Texas CTE

Video Game Design

Knowledge and skills. VGD

1 The student applies academic knowledge and skills in video game design projects. The student is expected to: VGD.1

- 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; and VGD.1A
- B apply mathematics knowledge and skills such as using whole numbers, decimals, fractions, and knowledge of arithmetic operations. VGD.1B

2 The student understands professional communications strategies. The student is expected to: VGD.2

- A adapt language for audience, purpose, situation, and intent; VGD.2A
- B organize oral and written information; VGD.2B
- C interpret and communicate information; VGD.2C
- D apply active listening skills; and VGD.2D
- E communicate with diverse individuals. VGD.2E

3 The student understands and employs problem-solving methods and conflict-management skills. The student is expected to: VGD.3

- A employ critical-thinking skills independently and in groups; and VGD.3A
- B employ interpersonal skills in groups to solve problems. VGD.3B

4 The student applies cyber safety procedures. The student is expected to implement personal and professional safety rules and regulations. VGD.4

5 The student applies leadership characteristics to student leadership and professional development activities. The student is expected to: VGD.5

- A demonstrate leadership skills; and VGD.5A
- B participate in a group setting. VGD.5B

6 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: VGD.6

- 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; VGD.6A
- B discuss and apply copyright laws; VGD.6B

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C model respect of intellectual property; VGD.6C

D demonstrate proper etiquette and knowledge of acceptable use policies; and VGD.6D

E analyze the impact of the video game design industry on society. VGD.6E

7 The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks. VGD.7

8 The student develops an understanding of video game design. The student is expected to: VGD.8

A demonstrate knowledge and appropriate use of computer operating systems; VGD.8A

B demonstrate appropriate use of hardware components, software programs, and storage devices; VGD.8B

C demonstrate knowledge of sound editing; VGD.8C

D demonstrate knowledge of file formats and cross-platform compatibility; VGD.8D

E acquire and exchange information in a variety of electronic file sharing formats; and VGD.8E

F evaluate visual information by recognizing the use of principles and elements of design. VGD.8F

9 The students employs an appropriate design process to create and modify solutions to problems. The student is expected to: VGD.9

A combine graphics, images, and sound; VGD.9A

B apply principles of design; VGD.9B

C develop and reference technical documentation; and VGD.9C

D edit products. VGD.9D

10 The student researches the history and evolution of video game design. The student is expected to: VGD.10

A explain the history of video game design; VGD.10A

B describe how changing technology is affecting the industry; VGD.10B

C analyze the use of symbols in video game design of diverse cultures; VGD.10C

D compare current video game design technologies with historical technologies; VGD.10D

E compare various styles of video game design; and VGD.10E

F explore emerging and innovative video game design technologies and software. VGD.10F

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The student understands and applies video game design principles, elements, and techniques. The student is expected to: VGD.11

A employ audience identification, script writing, character design, storyboarding, and audio and delivery formats; VGD.11A

B describe and use motion paths, scripting, programming, and interactivity; VGD.11B

C describe lighting and perspective; and VGD.11C

D describe and use production processes such as titles, credits, and special effects. VGD.11D

12 The student evaluates a product using critical-thinking skills. The student is expected to evaluate products and product quality against established criteria and rubrics. VGD.12

13 The student presents oral or written evaluations of video game design projects. The student is expected to: VGD.13

A identify the intended audience; VGD.13A

B describe aesthetics; VGD.13B

C explain the storyline; VGD.13C

D summarize subject matter; and VGD.13D

E discuss the use of sound. VGD.13E

14 The student creates video game design projects. The student is expected to use a variety of techniques and software programs. VGD.14

15 The student differentiates current programming languages. The student is expected to: VGD.15

A discuss the use of computer programming languages in other fields of study; and VGD.15A

B demonstrate knowledge of specific programming terminology and concepts. VGD.15B

16 The student applies problem-solving strategies. The student is expected to apply design specifications, step-wise refinement, or algorithm development. VGD.16

17 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. VGD.17

18 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. VGD.18

19 The student uses research skills and electronic communication, with appropriate supervision, to create new knowledge. The student is expected to: VGD.19

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A participate with electronic communities as a learner, initiator, contributor, and teacher or mentor; VGD.19A

B extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the foundation and enrichment curricula; and VGD.19B

C participate in relevant, meaningful activities in the larger community and society to create electronic projects. VGD.19C

20 The student uses technology applications to facilitate evaluation of communication processes and products. The student is expected to: VGD.20

A write technology specifications for planning/evaluation rubrics documenting variables, prompts, and programming code internally and externally; and VGD.20A

B debug and solve problems using reference materials and effective strategies. VGD.20B

21 The student understands technology concepts, systems, and operations as they apply to game programming. The student is expected to: VGD.21

A identify basic game components, including the game engine, game play subsystems, data structures, models, and interfaces; VGD.21A

B generate random numbers in a program; VGD.21B

C create a program implementing conditional statements; VGD.21C

D develop an appropriate data model; VGD.21D

E demonstrate an understanding of and apply object-oriented game programming; VGD.21E

F demonstrate an understanding of game programming essentials, including event-driven programming, communicating with messages, and device management; VGD.21F

G demonstrate an understanding of the role of game events, the animation loop, and game timing; VGD.21G

H demonstrate an understanding of the role of game engines; VGD.21H

I apply basic game screen design and layout, including visual controls, user interfaces, menus, and options; VGD.21I

J use game control design to understand, access, and control input devices; VGD.21J

K demonstrate an understanding of and apply game animation, including the principles of animation and frame-based animation; VGD.21K

L demonstrate an understanding of game events, including listeners, triggers, and timed events; VGD.21L

M demonstrate an understanding of and implement collision detection, including models and sprite collisions; VGD.21M

N demonstrate an understanding of player progression, including leveling, linear progression, and maintaining high score data; and VGD.21N

O demonstrate an understanding of algorithmic decision making. VGD.21O