Title: Engineering Discipline Presentation

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Overview / Description:
> Students will choose an engineering sub-discipline of their choice and present information about it to their peers in a presentation style of their choice. The presentation must include some type of multimedia format (Powerpoint, Prezi, Slides, Keynote, etc.)

Subject(s):
> Technology Education, Career Exploration

Grade Level(s):
> Grades 8-12

Learning goals/objectives:
> *After completing this activity, students should be able to:*
> - Understand job outlooks/market trends
> - Understand salary outlooks
> - Understand parts of a job description
> - Recognize the importance of professional societies
> - Use technology to perform a job search

Workplace Readiness Skill:

❏ Social Skills	❏ Critical Thinking
❏ Teamwork	❏ Media Etiquette
❏ Attitude and Initiative	X Planning and Organization
X Professionalism	X Communication

Type of Activity:

X Individual
❏ Small Group
❏ Whole Class

Teaching Strategies:

- ❏ Discussion
- ❏ Partner work
- X Use of Technology
- ❏ Role Playing
- ❏ Simulation
- X Performance Assessment

Content Standards

Model Academic Standards for School Counseling

Academic Development Domain

> **Content Standard C:** Students will understand the relationship of academics to the world of work, and to life at home and in the community.
> - ● Core Performance Standard 1: Understand how to relate school to life experiences

Personal/ Social Development Domain

> **Content Standard E:** Students will make decisions, set goals, and take necessary action to achieve goals

Wisconsin Common Career Technical Standards

Career Development Discipline Standard 3:

> CD3.a: Investigate the world of work in order to gain knowledge of self in order to make informed career decisions.
> - ● Performance indicator 5.m: Demonstrate the ability to use technology to retrieve and manage career information that inspires educational achievement.

Career Development Discipline Standard 4:

> CD4.b: Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
> - ○ Performance indicator 2.m: Identify the components of a job description.
> - ○ Performance indicator 3.m: Use technology to assist in career exploration and job seeking activities.
> - ○ Performance indicator 5.h: Use multiple resources to locate job opportunities.

Length of Time and length of class periods:

- ● 180 minutes of class time to work on presentation
- ● Presentation time to be allotted depending on size of class and number of presentations

Materials List (linked if online resource please):

- ● Computer with internet access
- ● Whiteboard/projector
- ● "What's an Engineer?" video
- ● Engineering Discipline Presentation Directions

- [Engineering Discipline Presentation Sub-discipline List](#)
- [Career Videos from the NEW Manufacturing Alliance](#)
- ["Reasons You Should Consider a Career in Engineering."](#) blog
- [Engineering Discipline Presentation Rubric](#)

Directions (Step-by-Step):

1. "From energy and mechanics to biology and computer science, engineering is one of the most diverse industries in the world. For the right people, it promises a stable job and income, creativity, and career progression." To stress with students the importance of engineering jobs and to give them the opportunity to investigate this career area, students will be researching and creating a presentation on one engineering career.

2. Because engineering may be a new career field for students, students should do some preliminary research on engineering careers before they chose their topics. A great place to start is a video by Crash Course Kids called ["What's an Engineer?"](#) Suggested resources for student research include the [Career Videos from the NEW Manufacturing Alliance](#) and the Kangan Institute blog called ["Reasons You Should Consider a Career in Engineering."](#)

3. Have students choose an engineering sub-discipline from the [provided list](#).

4. Explain to students that they will create a multimedia presentation of their choice (Powerpoint, Prezi, Slides, Keynote, etc) with the following required information.

5. The instructor will create a model presentation beforehand explaining each of the pieces of information below and the importance of each piece when researching a prospective career path. The instructor's presentation should also include an explanation of the [grading rubric](#) and the [instructor's expectations](#):

   - Median salary
   - Salary outlook
   - Jobs outlook (market trends)
   - Description of job duties
   - Knowledge requirements
   - Tools used
   - Technologies used
   - Professional societies
   - Which state or region is the best market for this field, and why?
   - 2 job postings (non-military)
   - Any other information they feel is pertinent to the chosen sub-discipline

<u>Wrap-Up:</u>

Students will present their research to the students in a multimedia presentation.

<u>Formative/Summative Assessment</u>:

- Formative Assessment: During the research stage, the instructor will move around the room and check students for understanding. The grading rubric and presentation directions will be provided beforehand and the instructor will refer students to them to help guide their learning.

- Summative Assessment: Students will present to class their findings. Students will be assessed using the Engineering Discipline Presentation Rubric.

<u>Extension Activity for differentiation:</u>

- If a student is interested in pursuing their chosen sub-discipline after graduation, refer them to the counseling office to enroll in the school's engineering pathway, apply for internships or job shadowing experiences, or to speak to counselors about other opportunities available to them.
- An engineer (or several different types of engineers) from a local company could be invited for a Q & A about the engineering field.

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Engineering Discipline Presentation Directions

Choose an engineering sub-discipline from the provided list. Then research and create a multimedia presentation of your choice (Powerpoint, Prezi, Slides, Keynote, etc) with the following required information:

- Median salary
- Salary outlook
- Jobs outlook (market trends)
- Description of job duties
- Knowledge requirements
- Tools used
- Technologies used
- Professional societies
- Which state or region is the best market for this field, and why?
- 2 job postings (non-military)
- Any other information they feel is pertinent to the chosen sub-discipline

All information must be sourced. No source=equals no points

Points breakdown:
10 points for each of the required pieces of information
25 points for multimedia presentation (from rubric)
Total:125 points

Engineering Discipline Presentation Sub-Discipline List

- Aerospace
- Agricultural
- Automotive
- Biological
- Biomedical
- Architectural
- Chemical
- Civil: Construction
- Civil: Geotechnical
- Civil: Structural
- Civil: Transportation
- Civil: Water Resources
- Control Systems
- Computer Engineering
- Electrical
- Electronics
- Electrical Power
- Environmental
- Fire Protection
- Industrial
- Manufacturing
- Mechanical: HVAC and Refrigeration
- Mechanical: Mechanical Systems and Materials
- Mechanical: Thermal and Fluids Systems
- Metallurgical and Materials
- Mining and Mineral Processing
- Naval Architecture and Marine
- Nuclear
- Petroleum
- Software
- Structural

Any Sub-discipline not listed will need approval of instructor.

Name:_____

Chosen Discipline:_____

Engineering Discipline Presentation Rubric

Name: Chosen Discipline:

Presentation Rubric	5 points	4 points	3 points	2 points	1 point
Content	Information is accurate and detailed. All required info is included. Other pertinent info has been added.	Includes essential knowledge about the topic. Presenter's knowledge of subject appears to be good.	Essential information is minimal, just enough to cover the subject.	Essential information is missing. May be some factual errors.	Content is not accurate, contains factual errors, or is not pertinent in any fashion to subject.
Appearance	Technology used during presentation is is very well put together and operates with no problems. the overall presentation is pleasing to watch and adds to the presentation.	Technology used is well put together and operated with few problems, is pleasing to watch and adds to the presentation.	Technology used seems under-utilized, or operates with multiple problems, but does not detract from presentation.	Technology used is a distraction and/or detracts from presentation.	No technology used, or is poorly put together.
Presentation	Presentation is well presented. Speaker communicates info clearly and succinctly, with good eye contact and connection to audience. Speaker adds info not on slides.	Presentation is well presented, speaker communicates clearly, with minimal errors in presentation.	Presentation is okay, speaker does not communicate clearly. Minimal errors, but eye contact is poor, and all info presented is read from slides.	Speaker does not communicate clearly. Presentation is presented with many errors. no eye contact, reads from slides, no connection to audience.	Presentation is very poor, which indicates a lack of practice.
Grammar	No grammatical errors	Minor grammatical errors which didn't affect overall presentation	several grammatical errors, didn't affect overall presentation	Many grammatical errors with some negative impact to the overall presentation	Presentation had numerous grammatical errors, degrades the presentation
Creativity	Information is presented in very original style, technology is used creatively and the presentation is pleasant and intriguing	Presentation is original, presentation is clear and to the point.	Overall presentation lacks creativity, but the information is clear.	Presentation lacks creativity and the information presented is confusing at times.	Presentation indicates minimal effort to convey the information.

Total Points:_____