FLORIDA DEPARTMENT OF
EDUCATION
fldoe.org

Individual Test Item Specifications

8208120 Game and Simulation Design

2015
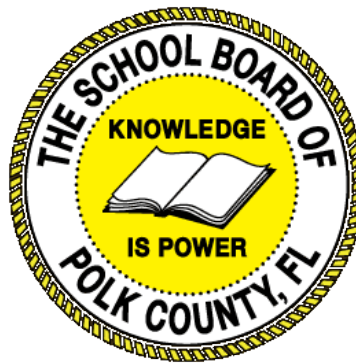
KNOWLEDGE IS POWER
THE SCHOOL BOARD OF POLK COUNTY, FL
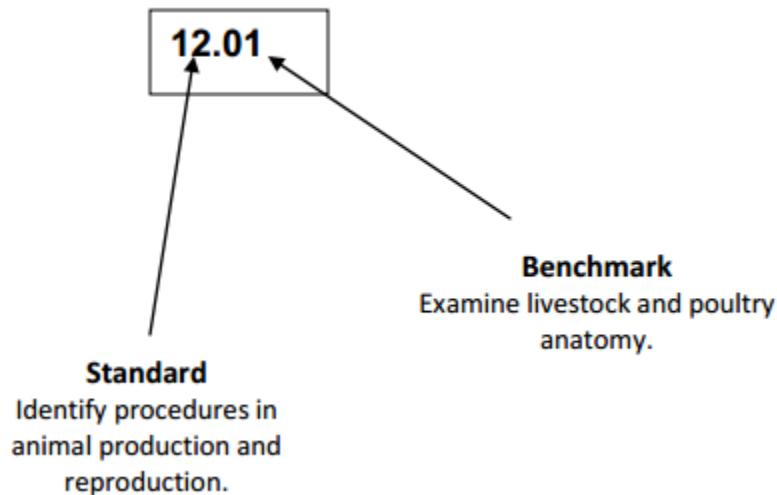
Table of Contents

I. Guide to the Individual Benchmark Specifications

Content specific guidelines are given in the *Individual Benchmark Specifications* for each course. The *Specifications* contains specific information about the alignment of items with the Florida Standards. It identifies the manner in which each benchmark is assessed, provides content limits and stimulus attributes for each benchmark, and gives specific information about content, item types, and response attributes.

Benchmark Classification System

- Each Career and Technical Education course has its own set of course standards. The benchmarks are organized numerically, with two numbers separated by a decimal point. The first number is the standard number, and the second number is the benchmark number. You will see these numbers on the Item Specifications for each course.

An example, from Agritechnology 1:

12.01

Benchmark
Examine livestock and poultry anatomy.
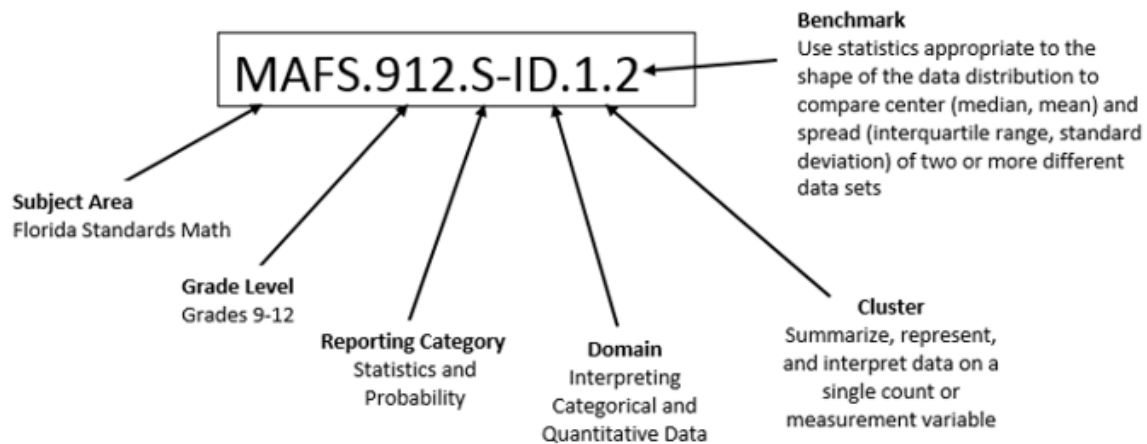
Standard
Identify procedures in animal production and reproduction.

The image above describes the components of a Career and Technical Education Standard and Benchmark classification system.

Each MAFS benchmark is labeled with a system of letters and numbers.

- The four letters in the *first position* of the label identify the **Subject**.
- The number(s) in the *second position* represents the **Grade Level**.
- The letter(s) in the *third position* represents the **Category**.
- The number in the fourth position shows the **Domain**.
- The number in the *fifth position* identifies the **Cluster**.
- The number in the last position identifies the specific **Benchmark**.

MAFS.912.S-ID.1.2

Benchmark
Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets

Subject Area
Florida Standards Math

Grade Level
Grades 9-12

Reporting Category
Statistics and Probability

Domain
Interpreting Categorical and Quantitative Data

Cluster
Summarize, represent, and interpret data on a single count or measurement variable

The image above describes the components of a Florida Standard and Benchmark classification system.

Definitions of Benchmark Specifications

The *Individual Benchmark Specifications* provides standard-specific guidance for assessment item development for the Florida Department of Education Career and Technical Education item banks. For each benchmark assessed, the following information is provided.

Reporting Category	is a grouping of related benchmarks that can be used to summarize and report achievement.
Standard	refers to the standard statement presented in the Florida Standards.
Benchmark	refers to the benchmark statement presented in the Florida Standards. In some cases, two or more related benchmarks are grouped together because the assessment of one benchmark addresses another benchmark.
Item Types	are used to assess the benchmark or group of benchmark.
Cognitive Complexity	ideal level at which item should be assessed.
Benchmark Clarifications	explain how achievement of the benchmark will be demonstrated by students. In other words, the clarification statements explain what the student will do when responding to questions.
Content Limits	define the range of content knowledge and that should be assessed in the items for the benchmark.
Stimulus Attributes	define the types of stimulus materials that should be used in the items, including the appropriate use of graphic materials and item context or content.
Response Attributes	define the characteristics of the answers that a student must choose or provide.
Content Focus	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
Sample Items	are provided for each type of question assessed. The correct answer for all sample items is provided.

II. Individual Benchmark Specifications

Standard	27.0 Create a working game or simulation individually or as part of a team. – The student will be able to:
Benchmark	27.01 Create a storyboard describing the essential elements, plot, flow, and functions of the game/simulation.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand what elements are needed for an effective storyboard.
Content Focus	Motion, traps, rewards, linear, parallel, huband spoke, sandbox, sketches, panels, visual outlines
Content Limits	Items are limited to what elements should be included on a storyboard.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When beginning a scene, it is customary to complete a storyboard. What information is not included on a storyboard? a. frame dimension b. motion c. rewards d. trapts Correct answer: a

Standard	28.0 Describe the game development life cycle. – The student will be able to:
Benchmark	28.01 Identify steps in the pre-production process including the proof of concept and market research.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the different purposes of the elements in the pre-production process.
Content Focus	Game treatment document, target market, platform, game description, concept art, elaborating and prototyping, design documents, concept elaboration
Content Limits	Items are limited to what is included in the pre-production process.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Sam has created a storyboard, decided on a platform and game concept, and created a prototype for his new video game. What is his next step before he wants to present it to a production team? a. art concept drawing document b. legal proof of ideas document c. proof of concept document d. proof of design document Correct answer: c

Standard	28.0 Describe the game development life cycle. – The student will be able to:
Benchmark	28.04 Implement techniques of scenario development, levels, and missions.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand industry methods to develop scenarios, levels and missions in video gaming.
Content Focus	Progression, storyboard, evaluate scenes, game objectives, missions, atomic challenge, submission
Content Limits	Items are limited to what should be included when developing game concepts, levels and missions.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When designing video game levels, what does each level design outline require? a. artificial intelligence b. deception c. missions d. sound Correct answer: c

Standard	29.0 Identify hardware constraints on video games including processors and I/O devices. – The student will be able to:
Benchmark	29.01 Identify the different control systems for video games.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the characteristics of game controllers for different platforms and uses.
Content Focus	Avatars, Motion-control capabilities, 3D, platform, mobile, pc, air mouse, gamepad
Content Limits	Items are limited to how to make controls natural for the type of game designed.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What type of video game would a head mounted control device be used? a. educational b. interactive c. puzzle d. strategy Correct answer: b

Standard	29.0 Identify hardware constraints on video games including processors and I/O devices. – The student will be able to:
Benchmark	29.03 Explain the factors that can limit the game-playing ability of personal computers.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand the limitations of hardware in video game design.
Content Focus	CPU, motherboard, RAM, graphics card, storage operating system, video capture hardware
Content Limits	Items are limited to the constraints for designing for a video game on a personal computer.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is one benefits of an accelerated graphics port (AGP) in video gaming? a. only displays in 3D b. iis only available on personal computers c. increases audio and video synchronization d. keeps refreshing the display screen of the monitory to keep boosting the pixel powers. Correct answer: c

Standard	30.0 Understand the general principles of storytelling. – The student will be able to:
Benchmark	30.01 Identify the essential elements of a story.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the parts of a story.
Content Focus	Mission, rising action, climax, falling action, environment, character
Content Limits	Items are limited to the characteristics of a story.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When writing your video game, you want to create a character that undergoes a change in actions or beliefs during the course of a story. What kind of character are you creating? a. dynamic b. flat c. round d. static Correct answer: a

Standard	30.0 Understand the general principles of storytelling. – The student will be able to:
Benchmark	30.02 Describe how creative writing is used as a game design tool.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the importance of creative writing in game design.
Content Focus	Imagination, confidence, different approaches, voice and authenticity
Content Limits	Items are limited to how to apply creative story lines to video game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Fantasy writers, science fiction writers, and scriptwriters all have an advantage in the gaming industry. What characteristic does these type of writers share? a. based on reasons and evidence b. creativity c. from the point of view of a real person d. has a common purposes such as to inform or to persuade Correct answer: b

Standard	30.0 Understand the general principles of storytelling. – The student will be able to:
Benchmark	30.03 Compare and contrast methods of delivering a story in a game.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand the different methodologies of telling a story through game design.
Content Focus	Simplicity, backstory, details, point of view, flowchart, script
Content Limits	Items are limited to different methods of writing changes the story.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is the best method of planning to write a creative story for a strategic video game with missions on each level? a. decision based b. hub and spoke c. linear d. outline Correct answer: c

Standard	33.0 Develop a game design document or cut. – The student will be able to:
Benchmark	33.08 Identify hardware and software constraints.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand what the limitations of hardware and software is in video game design.
Content Focus	Platform, CPU, motherboard, RAM, graphics card, storage operating system, video capture hardware
Content Limits	Items are limited to the parameters of industry hardware and software while designing a video game.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is one benefit of having hardware constraints when designing video games? a. easier to market b. limits automated development c. saves money d. stimulates creative thinking Correct answer: d

Standard	35.0 Explore elements of puzzle design. – The student will be able to:
Benchmark	35.01 Describe the essential elements of a puzzle.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the parts of a puzzle in video game design.
Content Focus	Types, mathematics (arithmetic, logic, space), physics ,visual field, language, common sense and situations
Content Limits	Items are limited to the parts of a puzzle video game.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When designing a puzzle video game, the designer wants to design the mechanics for each puzzle such as an adventure game. What type of puzzle should be designed? a. combinatorial puzzle games b. heterogeneous puzzle games c. homogeneous puzzle games d. procedural puzzle games Correct answer: b

Standard	35.0 Explore elements of puzzle design. – The student will be able to:
Benchmark	35.03 Describe the basic principles of high-level puzzle design.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the elements of a challenging puzzle video game design.
Content Focus	levels, inductive reasoning, challenges, portals, maps, elements
Content Limits	Items are limited to what makes a puzzle challenging.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: You have created a puzzle that rewards the player by building the story and creating larger puzzle elements such as" I Spy". What principle of creating a puzzle is evident? a. collaboration b. instant feedback c. randomizing and leveling d. reversal of actions Correct answer: c

Standard	35.0 Explore elements of puzzle design. – The student will be able to:
Benchmark	35.04 Describe the basic principles of low-level puzzle design.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the elements of a basic puzzle video game.
Content Focus	Forms of play, experiences, structures design strategies, design strategies, number of moves, victory condition, game environment
Content Limits	Items are limited to how to identify the elements of a basic puzzle video game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Which type of basic puzzles are high risk and begins with the player taking a blind guess at the solution? a. guessing b. logic c. mechanical d. self reference Correct answer: a

Standard	38.0 Create and design the game flow as it relates to story and plot. – The student will be able to:
Benchmark	38.01 Identify techniques of introducing the story plot and beginning play.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand how to introduce plot in video game writing.
Content Focus	Exposition, backstory, rising action, climax, reward, resolution38.0 Create and design the game flow as it relates to story and plot. – The student will be able to:
Content Limits	Items are limited to how plot integrates into the writing process of a video game.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is not one of the three important elements that are required for starting to write a video game? a. character development b. level design c. plot/setting d. storyboard Correct answer: b

Standard	38.0 Create and design the game flow as it relates to story and plot. – The student will be able to:
Benchmark	38.02 Describe story plot development techniques for the middle of play in game design.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand how to create engaging plots to keep the player interested in the middle of the video game.
Content Focus	Plot, gradually revealed, no plot, plot unfolds through frequent cutscenes, plot is complex, plot is central, plot is everything, charts, outlines, structure, cohesiveness and continuity, point of view, missions, theme
Content Limits	Items are limited to how to create a plot that works in the middle of a video game.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When creating a plot for a video game, what is one technique that could be used to assure play through all levels? a. dialogue b. missions c. stock characters d. thematic elements Correct answer: d

Standard	41.0 Identify tools and software commonly used in game development. – The student will be able to:
Benchmark	41.01 Identify and discuss the popular game development tools currently used in the industry.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand the industry trends in video game design and its tools.
Content Focus	Engines, 2D, 3D, exports, genre specific, programming, frameworks
Content Limits	Items are limited to the industry expectations are for creating a video game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is an emerging trend in online video gaming? a. consoles b. free-to-play c. motion controlled d. retro gaming Correct answer: b

Standard	42.0 Understand the technical methodologies for integrating digital media into a game or simulation. – The student will be able to:
Benchmark	42.03 Identify and categorize commonly used technology sound engine integration equipment.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand and identify equipment used for sound creation and integration.
Content Focus	Organize, track each version, two external hard drives, naming convention, sound editor, microphone, samples and synths, Audacity
Content Limits	Items are limited to what equipment is used for sound creation and integration.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is a device that is either software or hardware used for recording sound? a. cue recorder b. power recorder c. sequencer d. stereophonic Correct answer: c

Standard	42.0 Understand the technical methodologies for integrating digital media into a game or simulation. – The student will be able to:
Benchmark	42.04 Identify and discuss resources such as sound effects libraries.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand sound effect libraries.
Content Focus	Sound effects, sound libraries, categories, pre made sounds, library sound, synthesized sounds, foley sound
Content Limits	Items are limited to how to use, categorize and save sound bites in a sound library.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is the purpose of an audio repository? a) library cataloging all MIDI music b.) web server capable of playing audio files c.) web site that provides tutorials on sound d) web presentation that warehouses audio files Correct answer: d

Standard	42.0 Understand the technical methodologies for integrating digital media into a game or simulation. – The student will be able to:
Benchmark	42.07 Describe how special effects differ from animation.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the difference between special effects and animation.
Content Focus	Special effects, animation, visual/special effects, special effects are not a part of animation, live-action movies
Content Limits	Items are limited to the difference between special effects and animation.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Special effects are used on what type of video? a. animation b. CGI c. digital animation d. live action scene Correct answer: b

Standard	43.0 Identify commonly used art and animation production tools in the game design industry. – The student will be able to:
Benchmark	43.0 1 Identify, categorize and discuss art and animation tools commonly used in game design.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the tools used in creating animation in game design.
Content Focus	Graphics, clipart, software, vector, rator, timeline, frame
Content Limits	The student will know what the processes of creating animation for game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: What is an object that follows a path which is a line, or vector called in video game design? a. frame animation b. morphing animation c. path animation d. stop motion animation Correct answer: c

Standard	45.0 Describe how environmental design is used in conjunction with game level design. – The student will be able to:
Benchmark	45.02 Describe methods of creating a purposeful architecture giving consideration to continuity and themes and taking advantage of revisiting.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the use of themes and consistency when making game levels.
Content Focus	Layout, theme, consistency, flow, progression, levels
Content Limits	Items are limited to how a game environment benefits from themes and consistency.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Amy's latest game has been criticised because her ancient martial arts themed game is set in a modern city environment. What element of the games architecture is causing the criticism? a. behavioral b. continuity c. genre d. realism Correct answer: d

Standard	46.0 Describe pertinent issues facing game designers. – The student will be able to:
Benchmark	46.03 Explain the concepts of modes of understanding, inductive and iconic logic, significance and saturation in event modeling for game design.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, moderate
Benchmark Clarification	The student will be able to understand the concepts of inductive, iconic, significance and saturation.
Content Focus	Inductive, iconic, significance and saturation, mode, simulation, logic statement
Content Limits	Items are limited to how inductive, iconic, significance and saturation relates in video game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: When creating a simulation that recreates an event, what type of reasoning is used while participating in the simulation? a. iconic logic b. inductive logic c. simulation logic d. virtual logic Correct answer: c

Standard	51.0 Describe the importance of professional ethics and legal responsibilities. – The student will be able to:
Benchmark	51.03 Identify and explain personal and long-term consequences of unethical or illegal behaviors in the workplace.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Moderate, high
Benchmark Clarification	The student will be able to understand the laws and ethics of video game design.
Content Focus	Digital piracy, digital media, copyright holder, strategic responses, violence, social issues, publisher reviewer relationship, critics, reviews
Content Limits	Items are limited to illegal and unethical industry practices in video game design.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	None Specified
Sample Item	Multiple Choice: Jerry just started working for a large video game publisher on their newest game. The game has just been released even though there were several issues with the game. In the latest publication of a major gamer magazine there is a positive review. He has observed a video game reviewer from a major magazine at several of the companies social outings. Why would Jerry think this was unethical? a. the company has an illegal relationship with the magazine reviewer b. the company could make more sales because of the positive review c. the company broke laws by releasing the game knowing there were issues. d. the company should have known the subject of the video game was questionable Correct answer: b