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| **TEXAS CTE LESSON PLAN**  [www.txcte.org](http://www.txcte.org) | |
| **Lesson Identification and TEKS Addressed** | |
| **Career Cluster** | Transportation, Distribution & Logistics |
| **Course Name** | Principles of Distribution and Logistics |
| **Lesson/Unit Title** | Materials Handling & Shipping Methods |
| **TEKS Student Expectations** | **130.443. (c) Knowledge and Skills**  (4) The student understands the historical, current, and future  significance of the distribution and logistics industries. The student is  expected to:   1. define terms associated with the distribution and   logistics industries |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | Students will…   * Identify major costs of transportation and factors that affect the moving of products. * Determine human resource and equipment needs and their costs to meet retailer and consumer demands. * Calculate cost and analyze data associated with the transportation of products. |
| **Rationale** | In Principles of Distribution and Logistics, students will gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This knowledge includes common practices used in the logistics of warehousing and transportation systems. |
| **Duration of Lesson** | 2-3 45-minute periods |
| **Word Wall/Key Vocabulary**  *(ELPS c1a, c, f; c2b; c3a, b, d; c4c; c5b) PDAS II (5)* | * Backhaul: A return trip or movement in a direction of secondary importance or purpose * Bill of lading: A contract stating that a carrier has received certain freight and is responsible for its delivery * Break-bulk distribution center: A warehouse where large shipments are sent by a shipper. Shipments are broken down by customer, and each consignee receives what was ordered. * Building-block concept: Combining smaller packages into larger units that can be more efficiently handled at one time * Bulk cargo: In shipping, cargo stowed loose, without specific packing, and generally handled with a pump, scoop, or shovel * Carrier: An individual or firm in the business of carrying cargo and/or passengers * Common carrier obligations: Over time, common carriers assumed four legal obligations to their customers: service, delivery, reasonable rates, and avoidance of discrimination. * Consolidate: Assemble small shipments into a single, larger shipment. * Containers: Large boxes, about 8 feet high, 8 feet wide, and from 20 to 55 feet long that can be transported by rail, air, or water carrier * Cube out: Occurs when a bulky cargo takes up a vehicle’s or a container’s cubic capacity but not its weight capacity * CWT: 100 pounds * Deadhead: A concept associated with the trucking industry that is characterized by driving an empty front haul in order to pick up a load on the back haul. * Delivery window: The time span within which a scheduled delivery must be made * Distribution center: A warehouse with an emphasis on quick throughput, such as is needed in supporting marketing efforts * Drop shipments: Shipments delivered to a handful of designated sites * Expedited shipment: A shipment that a carrier moves more quickly than usual * Goods in transit: Goods moving between two points, often accompanied by a live bill of lading * Hub and spoke: A carrier’s route system with many routes (spokes) radiating out from a single center (hub) * JIT Just in Time (JIT) is an inventory strategy implemented to improve the return on investment of a business by reducing in-process inventory and its associated costs. The process is driven by a series of signals that tell production processes to make the next part. * Load factor: Percentage of capacity utilized * Loading dock: A warehouse or factory door where trucks are loaded or unloaded * Logistics: The flow of materials and services and the communications necessary to manage that flow * LTL: A load that is too small to qualify as a “truckload” under (less-than-truckload) motor freight classification rules * Metric ton: 2,204.6 pounds * Nesting: Packaging tapered articles inside each other to reduce the cubic volume of the entire shipment * Order cycle: Elapsed time between when a customer places an order and when the goods are received * Order picking: In a warehouse, the selection of specific items to fill or assemble and assembly: a complete order * Overnight delivery: Goods shipped on one day and delivered the next morning * Pallet: A small platform, usually 40 by 48 inches, on which goods are placed for handling in a warehouse (also called skid) * Place utility: Having products available where they are needed by customers * Private carrier: Carrying one’s own goods in one’s own vehicles * Requisition: A request that a procurement office supply or acquire some good * Shipment consolidation: Freight rates are less expensive per pound shipped when large shipments are given to the carrier at one time. Therefore, shippers try to group shipments bound for the same general area. * Staging: Accumulating or assembling goods before sending them * Stuffing: Loading a container * Supply chain: All activities associated with the flow and transformation of goods from the raw material stage, through to the end user, as well as the associated information flows * Sweet spot: A sweet spot is a place, often numerical as opposed to physical, where a combination of factors suggests a particularly suitable solution. * Tachograph: An electronic device that records the road speed and the engine RPMs on a truck and tells a lot about the vehicle that has been driven * Tare weight: Weight of the empty container or vehicle * Time utility: Having products available when they are needed by customers * Tractor: The motorized portion of a freight-hauling vehicle used to pull the trailer * Trailer: The non-motorized portion of a freight-hauling vehicle that is pulled by the tractor * Unit load: A pallet load * Warehouse: Storage facility where products stay for extended periods of time |
| **Materials/Specialized Equipment Needed** | * Computer * LCD Projector |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | **Introduction to Project:**   * Initiate discussion “Where do those sunglasses on the Wal-Mart shelf come from?” (Choice of item discussed can vary.) Allow students to describe their ideas of how a supply chain works. * Discuss a Supply Chain. (May want to make an overhead or PowerPoint slide of diagram on Handout 1) |
| **Direct Instruction \*** | * Show the PowerPoint, Introduction to Supply Chain Management * Alternative: Distribute copies of Handout 1, Introduction to Supply Chain and have student read aloud in class. * Lead class discussion to obtain student impressions following PowerPoint or reading activity. Be sure to comment. Show Internet video “Wal-Mart Logistics.   *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 \*** | * Invite student feedback from research activity and video, especially answers to the following questions: * How many times in the past year have you thought about how the product got to the shelf? * What are some situations that may cause the disruption of the flow of goods…?   + Before the raw materials reach the manufacturer?   + Between the distribution center and the store shelf?   + Between the manufacturer and the retailer’s distribution center?   *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 \*** | **Students will…**   * Create diagrams, charts, illustrations, or written explanations of a supply chain.   *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** | Ask: Do you think you need to know more about how to make an important business decision concerning logistics?  *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*  *NONE* |
| **Summative/End of Lesson Assessment \*** | Supply Chain Management  Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Answer the following using complete sentences.  1) What is the purpose of an 18-wheeler in the supply chain?  2) In your own words define logistics. Include the name of the website that contributed most to your answer.  3) What career in Logistics do you most associate with and why?  4) What math operations are involved in decisions concerning the distribution and supply of goods? Give some specific examples.  5) What role does customer satisfaction play in the supply chain?  6) List at least one other link that you found that was useful. What made it special?  *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** | * Complete lesson available at: <http://www.transportationcareers.org/wp-content/uploads/2009/04/WalMart-Distribution-Module-Final.pdf>   **Materials & Resources:**   * PowerPoint, Introduction to Supply Chain Management * Handout #1, Introduction to Supply Chain Management * Handout #2, Links for Supply Chain Research * Handout #3, Wal-Mart Interoffice Memo * Access to Inter Video, Wal-Mart Logistics (www.walmart.feedroom.com -- Type “logistics” in Video Search, click on first video “Wal-Mart Logistics”. Click box to left of “Send” in Video player for full-screen viewing).   PowerPoint for lesson 1 – Walmart distribution  <http://www.transportationcareers.org/wp-content/uploads/2009/04/Walmart-Distribution-Module-Introduction-to-Supply-Mgt-PowerPoint-for-Teacher-Lesson-1-of-Wal-Mart-Project.pdf> |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-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)** | DECA, SkillsUSATexas |
| **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)