Robotics Syllabus

Robotics as a course is a new addition to the curriculum available at Jacksboro Middle School. We have had a successful robotics program at the school for the past two years, which focuses on the TCEA Lego Mindstorms Robotics Competition. And while participation in the competition is not a requirement of the class, it is available as a choice to students within the class.

Robotics is a challenging curriculum which focuses on STEM Education; Science, Technology, Mathematics, and Engineering. Students will learn to build and program their robots to complete a series of tasks, as well as, invent and create a robot to market and sell, in a virtual environment.

Projected Course Schedule:

1st six weeks:
Introduction to course material
Introduction to Lego Mindstorms Kits
Introduction to Lego NXT Programming
Structure and stability in Engineering

Career inventory: Jobs in Engineering

Assignments 1st six weeks:
Vocabulary in Engineering
Inventory list of parts
Maintenance of inventory
Program a 4x4 square using only raw programming
Program a figure 8 using only raw programming
Program a circle using only raw programming

2nd six weeks:
Introduction to sensors:
Light, Sound, Touch, Ultrasonic, Color
The Sumo Game
Rules of the Competition:
- Analysis of the Tasks and Rules

Career Inventory: Jobs in Science

Assignments 2nd Six Weeks:
Vocabulary in Science
Inventory/ Maintenance of Parts
Programming using Light sensor
Programming using Sound sensor
Programming using Ultrasonic sensor
Programming using Color sensor

3rd Six Weeks:

Combining Sensors

If/Then Scenarios

Decision Based Engineering

Programming to succeed

Career Inventory: Jobs in Mathematics

Assignments 3rd Six Weeks:

Vocabulary in Mathematics

Inventory/Maintenance of Parts

If/Then Programming

Decision Based Programming

4th Six weeks:

Programming to Complete a Task

Multi-Sensor programming

Developing Tasks and Goals on your own

Career Inventory: Jobs in Technology

Assignments 4th Six Weeks:

Vocabulary in Technology

Inventory/Maintenance of Parts

Creating your own game/ challenge

Multi-Sensor Competition

5th Six Weeks:

Robotics in the Workplace

Future Robotics Endeavors

Programming to complete tasks

Analyzing data in robotics programming

Career Inventory: Jobs in Robotics

5th Six Weeks Assignments:

Vocabulary in Robotics

Inventory/ Maintenance of Parts

Data Analysis Assignment

3 day build and compete challenge

6th Six Weeks:

Programming for the future:

 Labview and Java based programming

Analysis of Robots

Engineering Marvels

Career Inventory: When I Grow Up.

Assignments 6th Six Weeks:

Engineering Vocabulary

Project Analysis

Engineering Perfection

 Inventory/ Maintenance of Parts

Final Tear-Down

Final Competition: The Amazing Race