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| **Course:** Introduction To Engineering | | | | | | |
| **Unit:** What Is Engineering | | | | **exercise:** Introduction | | **Time Frame:** 1-2 hours |
|  | Preparation: *Summary of “to do’s” that the teacher should understand and prepare before bringing this lesson to the classroom.* | | | | | |
| Teachers will need to ensure that the proper supplies are available for students to build their solutions.  **Materials**  Assemble an assortment of items for students to observe. This can be done using physical items (pens, calculator, cell phone, mp3 player, etc.) or a slideshow of pictures (computer, space shuttle, automobile, guitar, etc.). | | | | | | |
|  | Safety: *Summary of safety strategies in the lesson.* | | | | | |
| Please use this space to describe safety procedures or highlights for this lesson.  Each exercise will list the safety strategies applicable for the exercise in this section. | | | | | | |
|  | Desired Results: | | | | | |
| Established Goals: | |  | Transfer: | | | |
| *Problem Solving Techniques and Applications Standards:*  Teachers should use the STEM Academy Standards Correlation System available in the STEM Connections area of a unit to extract specific standards and insert these standards here. | | *Students will be able to independently use their learning to…*   * Identify the difference between an engineer and a scientist; * Identify the difference between an engineer and an engineering technologist. | | | |
| Meaning: | | | |
| Understandings  *Students will understand that...*   * There are many different engineering fields that are all linked but very different. | | Essential Questions  *Students will keep considering...*   * What search engines can be used for; * What an engineer is. | |
| Acquisition OF KNOWLEDGE AND SKILL: | | | |
| *Students will know...*   * The basics of search engines; * The importance of computer search engines for engineering information. | | *Students will be skilled at...*   * Discussing major engineering fields; * Utilizing search engines for engineering information purposes. | |
|  | Evidence: | | | | | |
| Evaluative Criteria: | |  | Assessment Evidence: | | | |
| * Successful | | | *Performance Task(s):*  **Quiz Questions**  Students will be asked a series of questions related to the information presented in the PowerPoint of the lesson. | | | |
| * Present | | | *Other Evidence:*   * Class Participation | | | |
|  | Learning Plan: *Summary of Key Learning Events and Instruction* | | | | | |
| 1. **Set Introduction**   Assemble an assortment of items for students to observe. This can be done using physical items (pens, calculator, cell phone, mp3 player, etc.) or a slideshow of pictures (computer, space shuttle, automobile, guitar, etc.). Ask the students who they think designed and built these items. Discuss with your students briefly that all these items were designed and sometimes built by engineers. Engineers design almost all of the items we use in our everyday lives. Tell your students that the PowerPoint will review and discuss the different fields on engineering.   1. **Encourage Students**   Encourage your students to take notes during the PowerPoint, as they will be tested on the material via an online quiz.   1. **Present PowerPoint**   Follow the PowerPoint and discuss each slide in detail. If further explanation of a particular engineering field is needed refer to the file entitled, What is Engineering?   1. **Testing Engineer Example**   Testing the windshield of a high-speed train in Europe against the potential impact of birds. More details on this example can be found on page 8 of the file entitled, What is Engineering?   1. **Other Fields**   A mechanical engineer can have a wide variety of positions depending on the field they choose. Examples are found on page 18 & 19 of the file entitled, What is Engineering  **Progress Monitoring:**   * The instructor will need to monitor the classroom, checking student’s work and ensuring students are on task and following directions. * Ensure students store their projects at the end of class and no materials leave the room.   At the end of the activity, post student projects in the room and provide appropriate feedback. | | | | | | |
|  | Differentiation: *Summary of Key Differentiation Techniques* | | | | | |
| Please use this space to insert your differentiation techniques. Depending on the needs of students, various techniques might be needed in a classroom, therefore use the information below and experts in the area needed to design your plan for differentiation.  The ASCD Study Guide for Integrating Differentiated Instruction and Understating by Design: Connecting Content and Kids.  by Carol Ann Tomlinson, Jay McTighe  Integrating Differentiated Instruction and Understating by Design: Connecting Content and Kids.  by Carol Ann Tomlinson, Jay McTighe  ISBN-13: 978-1416602842  ISBN-10: 1416602844  Differentiating Reading Instruction  *by Laura Robb.*  ISBN13: 9780545022989  A Teacher's Guide to Differentiating Instruction  The Center for Comprehensive School Reform and Improvemen | | | | | | |

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|  | career Connections: *Summary of Career Opportunities Associated with this Lesson* |
| Please use this space to insert careers that might be connected to this lesson. This section will need continuous updating as new careers and emerging technologies change the opportunities available in the workforce.  Each exercise will list the career connections specific to that exercise here.  Good sources for career connections:  Occupational Outlook Handbook  <http://www.bls.gov/ooh>  The National Career Clusters® Framework  <http://www.careertech.org/career-clusters> | |
|  | Keywords: *Please Insert Keywords from this Lesson with their Definitions* |
| Please use this space to insert keywords and their definitions  Use resources like [dictionary.com](http://dictionary.reference.com/) to find definitions to your keywords | |