Post Secondary Technology Lesson Plan: Dennis's Robots

Grade level: Post Secondary Technology
Standards:

HS 3.C: Understand how technology is related to other school subjects, particularly science and math

HS 5. E complete design tasks using a standard process

Objectives: After watching a movie on TED.com, students will work in groups to design a robot that assists people in some way or is a solution to a current problem.

Procedure:

Introduction/motivation: Have a class discussion about robots. Ask students to give examples of robots they have seen on movies, video games, in person, in museums, etc. Ask questions about the usage of robots, their history, etc. Show pictures of robots found on the Internet from various sources and of multiple varieties. Tell students they are going to see a talk from a professional of mechanical engineering about seven robots he has designed. Encourage them to take notes on what they see and hear.

Step 1: Have the class write a 15 minute response to the talk. Instruct them to write any likes or dislikes with as many details as possible. Cue them to include aspects of the talk that included different subjects as well. It will help them with their later assignment and they will use their writings for a class discussion.

Step 2: Discuss the talk with the class. Questions teacher may ask include:

"Which robot was your favorite? Why?

"What did you like about what Dennis had to say?"

"What aspects of physics did the talk include?"

"Would you like to own one of Dennis's robots?"

Step 3: Allow the students to break into groups of 4 or 5. Pass out blank pieces of paper, rulers, protractors, etc. Instruct groups to design their own robot. They are to include at least a paragraph explaining how their robot works and a rationale for creating it. Encourage them to be as creative as possible and to think of aspects of science and math they have learned in other classes. Explain the best designs will receive a prize and all drawings will be posted around the room and hallways. Tell students they will be graded on neatness of design and explanation of the robot. Give students the rest of the period to finish the designs.

Assessment: Teacher will collect the design illustrations and written explanations for grading. Teacher should grade students on the completion of neat work and explanations. Lines should be straight, no eraser marks, etc. Explanations should be written in complete paragraphs and tell why the group chose to make that robot and what it will do to benefit users.

Materials:

- Video talk from Ted.com (http://www.ted.com/talks/dennis_hong_my_seven_species_of_robot.html)
- Pictures of example robots
- Blank white paper
- Rulers, protractors, compasses
- Pencils