

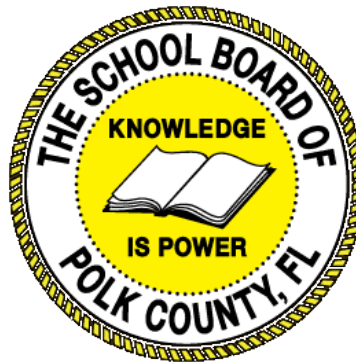
# Individual Test Item Specifications

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8600030- Exploration of Communications

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2015



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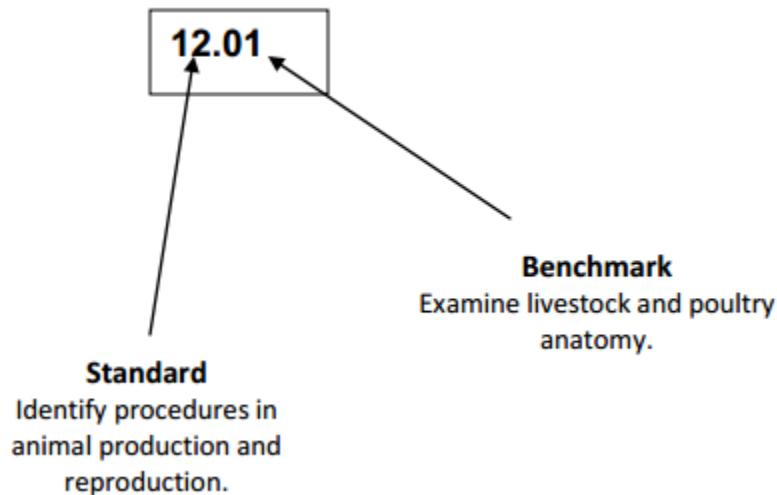
## I. Guide to the Individual Benchmark Specifications

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.

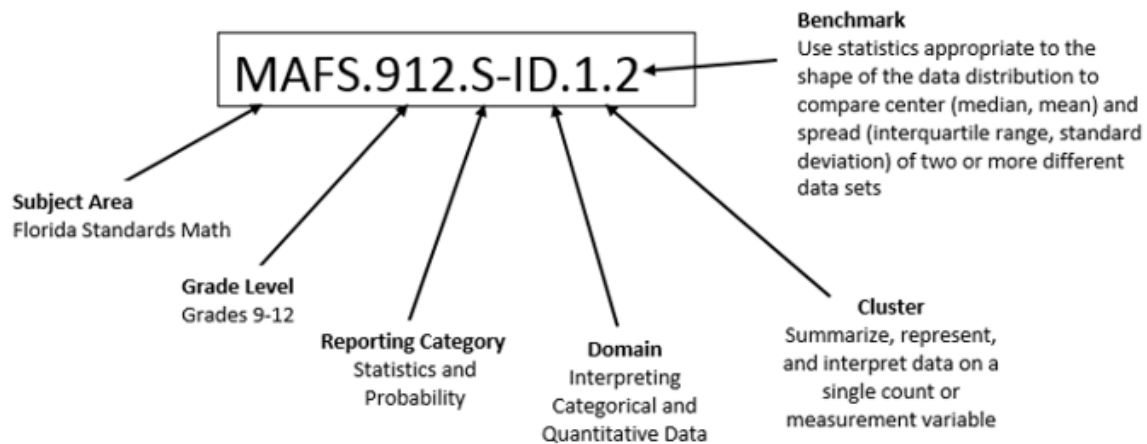
An example, from Agritechnology 1:



*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.

<b>Reporting Category</b>	is a grouping of related benchmarks that can be used to summarize and report achievement.
<b>Standard</b>	refers to the standard statement presented in the Florida Standards.
<b>Benchmark</b>	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.
<b>Item Types</b>	are used to assess the benchmark or group of benchmark.
<b>Cognitive Complexity</b>	ideal level at which item should be assessed.
<b>Benchmark Clarifications</b>	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.
<b>Content Limits</b>	define the range of content knowledge and that should be assessed in the items for the benchmark.
<b>Stimulus Attributes</b>	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.
<b>Response Attributes</b>	define the characteristics of the answers that a student must choose or provide.
<b>Content Focus</b>	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
<b>Sample Items</b>	are provided for each type of question assessed. The correct answer for all sample items is provided.

## II. Individual Benchmark Specifications

<b>Standard</b>	01.0 Demonstrate an understanding of the characteristics and scope of technology. – The student will be able to:
<b>Benchmark</b>	01.03 Explain how technology is closely linked with creativity, which has resulted in innovation.
<b>Item Types</b> <b>(MC)-Multiple Choice</b> <b>(SA)-Short Answer</b> <b>(P)-Performance</b> <b>(ER)-Extended Response</b>	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low, Medium
<b>Benchmark Clarification</b>	The student will understand the relationship between creativity and innovation.
<b>Content Focus</b>	Creativity, innovation, invention, method, design cycle,
<b>Content Limits</b>	The student will know how technology has influenced innovation.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Brainstorming generates a large number of ideas and solutions quickly. What process is brainstorming considered? a. creativity b. invention c. innovation d. opportunity Correct answer: a

<b>Standard</b>	02.0 Demonstrate an understanding of the core concepts of technology. – The student will be able to:
<b>Benchmark</b>	02.01 Identify technological systems including input, processes, output, and, at times, feedback.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand and identify different types of technology.
<b>Content Focus</b>	Inputs, outputs, processes, systems, obsolete, current, emerging, Agriculture and Related Biotechnologies, Communication and Information, Construction, Energy and Power, Manufacturing, Medical
<b>Content Limits</b>	The student will know different technology systems by identifying inputs and outputs.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Most offices have a printer, scanner, fax and photocopier. Some have four different machines and some have one machine that does all four jobs. This combination device is an example of what type of system? a. emerging b. obsolete c. manufacturing d. transportation Correct answer: a

<b>Standard</b>	03.0 Demonstrate an understanding of the relationships among technologies and the connection between technology and other fields of study. . – The student will be able to:
<b>Benchmark</b>	03.03 Explain how knowledge gained from other fields of study has a direct effect on the development of technological products and systems.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Medium
<b>Benchmark Clarification</b>	The student will understand how integration influences technological development.
<b>Content Focus</b>	Fields of study, integration, product development, products, processes, and systems,
<b>Content Limits</b>	The student will know how different technology impacts product development.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Slinky's, velcro, chewing gum and penicillin were all discovered by mistake, what characteristic does all of these inventors have in common? a. background knowledge from different fields of study b. knowledge only in their field of study c. they were all working in a team d. they solved their original problem Correct answer: a



<b>Standard</b>	04.0 Demonstrate an understanding of the cultural, social, economic, and political effects of technology. – The student will be able to:
<b>Benchmark</b>	04.03 Describe ethical issues associated with the development and use of technology.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the ethical issues created by the effects of technology.
<b>Content Focus</b>	Dilemma, ethics, cloning, protection, drones, wearable technology, GPS tracking, robotics, artificial intelligence, GMO's
<b>Content Limits</b>	The student will know how to determine ethical issues surrounding technology use.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Which field of study has ethical dilemmas including cloning, embryo experimentation and GMO's? a. biotechnology b. environmental technology c. healthcare technology d. manufacturing technology Correct answer: a

<b>Standard</b>	04.0 Demonstrate an understanding of the cultural, social, economic, and political effects of technology. – The student will be able to:
<b>Benchmark</b>	04.04 Describe the economic, political, and cultural issues that are influenced by the development and use of technology.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand how different issues influence both the development and use of technology.
<b>Content Focus</b>	Advertising, government and private funding, value, construction, manufacturing, ethics, interests,
<b>Content Limits</b>	The student will know how different issues present in society impact how we develop and use technology.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Some believe animals should not be used for medical testing. This is an example of what type of influence in the development of new technology? a. cultural b. economic c. political d. social Correct answer: a

<b>Standard</b>	o8.o Demonstrate an understanding of the attributes of design. – The student will be able to:
<b>Benchmark</b>	o8.o2 Explain why there is no perfect design.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the design cycle and the concept of no perfect design.
<b>Content Focus</b>	Design cycle, prototype, problem solving, functionality,
<b>Content Limits</b>	The student will know how to design a concept and understand the parameters of design.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What is NOT a reason there is no perfect design? a. all designs are flawed, b. criteria and constraints are variable c. design is always obvious d. every design is brand new Correct answer: d

<b>Standard</b>	10.0 Demonstrate an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. – The student will be able to:
<b>Benchmark</b>	10.01 Use troubleshooting as a problem-solving method used to identify the cause of a malfunction in a technological system.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand troubleshooting procedures.
<b>Content Focus</b>	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.
<b>Content Limits</b>	The student will know how to troubleshoot technological systems.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: You're troubleshooting a notebook computer. Nothing appears on the display after the system is powered on. What is the first thing you should do? a. check the power b. send it back to the store c. plug in an external monitor d. turn the laptop on while it is plugged into a power source Correct answer: c

<b>Standard</b>	10.0 Demonstrate an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. – The student will be able to:
<b>Benchmark</b>	10.03 Identify technological problems that are best solved through experimentation.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the importance of experimentation
<b>Content Focus</b>	Experimentation
<b>Content Limits</b>	The student will know how and why experiments are beneficial.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What made the improvements in treatments for terminal illnesses possible? a. assembly line b. experimentation c. mathematical formulas d. one scientist's work Correct answer: b

<b>Standard</b>	11.0 Demonstrate the abilities to apply the design process. – The student will be able to:
<b>Benchmark</b>	11.02 Specify criteria and constraints for the design.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand criteria and constraints of design.
<b>Content Focus</b>	Criteria, constraints, budget, goals, factors, problem solving, restrictions, parameters
<b>Content Limits</b>	The student will know how to determine criteria and constraints in a project.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What is a customer's time frame for completing a project called? a. constraint b. criteria c. interval d. scope Correct answer: b

<b>Standard</b>	11.0 Demonstrate the abilities to apply the design process. – The student will be able to:
<b>Benchmark</b>	11.03 Make two-dimensional and three-dimensional representations of the designed solution.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand and produce 2D and 3D renderings of a project's solution.
<b>Content Focus</b>	2D, 3D, drawing, rendering, sketch, mechanical, drafting,
<b>Content Limits</b>	The student will know how to create drawings of the final solution.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: A mid-project review is coming up and you need to present the status of your project. You are still in the trial and error phase and do not have a final design yet. What would be an appropriate artifact to include in your review? a. CAD file b. sketch c. technical working drawing d. working model Correct answer: b

<b>Standard</b>	12.0 Demonstrate the abilities to use and maintain technological products and systems. – The student will be able to:
<b>Benchmark</b>	12.02 Use tools, materials, and machines safely to diagnose, adjust, and repair systems.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Medium
<b>Benchmark Clarification</b>	The student will understand how to maintain, operate and repair equipment
<b>Content Focus</b>	Troubleshoot, diagnose, maintenance, identify, establish, hypothesis, action plan, document, implement
<b>Content Limits</b>	The student will know how to troubleshoot and repair equipment.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Your computer has stopped communicating with an external plotter. You have checked the cords and it still does not work. What should you do next? a. call the manufacturer b. change the cord to determine if that is the problem c. check the print heads on the plotter d. check to make sure the power supply is working Correct answer: b



<b>Standard</b>	12.0 Demonstrate the abilities to use and maintain technological products and systems. – The student will be able to:
<b>Benchmark</b>	12.03 Use computers and calculators in various applications.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the appropriate use of computers and calculators in different scenarios
<b>Content Focus</b>	Computer, calculator, applications,
<b>Content Limits</b>	The student will know how to use calculators and computers in a project.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Which application does not have a built in calculator? a. browsers b. databases c. ipad d. spreadsheets Correct answer: a

<b>Standard</b>	17.0 Demonstrate an understanding of and be able to select and use information and communication technologies. – The student will be able to:
<b>Benchmark</b>	17.02 Describe communication systems made up of a source, encoder, transmitter, receiver, decoder, and destination.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	Student will understand communication systems and their components.
<b>Content Focus</b>	Source, encoder, transmitter, receiver, decoder, destination, verbal, nonverbal, perception, input, output, feedback 17.0 Demonstrate an understanding of and be able to select and use information and communication technologies. – The student will be able to:
<b>Content Limits</b>	The student will know the parts of a communication system.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What type of communication system do printed pictures or icons convey information more concisely than text? a. channel b. electronic c. graphic d. machine Correct answer: c

<b>Standard</b>	17.0 Demonstrate an understanding of and be able to select and use information and communication technologies. – The student will be able to:
<b>Benchmark</b>	17.03 Consider factors that influence the design of a message, such as the intended audience, medium, purpose, and nature of the message.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=X
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand the format of a message using a variety of factors.
<b>Content Focus</b>	Intended audience, medium, purpose, nature of the message, presentation, channel, completeness, culture, feedback, clarity, culture
<b>Content Limits</b>	The student will know what factors determine the design of an effective message.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Your company has several offices all over North America, The company needs to convey a new company policy to all employees. What type of message should the company use to reach all the employees at the same time? a. closed circuit video message b. email c. paper memo d. voicemail Correct answer: b

<b>Standard</b>	17.0 Demonstrate an understanding of and be able to select and use information and communication technologies. – The student will be able to:
<b>Benchmark</b>	17.04 Use symbols, measurements, and drawings to promote clear communication by providing a common language to express ideas.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand basic drafting and sketching terms.
<b>Content Focus</b>	Drafting, sketching, symbols, measurements, drawings, scale, dimensions, isometric, oblique, perspective
<b>Content Limits</b>	The student will know how to use drafting and sketching to convey ideas.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What is the measurement called for the distance between two points on a sketch or drawing? a. area b. customary c. dimension d. metric Correct answer: c

<b>Standard</b>	19.0 Demonstrate an understanding of and be able to select and use manufacturing technologies. – The student will be able to:
<b>Benchmark</b>	19.01 Describe manufacturing systems using mechanical processes that change the form of materials through processes of separating, forming, combining, and conditioning them.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=X
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand the processes in manufacturing systems.
<b>Content Focus</b>	Separating, forming, combining, conditioning, assembly, casting,
<b>Content Limits</b>	The student will know steps in the mechanical process in a manufacturing system.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What is one of the two basic mold types that distinguish the casting process? a. expendable b. flexible c. jig d. solid Correct answer: a

<b>Standard</b>	21.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials. – The student will be able to:
<b>Benchmark</b>	21.01 Follow laboratory safety rules and procedures.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand safety rules for the lab and/or workshop.
<b>Content Focus</b>	Eye protection, faulty or defective, accidents, hazardous materials, clean up, dust mask, closed toed shoes
<b>Content Limits</b>	The student will know how to safely use the lab/workshop.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What type of shoes are appropriate when working in the lab? a. flip flops b. sandals c. slides d. sneakers Correct answer: d

<b>Standard</b>	21.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials. – The student will be able to:
<b>Benchmark</b>	21.04 Identify tools, machines, materials and equipment and describe their functions.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand common tools and machines and their functions.
<b>Content Focus</b>	Hand tools, levers, wheel and axle, pulley, wedge, inclined plane, electronic machines, optical tools, microscopes, lasers, CNC, natural materials, synthetics
<b>Content Limits</b>	The student will know the uses for common materials and equipment.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: The project you are working on requires seven copies of a piece. You are using the jigsaw to create the pieces from wood. What should you use to make sure every piece is identical? a. french curve b. jig c. T-square d. vacuum mold Correct answer: b

<b>Standard</b>	21.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials. – The student will be able to:
<b>Benchmark</b>	21.05 Select appropriate tools, machines, and equipment to accomplish a given task.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand how to choose the best tools, machines and equipment for the project.
<b>Content Focus</b>	Hand tools, levers, wheel and axle, pulley, wedge, inclined plane, electronic machines, optical tools, microscopes, lasers, CNC, natural materials, synthetics
<b>Content Limits</b>	The student will know how to choose the best products for the job.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: You are building a lamp in class and you need to cut and bend the electrical wires to the switch. What would be the best tool to use? a. exacto knife b. pliers c. needle nose pliers d. wrench Correct answer: c



<b>Standard</b>	21.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials. – The student will be able to:
<b>Benchmark</b>	21.07 Identify color-coding safety standards.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the meanings of colors in regards to safety.
<b>Content Focus</b>	Color codes, hazardous, protocols,
<b>Content Limits</b>	The student will know how to determine safety levels by color.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Jasmine got a splinter while working on a project. What color will the first aid station be in the lab? a. blue b. black c. green d. red Correct answer: c

<b>Standard</b>	21.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials. – The student will be able to:
<b>Benchmark</b>	21.08 Explain fire prevention and safety precautions and practices for extinguishing fires.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand fire safety protocols and practices.
<b>Content Focus</b>	Protocols, procedures, practices, sprinklers, smoke detectors, fire extinguishers, safety colors, flammable, combustible, class
<b>Content Limits</b>	The student will know how to prevent and put out fires.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What steps should you take if there is a fire in the classroom? a. Alarm, Contain, Rescue, Exit b. Pull pin, Aim nozzle, Squeeze trigger, Sweep nozzle c. Rescue, Alarm, Contain, Exit d. Run, Alarm, Contain, Exit Correct answer: c

<b>Standard</b>	24.0 Demonstrate an application of basic electronic publishing techniques. – The student will be able to:
<b>Benchmark</b>	24.02 Utilize the components of layouts including type, typography and illustration to electronically manipulate the elements of a published product.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand how to move elements such as typography and illustration.
<b>Content Focus</b>	Layouts, illustration, elements, serif, sans serif, informal, formal, direct, indirect
<b>Content Limits</b>	The student will know how to move text and pictures to create layouts.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: When creating a published product, what is one characteristic of the finished layout design? a. distribution plan b. focal point c. marketing d. overall size Correct answer: b

<b>Standard</b>	25.0 Identify, describe and utilize the major types of printing techniques used in print production. – The student will be able to:
<b>Benchmark</b>	25.01 Identify and explain standard printing processes including but not limited to: relief, gravure, screen process, and lithographic printing.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Medium, High
<b>Benchmark Clarification</b>	The student will understand the different printing methods.
<b>Content Focus</b>	Relief, gravure, screen process, lithographic, Intaglio, Planographic, Stencil, lithography, offset, platemaking
<b>Content Limits</b>	The student will know how to determine different printing processes methods.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: What is the name of the pattern when creating a screen print? a. jig b. marking c. puzzle d. stencil Correct answer: d

<b>Standard</b>	26.0 Identify and demonstrate the role of electronic communication. – The student will be able to:
<b>Benchmark</b>	26.02 List and explain the common communication categories.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
<b>Cognitive Complexity Level</b>	Low
<b>Benchmark Clarification</b>	The student will understand the different types of communication.
<b>Content Focus</b>	Interpersonal, intrapersonal, mass, source, message, channel, receiver, feedback, selective, downward communication. Upward communication, horizontal communication, Informal communication
<b>Content Limits</b>	The student will know how to determine the different categories of communication.
<b>Stimulus Attributes</b>	Worksheets, observations, hands on assignments, examples and non examples, simulations, role playing
<b>Response Attributes</b>	Documents, checklists, design briefs, project scope, feedback, performance rubrics, simulations, examples
<b>Sample Item</b>	Multiple Choice: Paul' s boss, Raj, sent a memo outlining the new work schedule to everyone in his department through email. What type of communication did Raj use? a. downward communication b. horizontal communication c. informal communication d. upward communication Correct answer: a