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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** | Computer Technician | |
| **Lesson/Unit Title** | Boot Process | |
| **TEKS Student Expectations** | **130.311. (c) Knowledge and skills**  (1) The student demonstrates professional standards/employability skills required by business and industry. The student is expected to:  (E) solve problems and think critically  (F) demonstrate leadership skills and function effectively as a team member  (5) The student knows the concepts and skills that form the basis of computer technologies. The student is expected to:  (D) identify proper troubleshooting techniques  (F) describe the architecture of various computer systems  (G) describe the function of central processing units, storage devices, peripheral devices, and microprocessor units  (6) The student knows the proper function and application of the tools, equipment, technologies, and materials used in computer technologies. The student is expected to:  (A) demonstrate safe use of equipment in computer technologies such as hand and power tools  (7) The student applies the essential knowledge and skills for computer technologies to career preparation, job shadowing, mentoring, or apprenticeship training in simulated and actual work situations. The student is expected to:  (A) identify a problem relating to information technology  (B) develop a solution using appropriate technologies, IT concepts, and IT industry standards  (F) apply critical-thinking strategies to analyze and evaluate the proposed technological solution  (H) select and use the appropriate technological resources to conduct, research, design, and develop activities  (I) develop the documentation of the research and development process  (10) The student provides support to computer users to maintain service. The student is expected to:  (D) employ problem-solving skills in performing support, maintenance, and repair | |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | | |
| **Instructional Objectives** | The student will be able to:   * Define terms associated with the lesson * Identify the boot process * Identify the POST process * Troubleshoot the boot process errors | |
| **Rationale** | Upon completion of this assignment, the student will be able to follow the boot process and recognize boot startup errors available for today’s computers. | |
| **Duration of Lesson** | This lesson should take 120 minutes. | |
| **Word Wall/Key Vocabulary**  *(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | None | |
| **Materials/Specialized Equipment Needed** | **Instructional Aids:**   * Boot Process Quiz * Boot Process Quiz Key   **Equipment Needed:**   * Projection system * Basic Computer Tech Tools Kit * Bootable computers not used regularly in lab | |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | * **SAY**: The more advanced our computer systems become the more we rely on the system itself to report errors and failures. * **ASK**: What is POST? [Power-ON-Self-Test] * **ASK:** What can the POST tell you? [It will detect critical hardware component failures.] * **ASK:** Is there any other systems (outside computers) which could or should have something similar to POST? | |
| **Direct Instruction \*** | Outline | Instructor Notes |
| I. Introduction to the Boot Process  A. Explain why we need the boot process  B. Define the parts of the boot process  Step 1: POST (Power On Self-Test)  Step 2: ROM BIOS startup program searches for and initializes an OS  Step 3: OS configures the system and completes its own loading  Step 4: Load the Shell/GUI Startup BIOS is in control for first step of the boot, then it turns over control to the OS |  |
| **Guided Practice \*** | Students will work in pairs or small groups (3 or less). After successful identification and understanding POST, computers should then be set purposely w/errors (ex. remove RAM). Students then research error beep code patterns to solve problem. | |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Students will locate research and solve POST errors. | |
| **Lesson Closure** | * Q. What components are checked during POST? * A. Power Supply, CPU, Memory, Keyboard, Mouse, Video, Hard Drive | |
| **Summative/End of Lesson Assessment \*** | **Informal Assessment:**   * Assess student understanding of concepts and terms during class instruction and review. * Students should, at the end of the lab, complete a Lab Report which requires the student to recount all that was done in the lab and draw conclusions.   **Formal Assessment:**   * Boot Process Quiz and Boot Process Quiz 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 will be faced with a POST failure. They will have to apply research to situation in order to solve boot problem. | |
| **Family/Community Connection** |  | |
| **CTSO connection(s)** | SkillsUSA  Technology Student Association | |
| **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)