptive identifiers, comments, or documentation;	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3

Science SS			(C) seek and respond to advice from peers and professionals in delineating technological tasks; (D) resolve information conflicts and validate information through accessing, researching, and comparing data; (E) create technology specifications for tasks/evaluation rubrics and demonstrate that products/product quality can be evaluated against established criteria. (F) demonstrate the ability to read and modify large programs including the design description and process development; (G) analyze algorithms using "big-O" notation, best, average, and worst case space techniques; (H) compare and contrast design methodologies including top-down and bottomup; (I) analyze models used in development of software including software life cycle models, design objectives, documentation, and support; (J) seek and respond to advice from peers and professionals in delineating technological tasks.	Check Email Video Conferences Game Testing	• Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report
Math	9. Solving Problems - The student uses research skills and electronic communication, with appropriate supervision, to	Gmail Submitting Webpage upload of work ISL Internships	(A) participate with electronic communities as a learner, initiator, contributor, and teacher/mentor;	Project 1 • Phase 1 • Phase 2 • Phase 3	**Student Handouts** Project 1

English §110.42 B 1-5,7,13,15-18, 21 Science SS	create new knowledge. The student is expected to:		(B) demonstrate proficiency in, appropriate use of, and navigation of LANs and WANs for research and for sharing of resources; (C) extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the foundation and enrichment curricula; (D) participate in relevant, meaningful activities in the larger community and society to create electronic projects.	• Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	• Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report
Math English §110.42 B 1-5,7,13,15-18, 21 Science SS	10. Communication - The student formats digital information for appropriate and effective communication. The student is expected to:	Sales Pitch on Video Game PowerPoints Print AD CD Cover Design Documentation on Code Changes in correct layout Team Letterhead	(A) annotate coding properly with comments, indentation, and formatting; B) create interactive documents using modeling, simulation, and hypertext.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report

Math English §110.42 B 1-5,7,13,15-18, 21 Science SS §113.34 20	11. Communication - The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:	Electronic Portfolio Creation Photoshop Illustrator Adobe Professional Webpage Uploading Student use this time to start creating his/her Electronic Portfolio and uploading games and documents that represent his/her ability/skill.	(A) publish information in a variety of ways including, but not limited to, printed copy and monitor displays; (B) publish information in a variety of ways including, but not limited to, software, Internet documents, and video.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report
Math English §110.42 B 1-5,7,13,15-18, 21 Science SS	12. Communication - The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to	Game Testing Quality Control Evaluation Forms Internship Reports	(A) write technology specifications for planning/evaluation rubrics documenting variables, prompts, and programming code internally and externally; (B) seek and respond to advice from peers and professionals in evaluating the product; (C) debug and solve problems using reference materials and effective strategies.	Project 1 • Phase 1 • Phase 2 • Phase 3 • Phase 4 • Phase 5 • Phase 6 • Phase 7 Check Email Video Conferences Game Testing	**Student Handouts** Project 1 • Certification 1 • Certification 2 • Certification 3 • Certification 4 • Certification 5 • Certification 6 • Certification 7 Internship Report