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| **TEXAS CTE LESSON PLAN**[www.txcte.org](http://www.txcte.org) |
| **Lesson Identification and TEKS Addressed** |
| **Career Cluster** | Information Technology |
| **Course Name** | Networking |
| **Lesson/Unit Title** | Networking and Modems |
| **TEKS Student Expectations** | **130.305.(c) Knowledge and Skills**(5) The student analyzes various types of configurations and upgrading. The student is expected to:(A) demonstrate understanding of components of telecommunications and data networks(C) distinguish between different types of cables used in the telecommunications and data networking(D) describe telecommunications and data networking media and connectors(6) The student recognizes and recommends the various types of network components to address industry needs. The student is expected to:(A) analyze various types and components of networks(B) analyze the characteristics of networks to select the optimum configuration for an industry solution |
| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | **Performance Objective:**Upon completion of this assignment, the student will be able to further understand the importance of a modem, how a modem works, and how to install a modem.**Specific Objectives:*** Describe the function of the modem
* Identify considerations when choosing a modem
* Identify different types of modems
* Describe how a modem works
* List the steps to install or replace a modem.
* Identify test and troubleshooting techniques for a modem
* Install or replace an external modem
* Install or replace an internal modem
* Research emerging technologies concerning modems
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| **Rationale** | It is important for students to understand how to identify and replace computer modems in this emerging technological society. |
| **Duration of Lesson** | 180 minutes |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* |  |
| **Materials/Specialized Equipment Needed** | **Instructional Aids:**1. Modems Presentation Outline Organizer
2. Modems Exam
3. Modems Exam Key
4. Modems – Lab Assignment
5. Modems – Lab Assignment Rubric

**Materials Needed:**1. Copies of the Modem Presentation Organizer (1) for each student
2. Copies of the Lab Assignment (1) for each student

**Equipment Needed:**1. Personal Computer with access to the Internet
2. Computers that the student can take apart and work with
3. External and Internal modems for installation
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | **ASK:** Does anyone have a computer at home with internet access?*(Computers now have internal modems that will allow you to exchange information using the internet)***SAY:** A modem is a device that lets computers exchange information throughtelephone lines. |
| **Direct Instruction \*** | Lesson Introduction and (**NOTE:** Instructors can use the handouts, and note pages in conjunction with the following outline. Instructor should hand out (1) per student the Modems Organizer document. Instructor should present using computer and projector. Students should fill in the blank areas of the organizer). I. Students describe the function of the modem II. Students identify considerations when choosing a modemIII. Students identify different types of modems IV. Students describe how a modem works V. Students list the steps to install or replace a modem VI. Students identify test and troubleshooting techniques for a modem VII. Students install or replace an external modem and test/troubleshoot problems (**NOTE**: Instructor should hand out (1) per student the Modems Lab Assignment sheet and review the instructions with the students. Instructor should demonstrate in a lab setting how to properly install an external and an internal modem. Instructor should also demonstrate software if possible.)a. Students should use their notes to help them follow the correct steps for modem installation and testing.VIII. Students install or replace an internal modem and test/troubleshoot problemsa. Students should use their notes to help them follow the correct steps for modem installation and testing.IX. Students research emerging technologies concerning modemsa. Students perform Internet research to answer questions on the Lab Assignment sheet. |
| **Guided Practice \*** | * The teacher demonstrates each lab principle.
* The teacher maintains direct supervision in the lab providing guidance when warranted.
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| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Students work individually on lab assignments; demonstrating their skills in identifying and discussing the various lab requirements and results. |
| **Lesson Closure** | Checking for understanding (Q&A Session) 1. Why is a modem important in communications?
2. *The modem allows you to exchange information through telephone lines.*

**Q**: What should you look for when choosing a modem?1. *Fax and voice capabilities, speed, communications program, and upgrade capabilities.*
2. What are some different types of modems?
3. *internal modems, external modems, cable modems*
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| **Summative/End of Lesson Assessment \***  | **Informal Assessment**Monitor student progress during independent practice and provide independent re- teach/redirection as needed.**Formal Assessment**Use the Modems Exam and Exam Key. |
| **References/Resources/****Teacher Preparation** |  |
| **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) | * Students who have mastered the lab assignments, can peer-tutor students (one-on-one) that are having difficulty with performing the lab.
* Students demonstrating mastery of the lab assignments may also be called upon to apply learning by assisting the Campus Technologist in maintaining, repairing, or upgrading campus equipment.
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| **Family/Community Connection** |  |
| **CTSO connection(s)** | SkillsUSA, TSI |
| **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)