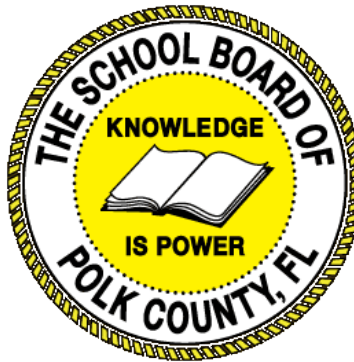




Individual Test Item Specifications

8005110- Technical Agriculture Operations 2

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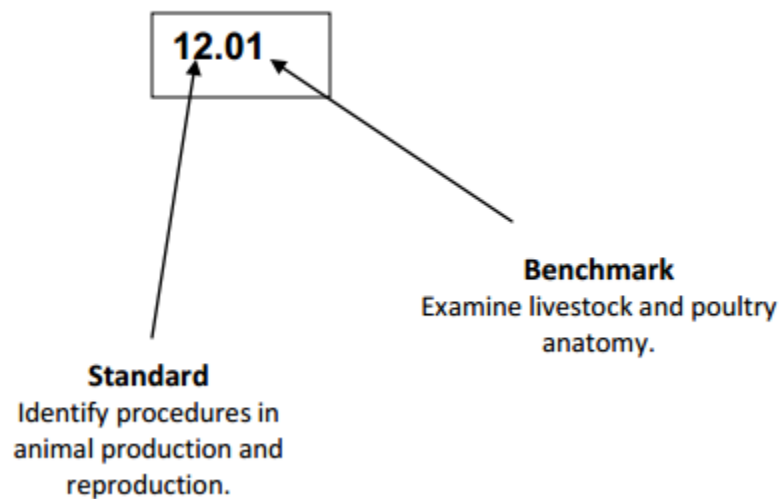
I. Guide to the Individual Benchmark Specifications

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	14.0 Practice personal, equipment, and shop safety.
Benchmark	14.01 Identify and eliminate hazards in agricultural mechanics setting.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will identify or eliminate typical hazards associated within an agricultural environment.
Content Focus	The content should focus on hazards in personal safety, equipment and shop safety; electrical, mechanical, physical, chemical, and environmental hazards
Content Limits	The items may address identification of unsafe procedures, equipment and settings. The items may include scenarios to eliminate or identify a hazard.
Stimulus Attributes	The stimulus may include scenarios, charts, diagrams or pictures.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which hazard is considered physical? A. water on the shop floor B. open container of diesel fuel C. frayed power cord on a table saw D. ground prong missing on extension cord Answer: A

Standard	14.0 Practice personal, equipment, and shop safety.
Benchmark	14.02 Observe color-coded warning in work areas and on equipment and machinery.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will identify and react to the five basic color codes found in the shop setting.
Content Focus	The focus should be on the five color indicators: red, orange, yellow, blue, and green.
Content Limits	The content should be limited to the five colors commonly found in mechanical settings.
Stimulus Attributes	The stimulus may include scenarios, pictures or diagrams.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which color indicates danger in an agricultural shop? A. blue B. green C. orange D. red Answer: D

Standard	14.0 Practice personal, equipment, and shop safety.
Benchmark	14.03 Describe appropriate actions in case of fire, accident, or other emergencies.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will react or describe proper reaction in the event of equipment or shop emergencies.
Content Focus	The content should be focused to appropriate reactions to accidents such as fire, bodily injury, or other emergencies in the workplace.
Content Limits	The items may address proper reaction to a fire in the facility, proper reaction to common accidents in the workplace, and necessary materials needed for an emergency.
Stimulus Attributes	The stimulus may include pictures or diagrams or may include a scenario to direct student to react to an emergency through a written response.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which flame retardant should not be used on a flammable liquids fire? A. carbon dioxide B. dry powder C. foam D. water Answer: D

Standard	14.0 Practice personal, equipment, and shop safety.
Benchmark	14.04 Describe personal protective equipment (PPE) and appropriate clothing.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will describe personal protective equipment and appropriate clothing.
Content Focus	The content should focus on appropriate PPE which may include, but not limited to, clothing, closed toe shoes, various types of eye protection and hearing protection.
Content Limits	The items may address proper or improper types of PPE's needed for a given scenario. The items may direct students to identify proper PPE and appropriate clothing. The items may direct student to write a written description of proper clothing and PPE for a given scenario.
Stimulus Attributes	The stimulus may include charts, graphs, or images of PPE and appropriate clothing.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which PPE is not required when operating a grinder? A. hearing protection B. leather gloves C. safety goggles D. steel toed boots Correct answer: D

Standard	14.0 Practice personal, equipment, and shop safety.
Benchmark	14.07 Interpret the equipment instructions according to the operators manuals for equipment.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will interpret the equipment instructions according to the operators' manuals for equipment.
Content Focus	The content should focus on specific instructions found in an equipment manual. The content should focus on common manual use such as, but not limited to, parts of equipment, schematic drawings, preventative maintenance, general use of equipment, and troubleshooting steps.
Content Limits	The items may address information normally found in an equipment manual. The items may direct student to area of manual for specific information. The items may address a specific problem with equipment where the manual must be used to diagnose issue.
Stimulus Attributes	The stimulus may include charts, graphs or images. The stimulus may include a scenario to direct student to complete a task or provide a written response using a manual.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which part of a pressure washer manual would include a detailed drawing of the pump? A. glossary B. index C. schematic D. table of contents Answer: C

Standard	15.0 Select and use hand and power tools.
Benchmark	15.01 Identify the capabilities and limitations of hand and power tools.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will properly identify the specific tools needed for a given situation.
Content Focus	None specified.
Content Limits	The items may direct students to identify the capability or limitation of a tool. The items may address the type of tool needed to complete a task based on a limitation or capability.
Stimulus Attributes	The stimulus may include images, graphs or illustrations. The stimulus may be written to direct student to provide a written response.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which tool is most efficient to cut a 2" x 4"? A. circular saw B. hack saw C. hand saw D. reciprocating saw Correct answer: A

Standard	15.0 Select and use hand and power tools.
Benchmark	15.02 select and safely use hand and power tools.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will properly use or select hand tools and power tools for a specific task. The student will demonstrate proper safety protocols with hand and power tools.
Content Focus	The content should focus on basic hand tools and power tools along with safety protocols and functions.
Content Limits	The items should only address common hand and power tools.
Stimulus Attributes	The stimulus can contain pictures, diagrams, scenarios or charts with hand and power tools. Items can include safety procedures and protocols with hand and power tools.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Robert needs to use the table saw but observes a fray in the power cord. Which task should Robert perform first? A. notify his supervisor B. ignore the frayed cord C. turn off main shop breaker D. wrap electrical tape around fray Answer- A

Standard	15.0 Select and use hand and power tools.
Benchmark	15.03 Select and use proper PPE for hand and power tools.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will select and use proper PPE for hand and power tool use.
Content Focus	The content should focus on personal protective equipment needed for cutting, striking, fastening, measuring, clamping and gripping hand tools. The content should focus on PPE for pneumatic, hydraulic, electrical or internal combustion power tools.
Content Limits	The items may include, but not limited to, proper clothing, eye protection, hearing protection, closed toe shoes needed to properly use a hand or power tool. The items may address proper/improper PPE for a class of hand or power tools.
Stimulus Attributes	The stimulus may include charts, images or diagrams. The stimulus may direct the student to complete a task utilizing proper PPE. The stimulus may direct student to provide a written response to a scenario.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	David is grinding a weld on his steel shop project. Which type of eye protection should David use? A. face shield B. safety glasses C. safety goggles D. torch glasses Answer: C

Standard	15.0 Select and use hand and power tools.
Benchmark	15.06 Demonstrate the use of measurement tools common to agriculture.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)= (SA)=X (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate the use of measurement tools common to agriculture.
Content Focus	The content should focus on tools used to measure volume, length, mass, angles, pressure and moisture in agriculture.
Content Limits	The items may include, but not limited to, tape measuring devices, transits, gauges, scales, levels and meters. The items may address proper technique for measuring a specific unit. The items may address identifying proper measuring device for a specific task.
Stimulus Attributes	The stimulus may include charts, images or diagrams. The stimulus may direct student to complete a task utilizing the proper measuring device. The stimulus may direct student to provide a written response to a scenario.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts.
Sample Item	Milford needs to accurately measure the perimeter of his three acre field for a new fence. Which measuring device would be his best choice? A. measuring wheel B. tape measure C. transit

Standard	16.0 Plan, draw, and construct a project.
Benchmark	16.01 Plan and sketch a project.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will plan and sketch a project.
Content Focus	The content should focus on sketches drawn to scale. The content should focus on proper planning of project including, but not limited to, budgeting, materials list, and plan of action.
Content Limits	The items may direct student to draw, in detail, plans for a specific project. The items may address specific parts of a plan.
Stimulus Attributes	The stimulus may include charts, images or diagrams. The stimulus may direct student to complete a sketch for a given scenario. The stimulus may direct student to provide a written response to a scenario.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Using a 1"=1' scale draw a sketch for an eight foot by 10 foot concrete pad.

Standard	16.0 Plan, draw, and construct a project.
Benchmark	16.03 Calculate a bill of materials.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate the ability to properly compute a bill of materials for a specific project.
Content Focus	None specified.
Content Limits	The items should address common materials used in agricultural construction.
Stimulus Attributes	The stimulus may direct student to calculate materials for a specific project. The stimulus may direct student to formulate a bill of materials in a written response. The stimulus may include graphs, pictures and diagrams.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Darrell must purchase fence posts for a boundary that is 200 feet long. The posts will be spaced 10 feet apart. How many fence posts will Darrell need to purchase? A. 19 B. 20 C. 21 D. 22 Answer: C

Standard	16.0 Plan, draw, and construct a project.
Benchmark	16.05 Identify and select appropriate finishes (such as paint, varnish and stain).
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will select the desired product for a specific outcome.
Content Focus	latex, oil-based, enamel, sheen, primer
Content Limits	The content should focus on finishes commonly used in agriculture. The content may include, but not be limited to, various finishes such as paint, varnish, and stain.
Stimulus Attributes	The stimulus may address which finish is suitable for a particular application. The stimulus may direct student to answer in a written response. The stimulus may contain images, charts and diagrams. The stimulus may address how to properly prepare materia
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which finish would best protect an exterior wood siding? A. paint B. putty C. stain D. varnish Answer: A

Standard	17.0 Install simple electrical circuits.
Benchmark	17.01 Demonstrate appropriate safety precautions and equipment.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will demonstrate proper protocols to illustrate proficiency when working with electrical components and tools.
Content Focus	None specified.
Content Limits	The content should be limited established safety procedures used in the industry. The content should include, but not be limited to, proper tools, equipment, and PPE used with and around electrical components.
Stimulus Attributes	The stimulus may address proper or improper PPE, tools and equipment used with electricity. The stimulus may address safe or unsafe practices.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which situation would be an unsafe practice while replacing a fan motor? A. using a voltmeter B. using an aluminum ladder C. wearing rubber soled shoes D. using and insulated screwdriver Answer: B

Standard	17.0 Install simple electrical circuits.
Benchmark	17.02 Explain the principles of AC and DC circuitry.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will explain/demonstrate the similarities and differences of alternating and direct current circuitry.
Content Focus	The content should focus on the properties of direct and alternating current.
Content Limits	The content should be limited to components of electrical circuitry.
Stimulus Attributes	The stimulus may address uses of AC or DC circuitry. The stimulus may address the differences of AC or DC circuitry. The stimulus may include proper or improper uses of various electrical components of AC or DC circuits. The stimulus may include images, g
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which electrical component produces direct current? A. battery B. capacitor C. copper wire D. solenoid Answer: A

Standard	18.0 Perform basic plumbing and irrigation procedures.
Benchmark	18.04 Troubleshoot and perform minor plumbing and irrigation repairs.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will diagnose and repair plumbing and irrigations issues.
Content Focus	None specified.
Content Limits	The content should address common plumbing and irrigation procedures used to diagnose irrigation and plumbing problems. The content should encompass common repair of components of irrigation/plumbing.
Stimulus Attributes	The stimulus may include images, charts and diagrams. The stimulus may address, but not limited to, leaks, clogs or pressure issues. The stimulus may direct student to perform a minor repair or diagnose a problem. The stimulus may require a written respon
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which tool/component is not needed to repair a ruptured PVC pipe? A. hack saw B. pressure regulator C. PVC cement D. PVC cleaner Answer: B

Standard	19.0 Mix and pour concrete and use masonry tools.
Benchmark	19.02 Calculate concrete and other materials for a masonry project.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will demonstrate proper calculations for a concrete or masonry job.
Content Focus	Items should focus on typical concrete or masonry structures and components common to the agriculture industry.
Content Limits	The items should be limited to basic concrete/masonry projects. The items may address cost of materials for a specific job. The items may include materials needed for a project. The items may address types of masonry/concrete tools needed for a specific function.
Stimulus Attributes	The stimulus may include graphs, images, or diagrams. The stimulus may include a list of materials for a project. The stimulus may include identification or function of various masonry tools.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Jason is pouring a 16'x10'x3.5" concrete slab. How many yards of concrete will he need to order? A. 2 yards B. 26 yards C. 29.5 yards D. 160 yards Answer: A

Standard	20.0 Construct and maintain agriculture structures.
Benchmark	20.06 Maintain and repair agricultural structures.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L,M
Benchmark Clarification	The student will show proficiency in maintenance and repairing of various agriculture buildings/structures.
Content Focus	The content should focus on, but not be limited to, the following: greenhouses, aquaculture facilities and structures, livestock pens, barns and storage structures.
Content Limits	The content should be limited to minor repairs and routine maintenance of facilities commonly found in agriculture.
Stimulus Attributes	The stimulus should address basic agriculture structures. The stimulus may ask student to perform a specific task. The stimulus may address scheduled maintenance of conveyances. The stimulus may include charts, diagrams and images. The stimulus may address
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which material should be used to construct a roof on a greenhouse? A. metal B. plywood C. polyethylene D. shingles Answer: C