



Overview

Students will design an original robot to meet the criteria and constraints for a specific challenge/task. Students will design the physical robot and write the program for the robot to autonomously complete the task.

Lesson Summary

- Journal Entry:
 - Working on a robotics team requires many skills and talents. What positive skills can you bring to a team?
- Explain robot tasks and member roles:
 - Teacher will create robotic tasks with specific criteria and constraints that the robot must have.
 - Students will determine which role they are most comfortable being: Computer, Mechanical, Electrical.
 - Teacher will sort students so that each group has a member from each of the student roles..
 - Teacher and students will select specific tasks for each group to complete.
- Design, Build, and Program Robots.
 - Teacher will distribute engineering and task handouts.
 - Students will brainstorm a robot type and pseudocode for the program.
 - Students will gather robot parts and write program.
- Gallery Walk
 - Students will display final robot design and print out of program.
 - Students will provide feedback on each robot and programming.

CS Content

Provide a brief overview the CS content covered in this lesson.

- Apply the problem solving process
- Create a real world solution using automation and design principles.
- Relate activities to real-world applications.
- Practice collaboration and communication.

Objectives

Students will be able to:

- Read & interpret robot code and commands
- Create original code to control robotic movement
- Present “best” solutions to real world challenges

Materials and Prep

- Prepare template student engineering roles.
- Prepare robotic challenges with criteria and constraints.

Resources

Student Documents

- Engineering Roles: Computer, Electrical, Mechanical
- Sample Rubric
- Sample Code
- Completed Robot pictures

Assessments and Artifacts

- Class discussion positive team member skills
- Physical Robot with working program
- Display of student roles and completed task presentation.

Notes

Worked collaboratively with peer teacher group to develop lesson.

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