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| **TEXAS CTE LESSON PLAN**  [www.txcte.org](http://www.txcte.org) | |
| **Lesson Identification and TEKS Addressed** | |
| **Career Cluster** | Science, Technology, Engineering & Mathematics |
| **Course Name** | Engineering Design and Presentation |
| **Lesson/Unit Title** | Engineering Design Capstone Research Project: Part 4 |
| **TEKS Student Expectations** | **130.410. (c) Knowledge and Skills**  (2) The student gains knowledge of and demonstrates the skills  (D) demonstrate the principles of teamwork related to engineering and technology;  (E) identify and use appropriate work habits;  (H) demonstrate respect for diversity in the workplace;  (I) demonstrate appropriate actions and identify consequences relating to discrimination, harassment, and inequality;  (J) demonstrate effective oral and written communication skills using a variety of software applications and media; and  (3) The student participates in team projects in various roles. The student is expected to:  (B) apply teamwork to solve problems; and  (C) serve as both a team leader and member and demonstrate appropriate attitudes while participating in team projects.  (4) The student develops skills for managing a project. The student is expected to:  (A) implement project management methodologies, including initiating, planning, executing, monitoring and controlling, and closing a project;  (B) develop a project schedule and complete work according to established criteria;  (C) participate in the organization and operation of a real or simulated engineering project; and  (6) The student applies the concepts of sketching and skills associated with computer-aided drafting and design. The student is expected to:  (G) demonstrate knowledge of effective file structure and management;  (8) The student applies concepts of engineering to specific problems. The student is expected to:  (D) use multiple software applications for concept presentations.  (10) The student builds a prototype using the appropriate tools, materials, and techniques. The student is expected to:  (C) present the prototype using a variety of media. |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | The students will be able to:   * demonstrate the ability to work effectively as a team member on a team presentation project and follow the teamwork agreements * create a presentation about their product prototype using PowerPoint or Prezi * prepare and make an oral team presentation to the class * demonstrate the ability to present their results professionally * apply what they have learned about proper presentation etiquette when making their presentation |
| **Rationale** | Working together with other team members, students will create a presentation about an engineering prototype and give a presentation to the class. |
| **Duration of Lesson** | Two to three 45-minute periods |
| **Word Wall/Key Vocabulary**  *(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | Prototype  Presentation Etiquette  Design |
| **Materials/Specialized Equipment Needed** | **Materials Needed:**   * 1 copy of Engineering Design PowerPoint or Prezi and Oral Presentation Rubric per team * Writing utensil for students who don’t have any   **Equipment Needed:**   * Computer with internet access and printer * Data projector * Word, PowerPoint (or equivalent software) |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | **Introduction:**  *NOTE: The class discussion is meant to be Socratic in nature and not true/false, or this is the only correct answer. Encourage your students to explain WHY they think the way they do! There is NO wrong answer if they can explain the WHY!*  **SAY:** This week you will finally be presenting your products.  **SHOW:** Go over in detail the Engineering Design PowerPoint or Prezi and Oral PresentationRubric again.  **ASK:** Does anyone need a day or two MAX to finish it?  **SAY:** You have up to the end of class on Tuesday to finish up as needed. No matter what, onWednesday we start to do the presentations. (Randomly draw team names out of a hat.)  **ASK:** What if your team is done?  **SAY:** Then do one of the bonus assignments.  **ASK:** Can anyone tell me what they think proper presentation etiquette is?  **NOTE:** Have teams set up and give their presentations starting Wednesday. Follow the rubricgiven. You should be able to get 2 -3 teams’ presentations done in a class period. Once you are done with all of the presentations, it is the perfect time to start reviewing for your final exam. |
| **Direct Instruction \*** | Upon completion of this lesson the you will be able to apply all of the knowledge and skills you have learned in designing a product prototype and will prepare and make a team presentation of your research and results that meets the criteria given in the Engineering Design PowerPoint or Prezi and Oral Presentation Rubric.  Assign student to their groups  *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 \*** | The Teacher will monitor students as they finish creating their presentations per rubric given.  *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 finish creating and will give team presentations per rubric given. Students will create one of the bonus/extension project(s) if time allows.  *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** | Remember the “Three before me” rule but check teams’ progression daily so that they keep on task. If they set up the Team Contract correctly, they should self-monitor and adjust, but it’s always a good idea for the teacher to monitor and review to make sure they are improving daily. You want them to do the work, not you. They need to apply everything they should have learned to date. Just monitor their work and do not automatically “bail them out” with what you feel are the correct or best answers. They should be done or almost done and ready to give the final presentations. |
| **Summative/End of Lesson Assessment \*** | **Informal Assessment:**  Make sure each team gives its presentation and assess them accordingly.  **Formal Assessment:**  Final project presentation (per rubric) = “Major grade”  *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** |  |
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| **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 need a challenge can:   1. Create order forms for their product 2. Create packing for their prototype |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | SkillsUSA, Technology Student Association (TSA) |
| **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)