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| **TEXAS CTE LESSON PLAN**[www.txcte.org](http://www.txcte.org) |
| **Lesson Identification and TEKS Addressed** |
| **Career Cluster** | Agriculture, Food, & Natural Resources |
| **Course Name** | Principles of Agriculture, Food, & Natural Resources |
| **Lesson/Unit Title** | The Scope of Agriculture on Society |
| **TEKS Student Expectations** | **130.2. (c) Knowledge and Skills**(4) The student explains the historical, current, and future significance of the agriculture, food, and natural resources industry. 1. The student is expected to define the scope of agriculture
2. The student is expected to analyze the scope of agriculture, food, and natural resources and its effect upon society
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| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | * Define agriculture and explain agriculture industry.
* Describe the various components of the agriculture industry and their scope in society.
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| **Rationale** | The agricultural industry is a significant contributor to society. This lesson discusses the scope of agriculture and explain the role that the industry plays in society. Students will have the opportunity to explore careers in the agricultural industry. |
| **Duration of Lesson** | Teacher’s Discretion |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | GourmetWholesalerGraderHarvesterClimatic ConditionsUnder RipeMicroorganismBranEdible | Food IndustryDistributorPackerProducerHarvestingOver RipeMigratory LaborEndosperm | RetailerProcessorTruckerGradesMaturitySpoiledProcessingGerm |
| **Materials/Specialized Equipment Needed** | * Writing surface
* Overhead projector
* Copies of sample test
* Copies of student lab sheet
* Internet/computers
* Vocabulary Sheet
* Defining the Food Industry Career Lab
* Chart 1
* Chart 2
* Map 1
* Defining the Food Industry Exam
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | 1. Invite someone from a processing plant or a local food business to come speak to the class about food processing and food safety.
2. Have the students make a map of food production in the state. You can obtain statistics from your state department of agriculture or the Economic Research Service of the United States Department of Agriculture to indicate the raking of your state or region in the production of foods that you identified.
3. At the beginning of class, break the students up into several groups, have them pick a food product and have them create a timeline from seed to kitchen table with details. (about 15 minutes)
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| **Direct Instruction \*** | ***Anticipated Problem*:** Who is the specialized type of consumer and what is the food industry?**Gourmet** – sensitive and discriminating taste in food preferences**Food industry** – industry involved in the production, processing, storage, preparation, and distribution of food for consumption by living things***Anticipated Problem:*** Describe the importance that the food industry is to the consumer.Pet and animal food along with human food requires many individual positions to bring the food from the field to the table. To create food from farm products into edible products takes different people, places, equipment, government regulations, and resources.***Anticipated Problem***: What is the economic scope of the food industry?Economic scope starts when you understand the economic chain. The economic chain starts when the consumer purchases the food product which then sends a message to the retailer, wholesaler, distributor, producer, grader, packer, trucker, harvester, producer and others to replace the food product in the store so it is available to be purchased on the consumer’s next visit. (See Chart 1 and Chart 2)Some of the following are jobs that are triggered when a consumer purchases a product.**Retailer** –Direct sales to customer, either an individual or a store**Wholesaler** – an individual or company that sells a product to the retailer**Distributor** – stores the food until a request is received for transportation to a regional market**Processor** – is anyone that is involved in cleaning, separating, handling, and preparation a food product before it is ready to be sold to the distributor**Grader** – the person who inspects the food under the criteria it will be sold and consumed for size, freshness and amount. **Packer** – a person or firm that is responsible for placing the product into containers like boxes, crates, and binds for shipment to the processing plant**Trucker** – The individual who is responsible for the transportation of the product anywhere from the farm to the consumer**Harvester** – the person who removes the edible portions of the plants in the field at the time of harvest**Producer** – grows the crops and determines when the crops are ready for harvestSo for every one dollar the consumer spends on food and fiber in the United States, provides for approximately 20 percent of the country’s working population. (Chart 1)***Anticipated Problem:*** What are the government regulations and requirements to assure the foods quality and sanitation?To keep the food to be high quality, the United States imposes a grading system through the U.S. Department of Agriculture (USDA) to create uniform standards for food products throughout all the states and every store thru grading and sanitation requirements and inspections. **Grades** – quality standard**Sanitation programs** – USDA has programs which include inspection of slaughtering houses and processing plants and oversight of processing operations. Also the USDA oversees food labeling, enforces regulations regarding such labels. Other agencies that work wit the USDA are the National Shellfish Sanitation Program, U.S. Public Health Service, and the U.S. Food and Drug Administration to ensure that the food is safe to eat. Also, the USDA regulates local conditions to make sure sanitation and food is handled safely in restaurants and food preparation areas.***Anticipated Problem***: What are the differences in the major crop and animal commodity production in different areas of the United States and the World? What determines where the crops are grown are climatic conditions.**Climatic conditions** – the average of the amount of precipitation, temperature, and wind over a long period of time. Not all foods are grown in all parts of the country; some require warm climates such as the citrus fruit industry. See Map 1**Crop Commodities**:1. Grain Crops: such as wheat, rice, corn
2. Oil Crops: such as soybeans, corn cotton, fax, sunflowers, coconut, peppermint, and spearmint
3. Sugar Crop: such as sugar beet and sugar cane
4. Citrus: such as oranges, limes, lemons, and grapefruit
5. Tree Fruits: such as apples and pears
6. Vegetable and Berries: used for canning, and drying or freezing such as cabbage, broccoli, potatoes, cauliflower, beans, tomatoes, and sweet corn

**Meat Commodities**:1. Beef: raised near corn and is grown extensively in the Midwest and on the open ranges in the western parts of the United States
2. Pork: also raised near corn due to it being the main food source. It is raised mainly in the Midwestern part of the United States, the mid-Atlantic and southern states.
3. Lamb: sheep require large amounts of grazing pasture, therefore they are raised extensively in the range state of the far west, but they are grown in other places.
4. Dairy Products: Wisconsin has been known as the “Dairy State” but California also has a large dairy industry. But in recent years the industry has expanded to Idaho, New Mexico, and other western states
5. Game: each state has native game. In some state deer is being raised in captivity to help meet the market demand for venison.
6. Seafood: Mainly the states that border the Atlantic and Pacific oceans along with the Gulf of Mexico
7. Poultry: chickens and turkeys are raised in a variety of settings. Generally, chickens and turkeys are raised in confinement with the temperature and ventilation under constant monitoring. The largest poultry production state is California and other states.

***Anticipated Problem***: describe the major food operations which occur during food production in the food industry**Harvesting** – taking a product from the plant where it is grown or produced**Maturity** – Fully grown state**Under ripe** – not mature vegetation**Over ripe** – beyond maturity vegetation**Spoiled** – chemical changes that reduce nutritional value or render food unfit to eat**Microorganism** – tiny plants and animals that can contribute to the food spoilage**Migratory labor** – people that move from place to place where harvesting is occurring**Processing and Handling** – **Processing** – preparing raw agriculture products into consumable food**Bran** – skin or covering of the wheat kernel**Endosperm** – interior of wheat kernel that becomes wheat flour**Germ** – new wheat plant inside the kernel**Edible** – fit to eat or consume by mouth**Transportation -*** All modes of food transportation are used to move foods in various parts of the world including, carts, bicycles, trains cars, boats, planes, and trucks.
* 5.5 percent of the marking costs are due to transportation.
* 90 percent of all perishable foods are shipped by trucks.
* Potatoes, wheat, and beets are shipped by rail.

**Marketing -** Marketing gives the consumers information on what products are available and where they can be purchased. ***Anticipated Problem***: know the requirements for career opportunities in food science**Some Careers in Food Science and the Food Industry-****Business** – Accountant, Buyer, Distributor, Financial Analyst, Loan Officer, Marketing Specialist, Salesperson**Processing** – Butcher, Efficiency Expert, Engineer, Plant Line Worker, Plant Supervisor, Refrigeration Specialist, Safety Expert**Retailing/Food Service** – Baker, Cook/Pizza Maker, Counter Salesperson, Deli Operator, Meat Cutter, Nutrition List, Produce Specialist, Restaurant Owner/Operator, Waiter/Waitress**Communications** – Advertising Specialist, Broadcaster, Media Specialist, TV Producer/Demonstrator, Writer**Quality Assurance** – Food Analyst, Grader, Inspector, Lab Technician, Quality-Control Supervisor, Quarantine Officer**Transportation** – Dispatcher, Trucker, Rail Operator, Merchant Marine**Education** – College Professor, Extension Specialist, Industry Educator, Dietician, Teacher**Research and Development** – Distribution Analyst, Biochemist, Microbiologist, Packing Specialist, Process Engineer*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Guided Practice \*** | *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Vocabulary Sheet/Defining the Food IndustryDefining the Food Industry Career Lab*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Lesson Closure** |  |
| **Summative / End of Lesson Assessment \***  | Defining the Food Industry Exam*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **References/Resources/****Teacher Preparation** | Canning, Patrick. "USDA ERS - Food Dollar Series." *USDA ERS - Food Dollar Series*. USDA, 10 June 2014. Web. 04 Aug. 2014.L. DeVere Burton and. Cooper, Elmer L, *Agriscience Fundamentals and Application*. Forth Ed. Albany: Delmar/Thomson Learning, 2007. Print. |
| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | EnglishWriting I.A.3; Reading II.A.4; II.B.1; II.B.3; Listening IV.A; IV.B.1; IV.B.2; IV.B.3; Speaking III.B.1; III.B.2; Research V.A.2; V.B.3ScienceNature of Science: Scientific Ways of Learning and Thinking I.D.1; Foundation Skills: Scientific Applications of Communication III.B.3; III.b.4; III.D.1 |
| **Recommended Strategies** |
| **Reading Strategies** |  |
| **Quotes** |  |
| **Multimedia/Visual Strategy****Presentation Slides + One Additional Technology Connection** |  |
| **Graphic Organizers/Handout** |  |
| **Writing Strategies****Journal Entries + 1 Additional Writing Strategy** |  |
| **Communication****90 Second Speech Topics** |  |
| **Other Essential Lesson Components** |
| **Enrichment Activity**(e.g., homework assignment) |  |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | FFA |
| **Service Learning Projects** |  |
| **Lesson Notes** |  |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)