Individual Test Item Specifications

8100310- Orientation to Agriscience
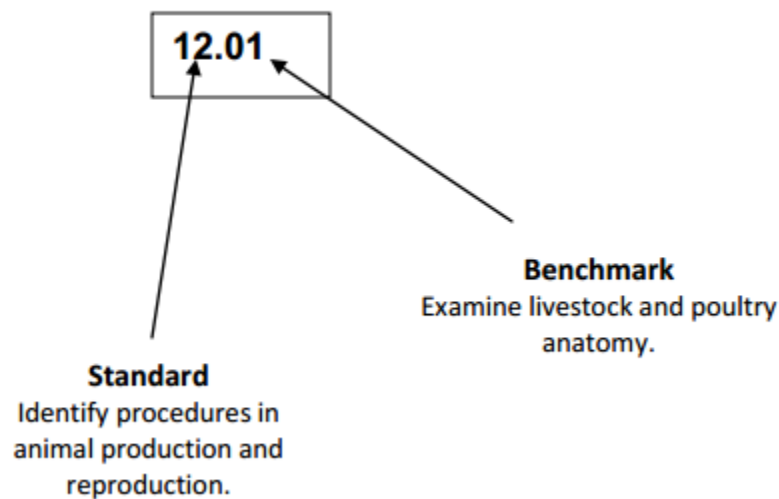
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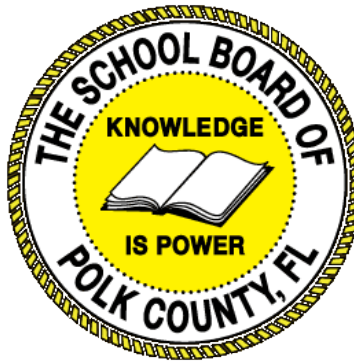
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I. Guide to the Individual Benchmark Specifications

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:

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**.

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	02.0 Demonstrate knowledge and skills in plant sciences.
Benchmark	02.01 Distinguish between nursery and landscape plants and crops for consumption.
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 have a basic understanding of the plants that fall into the categories of nursery plants, landscape plants and crops for consumption. Items should provide characteristics, products, or uses of the various varieties of landscape, nursery and consumption crops.
Content Focus	Nursery and landscape plants and crops common to Florida.
Content Limits	The content should be limited to plants and crops grown in Florida.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following Florida crops would typically be grown for consumption purposes? A. azalea B. citrus C. croton D. palm Answer: B

Standard	02.0 Demonstrate knowledge and skills in plant sciences.
Benchmark	02.03 Propagate and grow an agriculture plant.
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 have a basic understanding of plant propagation in the horticulture industry and how to correctly propagate a plant.
Content Focus	Cuttings, layering, division, and grafting.
Content Limits	The content may include common propagation techniques to common Florida grown plants, and be able to carry out those procedures to demonstrate the proper way of propagation. Methods used may include cuttings, layering, division and grafting.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Performance Task: With the plant provided, propagate the plant via the cutting method. Rubric: 4 points: The response includes a strong understanding of the propagation method of cuttings. The demonstration includes a logical process for completing the task. The practices asked for were given and demonstration is clearly demonstrated with few errors. 3 points: The response includes a good understanding of the propagation method of cuttings with at least three practices correctly demonstrated. The demonstration is somewhat clear and has minimal errors. 2 points: The response includes fair understanding of the propagation method of cuttings with at least two practices correctly demonstrated. The demonstration is somewhat unclear and may contain multiple errors. 1 point: The response includes a weak understanding of the propagation method of cuttings with at least one practice correctly demonstrated. The demonstration is generally unclear and contains many errors. 0 points: The response is off topic and/or the student did not make an attempt.

Standard	03.0 Demonstrate knowledge and skills in animal sciences.
Benchmark	03.01 Distinguish between food, service and companion animals.
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 have an understanding of food, service and companion animals within the scope of the agriculture industry.
Content Focus	Identifying food, service and companion animals within the useful scope of the agriculture industry; descriptions and/or identifying characteristics of various food, service or companion animals.
Content Limits	The content may include the identification and/or describing characteristics of behavior, uses and physical characteristics of food, service and/or companion animals.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which species is primarily used for human consumption? A. bovine B. canine C. equine D. feline Answer: A

Standard	03.0 Demonstrate knowledge and skills in animal sciences.
Benchmark	03.02 Identify breeds of food, service, and companion animals.
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 have an understanding of various breeds of food, service and companion animals. The student will understand the different characteristics, uses and purposes for the animal breeds the fit into each category.
Content Focus	Cattle, sheep, goat, horses, poultry, rabbits, dogs, and cats.
Content Limits	The content is limited to commonly used food, service and companion animals. Exotic animals may not be included.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which animal would be best suited for milk production? A. Angus B. Arabian C. Holstein D. Leghorn Answer: C

Standard	02.0 Demonstrate knowledge and skills in plant sciences.
Benchmark	02.07 Identify nursery and landscape plants and crops for consumption.
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 have a basic understanding of different nursery, landscape, and crops for consumption, and how to categorize them by characteristic, use or product produced.
Content Focus	Identifying nursery and landscape plants and crops for consumption common to Florida by characteristic, use, or product produced.
Content Limits	The content is limited to common nursery and landscape plants and consumption crops to Florida.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which explanation describes the way a pole bean grows? A. as a vine B. on a tree C. in bush form D. vertically on a stake Answer: D

Standard	01.0 Demonstrate knowledge and skills in agriscience research.
Benchmark	01.01 Define agriscience.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=X
Cognitive Complexity Level	L
Benchmark Clarification	The student will have an understanding of the agriculture industry and its industrial and production components.
Content Focus	Animal science, plant science, food science, aquaculture, agriculture mechanics.
Content Limits	The content is limited to the definition of the agriculture industry as a whole.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which topic is not considered a component of agriscience? A. aeronautics B. aquaculture C. entomology D. horticulture Answer: A

Standard	03.0 Demonstrate knowledge and skills in animal science.
Benchmark	03.05 Identify consumer foods and products derived from animals.
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 have an understanding of products we commonly use that are produced by animals in the agriculture industry.
Content Focus	Common products and food items from common livestock animals.
Content Limits	The content is limited to livestock (swine, cattle, poultry) products produced for human food or products.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which breed of sheep would be commonly used for wool production? A. East Friesian B. Hampshire C. Rambouillet D. Suffolk Answer: C

Standard	04.0 Demonstrate knowledge and skills in food science.
Benchmark	04.02 List and explain methods of food preservation.
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 have an understanding of the methods commonly used to preserve food and be familiar with how each method is accomplished.
Content Focus	Refrigeration, blanching, canning, dehydration, freeze drying
Content Limits	The content is limited to refrigeration, blanching, canning, dehydration and freeze drying.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following preservation methods would be accomplished by removing moisture by rapid freezing at very low temperatures? A. blanching B. canning C. freeze drying D. refrigeration Answer: C

Standard	04.0 Demonstrate knowledge and skills in food science.
Benchmark	04.05 Read and interpret a food label.
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 have an understanding of a food label. They should be able to read and understand the label as well as know the components of the label.
Content Focus	Components of food labels, general understanding of what food labels depict
Content Limits	The content is limited to common food labels with the legally required components included.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following items is not required to be listed on a food label? A. calories B. serving size C. origin of ingredients D. servings per container Answer: C

Standard	05.0 Demonstrate knowledge and skills in agriscience laboratories and workshops.
Benchmark	05.05 Identify tools, machines and equipment used in agriculture.
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 be able to recognize and identify different types of agriculture machinery, tools and equipment used on a regular basis in agriculture.
Content Focus	Common tools used, including hand tools, yard tools, and machinery such as tractor, lawn mower, weed-eater
Content Limits	The content is limited to tools, machinery, and equipment commonly used in agriculture including common hand tools, yard tools, and machinery such as tractor, lawn mower, weed-eater.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	What is the common use of a wrench? A. cutting materials B. holding materials C. leveling materials D. turning materials Answer: D

Standard	05.0 Demonstrate knowledge and skill sin agriscience laboratories and workshops.
Benchmark	05.07 Demonstrate proper workshop safety techniques.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=X
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will be able to operate an agricultural tool properly and abide by the safety standards the apply to the tool provided.
Content Focus	Common tools used including hand tools, yard tools, and machinery such as tractor, lawn mower, weed-eater
Content Limits	The content is limited to tools, machinery and equipment commonly used tools in the agriculture shop. This is limited to common hand tools, common yard tools, and equipment such as a tractor, lawn mower or weed-eater. Safety standards followed by the st
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Performance Task: Demonstrate the proper and safe way to operate a weed-eater. Rubric: 4 points: The response demonstrates a thorough understanding of weed-eater operations and safety. The demonstration includes all safety precautions that should be used when operating a weed-eater including applying safety glasses. The response is fully demonstrated with no errors. 3 points: The response demonstrates an understanding of weed-eater operations and safety procedures. The demonstration includes most safety precautions that should be followed when operating a weed-eater including applying safety glasses. The response is somewhat clear and has minimal errors. 2 points: The response demonstrates limited understanding of weed-eater operations and safety. The demonstration includes very minimal safety precautions that should be followed when operating a weed-eater may or may not include applying safety glasses. The response is somewhat clear and may contain multiple errors. 1 point: The response includes little understanding of weed-eater operations and safety. The demonstration includes little to no safety precautions that should be followed when operating a weed-eater and does not include

	applying safety glasses. The response is generally unclear and may have many errors. 0 points: The response is off topic and/or the students did not make an attempt.

Standard	06.0 Demonstrate product knowledge and skills in agriculture processing and marketing.
Benchmark	06.02 Describe the processing and marketing of an agriculture product from farm to consumer.
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 be able to understand and explain steps in the processing and marketing of agricultural products. The student will know the common practices of processing animal and plant products as well as how they are marketed.
Content Focus	Commonly produced and marketed products from livestock animals and plants
Content Limits	The content is limited to common livestock and crop products, plant products, cattle products, swine products and poultry products.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which process would not be a step in the stages of milk from farm to consumer? A. curdling B. pasteurization C. sanitizing the udder D. applying the milking machine Answer: A

Standard	07.0 Demonstrate knowledge and skills in environmental resources.
Benchmark	07.01 Define and identify renewable and nonrenewable natural resources.
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 be able to distinguish the difference between renewable and nonrenewable resources. The student will also be able to give examples of each and understand their purpose.
Content Focus	Common resources and their impact on the agriculture industry
Content Limits	The content is limited to common renewable and nonrenewable resources discussed in the agriculture field. Including but not limited to: Soil, trees, water, wind, oil, gold, coal, natural gas
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following is a renewable resource? A. copper B. oil C. phosphate D. water Answer: D

Standard	07.0 Demonstrate knowledge and skills in environmental resources.
Benchmark	07.03 Describe effects of pollution on the environment.
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 the effects of pollution in various environments.
Content Focus	Common effects of pollution on the environment
Content Limits	The content is limited to effects of common pollution topics to the environment such as pollution in lakes, ponds, ocean, air quality, wetlands, and forest.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	What is one of the ways that humans pollute the water? A. burning leaves B. chlorofluorocarbons C. garbage disposal D. over illumination Answer: C

Standard	07.0 Demonstrate knowledge and skills in environmental resources.
Benchmark	07.05 Define organic agriculture and traditional agriculture.
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 be able to understand and explain the fundamentals and components of organic agriculture as well as the traditional farming methods of producing goods and products.
Content Focus	Goods and products grown in Florida by organic or traditional farming methods.
Content Limits	The content is limited to goods and products commonly grown in Florida via the organic or traditional farming methods.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	What is the definition of organic agriculture? A. food or products grown for decorative purposes B. food or products grown strictly inside of a greenhouse C. food or products grown with the use of chemical pesticides D. food or products grown without the use of chemical pesticides Answer: D

Standard	08.0 Demonstrate leadership and communication skills.
Benchmark	08.01 Describe the aims and purposes of the FFA organization.
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 understand the goals, focus, and purpose of FFA.
Content Focus	Goals and purposes of the National FFA Organization.
Content Limits	The content may include the National FFA Organization's mission statement, FFA creed, FFA motto and overall leadership goals of the organization.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	What are the three main points in the mission of the National FFA Organization? A. record keeping, time management, finances B. leadership, financial growth, making new friends C. college success, raising livestock, record keeping D. personal growth, premier leadership, career success Answer: D

Standard	08.0 Demonstrate leadership and communication skills.
Benchmark	08.02 Identify opportunities available to FFA members.
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 be able to enumerate opportunities available to members of Future Farmers of America (FFA).
Content Focus	Direct opportunities for FFA members.
Content Limits	The content may include career development events, supervised agricultural experiences, leadership camps and experiences, college scholarships, and career readiness.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following includes an FFA contest where members have the opportunity to compete? A. agriculture experience tracker B. career development event C. record book D. supervised agriculture experience Answer: B

Standard	09.0 Integrate the use of science, mathematics, reading, geography, history, writing and communication in agriscience and technology.
Benchmark	09.02 Correctly use measuring instruments and utilize measurements to solve agricultural problems.
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 be able to choose the correct measuring instrument to properly solve an agricultural problem.
Content Focus	Commonly used measuring instruments in middle school related agriculture
Content Limits	The content is limited to milliliters, ounces, inches, feet, yards, pounds and quarts.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	When giving a livestock animal a vaccine, what would be the proper unit of measurement? A. gallon B. milliliter C. ounce D. quart Answer: B

Standard	09.0 Integrate the use of science, mathematics, reading, geography, history, writing and communication in agriscience and technology.
Benchmark	09.07 Describe the historical evolution of agriculture.
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 be able to relate the evolution of agriculture with historical facts and modern day agriculture.
Content Focus	Common historical evolution of the agriculture industry including the evolution of animals that were used for work, the ways common tools and machinery have evolved in their uses, and the way technology has made agriculture more efficient than in the past.
Content Limits	The content is limited to the evolution of animals used for work, evolution of tools, machinery and technology.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Who is known as the inventor of the cotton gin? A. Thomas Jefferson B. Thomas Moore C. Eli Whitney D. Jethro Wood Answer: C

Standard	09.0 Integrate the use of science, mathematics, reading, geography, history, writing and communication in agriscience and technology.
Benchmark	09.08 Identify specific areas of commodity production in the state, nation and world.
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 be able to recognize and identify commodity production in the state of Florida, nation and world specific to the cattle, swine, poultry and crops for consumption areas of agriculture.
Content Focus	Common commodities within the cattle, swine, poultry, and crops for consumption industries, including the state of Florida, the nation and the world.
Content Limits	The content is limited to cattle, swine, poultry, and crops grown for consumption focused commodity groups in the state of Florida, the nation and the world.
Stimulus Attributes	The stimulus may include diagrams, pictures, and/or charts.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, charts, and/or videos.
Sample Item	Which of the following commodities would most likely be produced in the state of Florida? A. citrus B. cocoa C. corn D. soybeans Answer: A