Individual Test Item Specifications

8601030- Communications Technology 3

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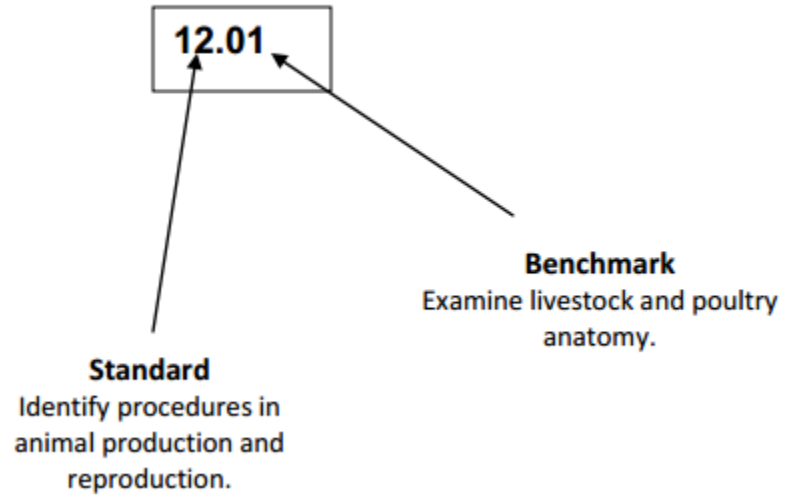
I. Guide to the Individual Benchmark Specifications

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.

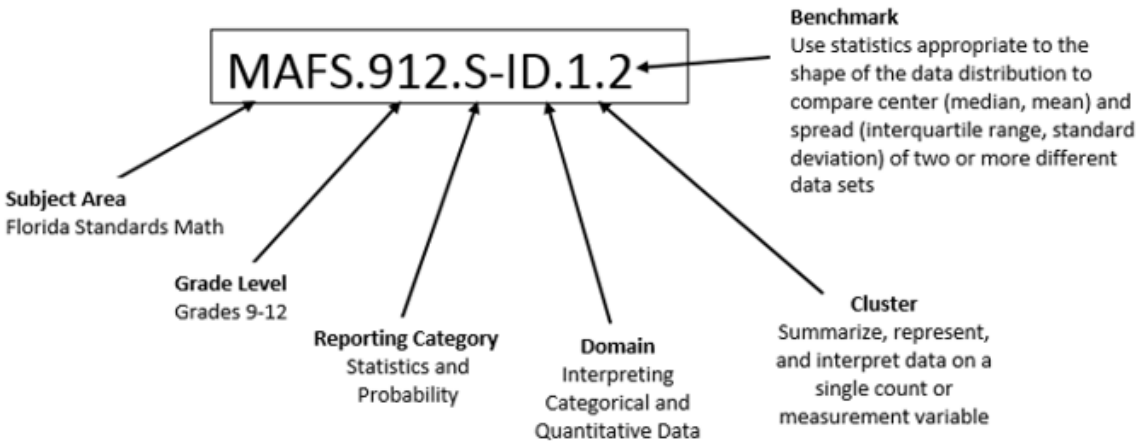
An example, from Agritechnology 1:



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**.



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	43.0 Demonstrate an understanding of the cultural, social, economic, and political effects of technology
Benchmark	43.01 Identify changes caused by the use of technology ranging from gradual to rapid and from subtle to obvious.
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 identify changes caused by the use of technology ranging from gradual to rapid and from subtle to obvious.
Content Focus	Contemporary technology advancements, technology history, interaction, effects, cultural, social, economic,
Content Limits	Items will be limited to how to recognize changes based on technological advancements,
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What emerging technology is taking the place of video conferencing and webinars to the field of science because of the advancements of technology? a. e-Science b. instant messaging c. Skype d. videography Correct answer: a

Standard	44.0 Demonstrate the abilities to use and maintain technological products and systems.
Benchmark	44.02 Diagnose a system that is malfunctioning and use tools, materials, machines, and knowledge to repair it.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)=X (P)=X (ER)=X
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will diagnose a system that is malfunctioning and use tools, materials, machines, and knowledge to repair it.
Content Focus	Troubleshooting, problem solving, preventive maintenance, conclusions, symptoms, trial and error, Identify the Problem, establish a theory of probable cause (question the obvious), test the theory to determine the cause, establish a plan of action to resolve the problem and implement the solution, verify full system functionality and if applicable, implement preventative, document findings, actions and outcomes.
Content Limits	Items will be limited to how to pinpoint and correct malfunctions.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	After turning on your laptop computer, you are not connected to the internet through the wireless connection, what is NOT one of the first troubleshooting steps? a. check to make sure the wireless is turned on b. check to make sure the router/modem has a connection c. check to make sure the computer has power d. restart the computer Correct answer: c

Standard	44.0 Demonstrate the abilities to use and maintain technological products and systems.
Benchmark	44.05 Use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate.
Content Focus	Access, retrieve, organize, process, maintain, interpret, evaluate data
Content Limits	Items will be limited to how to use technology to manipulate and communicate information.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	Miles has to record and sort the birthdays of everyone in the pee wee football league. What would be the best tool for the job? a. database software b. graphing calculator c. portable tablet d. spreadsheet software Correct answer: d

Standard	45.0 Demonstrate proficiency in the design of communication solutions involving motion, rich media, or special effects.
Benchmark	45.01 Design a communication solution that employs animation or motion (e.g., graphics, text, video) to achieve or enhance the intended message.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)=X (P)=X (ER)=
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will create a communication solution that has animation or movement.
Content Focus	Types of animation; video; text; intended message, vector, frame by frame, claymation, stop frame, 2D, 3D,
Content Limits	The student must have access to Adobe Flash, After Effects, Adobe Premiere Pro; Adobe Fireworks; and/or Adobe Photoshop.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What type of communication project would you create if the client wants a product made by taking photos of the set, moving the objects on the set slightly between each shot? a. 3-D animation b. path animation c. stop-frame animation d. vector animation Correct answer: c

Standard	45.0 Demonstrate proficiency in the design of communication solutions involving motion, rich media, or special effects.
Benchmark	45.02 Demonstrate proficiency in the use of digital authoring and editing software (e.g., Flash, After Effects) to create a product featuring special visual effects.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)=X (P)=X (ER)=X
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will create a product that contains special effects.
Content Focus	Special effects; digital authoring; editing software; animation; video
Content Limits	The student must have access to Adobe Flash, After Effects, Adobe Premiere Pro; Adobe Fireworks; and/or Adobe Photoshop.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What is the term used for assets in Adobe After Effects? a. composition b. footage c. layers d. panel Correct answer: a

Standard	46.0 Demonstrate proficiency in producing a communications product for delivery using mobile communication devices.
Benchmark	46.03 Compare and contrast the security and privacy issues associated with different delivery media, particularly those involving social media.
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 identify, describe, compare, and contrast the security issues related to delivery media and social media.
Content Focus	Social media; privacy; ethics; legal; illegal
Content Limits	The student must have access to the Internet as well as the folLowing software: Microsoft Word and/or Microsoft PowerPoint; Adobe Photoshop; Adobe Fireworks; Adobe Premiere Pro; Adobe AfterEffects; Adobe Flash; Adobe Dreamweaver
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What is NOT a concern about cloud computing? a. authorization b. privacy c. security d. software piracy Correct answer: d

Standard	47.0 Demonstrate technical knowledge and skills in digital and electronic communication.
Benchmark	47.07 Demonstrate ability to select appropriate media topics, equipment, and materials for an electronic media production.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will select the appropriate software to create a product.
Content Focus	Inserting; editing; saving; producing; special effects
Content Limits	The student must have access to the Internet as well as the folLowing software: Microsoft Word and/or Microsoft PowerPoint; Adobe Photoshop; Adobe Fireworks; Adobe Premiere Pro; Adobe AfterEffects; Adobe Flash; Adobe Dreamweaver
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	Your client has asked you to create a dynamic media campaign. Out of the folLowing, what would be the best equipment for the job? a. Adobe Flash b. printer c. scanner d. video camera Correct answer: a

Standard	47.0 Demonstrate technical knowledge and skills in digital and electronic communication.
Benchmark	47.08 Identify and write different types of script copy.
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 select a topic and write a script.
Content Focus	Writing; editing; proofreading; saving; final draft; printing
Content Limits	The student must have access to the Internet as well as the folLowing software: Microsoft Word and/or Microsoft PowerPoint.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	How can you tell that a script is written in traditional script format for television and motion picture plays? a. common script b. partial two-column script c. single-column script d. two-column script Correct answer: c

Standard	48.0 Demonstrate the abilities to assess the impact of products and systems.
Benchmark	48.03 Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)=X (P)=X (ER)=
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.
Content Focus	Analysis, data, software, trends, experiments, variables, viability
Content Limits	Items will be limited to how to use technology to perform trend and data analysis.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What type of chart shows trends over time? a. bar b. column c. line d. pie Correct answer: c

Standard	49.0 Demonstrate an understanding of career opportunities and requirements in the field of communications technology
Benchmark	49.04 Demonstrate competence in job interview techniques
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will demonstrate competence in job interview techniques.
Content Focus	Parts of the Interview, Rapport & Orientation, Schedule and Sequence, Closing Techniques, types of questions,
Content Limits	Items will be limited to successful interview techniques.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What are the two main types of questions? a. closed and rapport b. open and closed c. purpose and orientation d. rapport and orientation Correct answer: b

Standard	49.0 Demonstrate an understanding of career opportunities and requirements in the field of communications technology
Benchmark	49.05 Complete a job application form correctly.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will complete a job application in a neat and professional manner.
Content Focus	Job application; references; job objective; volunteer; experience
Content Limits	Items will be limited to how to successfully fill out a job application.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	Bradley did not leave his last job under good terms, he is applying for a new job and is filling out a job application. How should Bradley handle the job reference section? a. leave that job history off the application b. lie about how the job ended c. put only the company name and number of the job d. put the company name, number and supervisor's name Correct answer: c

Standard	49.0 Demonstrate an understanding of career opportunities and requirements in the field of communications technology
Benchmark	49.07 Create a professional resume and letter of introduction.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will create a resume and produce a cover letter using a word processing software program.
Content Focus	Job application; references; job objective; volunteer; experience; resume; templates
Content Limits	Items will be limited to how to format and create resumes and cover letters.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What type of resume HIghlights skills, experiences, and accomplishments without identifying specific dates, names, or places? a. chronological b. combination c. functional d. reference Correct answer: c

Standard	50.0 Demonstrate an understanding of the use of emerging technologies in communication and advertising
Benchmark	50.01 Describe photonics and its role in designing solutions to communications problems.
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 identify and describe photonics and its roles in communications.
Content Focus	Photonics; fiber optics, infrared
Content Limits	Items will be limited to what photonics is and how it is used in communications.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What type of network is a communications network in which information is transmitted as optical or infrared radiation transmission signals? a. closed b. LAN c. photonics d. WAN Correct answer: c

Standard	50.0 Demonstrate an understanding of the use of emerging technologies in communication and advertising
Benchmark	50.03 Describe basic theories of wavelength, light and optics used in a variety of industries using lasers, including: manufacturing, engineering, telecommunications, entertainment, medicine, construction, and art.
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 describe basic theories of wavelength, light and optics used in a variety of industries using lasers, including: manufacturing, engineering, telecommunications, entertainment, medicine, construction, and art.
Content Focus	Wavelength, light, optics, lasers, manufacturing, engineering, telecommunications, entertainment, medicine, construction, art
Content Limits	Items will be limited to how the concepts of light in the manufacturing, engineering, telecommunications, entertainment, medicine, construction, and art.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What determines the wavelength of light emitted by a laser? a. amount of heat generated b. size of laser light c. strength of electromagnetic field d. type of material Correct answer: d

Standard	51.0 Plan, organize, and carry out project plans for creating various communications products.
Benchmark	51.01 Apply the design process to determine the goal, scope, criteria, constraints, and timeline of the project
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will apply the design process to determine the goal, scope, criteria, constraints, and timeline of the project.
Content Focus	Design process, design cycle, goal, scope, criteria, constraints, timeline
Content Limits	Items will be limited to the design process and how it relates to the creation of a project?
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What step of the design process sets the timeline for the project? a. design and development b. evaluation c. investigating and defining d. planning and production Correct answer: d

Standard	51.0 Plan, organize, and carry out project plans for creating various communications products.
Benchmark	51.06 Create a presentation to articulate the problem, the solution, the process chosen, conclusions, and lessons learned.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	Moderate, HIgh
Benchmark Clarification	The student will create a presentation that displays a problem and a solution as well as the steps in the solving the solution.
Content Focus	Create presentation; problem; solution; animation; transitions
Content Limits	Items will be limited to how to effectively create and present presentation.
Stimulus Attributes	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
Response Attributes	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
Sample Item	What are the steps of creating a persuasive presentation? a. show the solution, state the problem, share how the solution was chosen and conclusions b. share how the solution was chosen, state the problem, show the solution, and conclusions c. state the problem, share how the solution was chosen, show the solution and conclusions d. state the problem, show the solution, share how the solution was chosen and conclusions Correct answer: d