ROBOTICS IN THE CLASSROOM

STEPHANIE HANOVER
ALLEN ACADEMY SCIENCE AND STEM TEACHER
MAKE SOMETHING THAT DOES SOMETHING

ROBOT

machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer
ROBOTICS OPPORTUNITIES IN COMPETITION AND IN CLASS

BEST™
Boosting Engineering Science & Technology

LEGO MINDSTORMS education EV3

MaKeyMaKey.com

SPACE CLICK
Following robotic missions • Carrying out our own mission on Mars

Using robotics to investigate other worlds from the classroom!
BE CREATIVE!

THE REALITY:
SO MANY OPPORTUNITIES IN ROBOTICS - SO LITTLE TIME IN SCHOOL

• BE CREATIVE:
  • AFTER SCHOOL, DURING SCHOOL CLUBS
  • INTERVENTION TIMES – ENGINEERING/ROBOTICS TIME
  • CLASS DURING SCHOOL – ROBOTICS/ENGINEERING (RAR)
  • MENTORS – COLLEGE STUDENTS, FORMER STUDENTS, EXPERTS
  • ALLOW FOR PARENT INVOLVEMENT
BEST ROBOTICS

- SIX WEEKS: KICKOFF TO COMPETITION
- 6TH – 12TH GRADE
- TWO LEVELS OF COMPETITION
  - ROBOT + ENGINEERING NOTEBOOK
  - BEST COMPETITION
    - ROBOT
    - NOTEBOOK
    - BOOTH + INTERVIEW
    - ORAL PRESENTATION
    - SPIRIT + SPORTSMANSHIP

Boosting Engineering Science & Technology
STEM COMPONENTS IN BEST

MECHANICAL ENGINEERING • CIVIL ENGINEERING
ELECTRICAL ENGINEERING
COMPUTER SCIENCE • MANUFACTURING • FABRICATION

REAL WORLD PROBLEMS
THAT REQUIRE
NEW PRODUCT DEVELOPMENT
START WITH
WORK WITH

ENGINEERING DESIGN PROCESS

Ask: Identify the need & constraints

Research the problem

Improve: Redesign as needed

Test and evaluate prototype

Imagine: Develop possible solutions

Create: Build a prototype

Plan: Select a promising solution

+
TEAM WORK
SIX WEEKS LATER...
MENTORS: AMAZING LEARNING OPPORTUNITIES

MICROGRAVITY PROJECT
THE GIRLS...
SOMETIMES SEPARATION IS THE TICKET!

- CAPSTONE: CHANGING THE PERCEPTION OF WOMEN IN STEM AMONG ADOLESCENT FEMALE STUDENTS

- IDEAS INCLUDE
  - EMPOWERMENT IN STEM!
  - SEPARATE CLUB FOR THE GIRLS
  - CHALLENGES FOR GIRLS: PROJECTCSGIRLS, NASA GIRLS, MAKEY MAKEY, LITTLE BITS, LEADERSHIP OPPORTUNITIES AND MORE!
THE GIRLS...
ALLOW THEM TIME TO FIGURE OUT STEM WITHOUT THE BOYS CAN YIELD EMPOWERMENT, OWNERSHIP, CONFIDENCE!
THE WORLD OF STEM THROUGH NEW EYES

DRAW A STEM PROFESSIONAL

Hand draw a STEM professional below. On the reverse side, compose a description of your scientist, and explain the components of your drawing. Also, include what inspired your drawing.

I would like to be an astronaut
I got inspired by Mission
I would like to be a pilot

It’s my dad he works on a bodyshop and cars.

Student #4

Drawing #1

Drawing #2
QUICK ROBOTICS CHALLENGE

BUILD A GRABBING ARM TO PICK UP THE CUP
In BEST, all materials come in raw form. A piece of plywood, plastic, etc. For this challenge, and time constraints, your materials are precut to help you towards a finished product.

**QUICK ROBOTICS CHALLENGE**

**MATERIALS**

- PRECUT CARDBOARD
- BRADS
- STRING
- SCISSORS
- TAPE
- PAPER CLIPS
- PRECUT STRAW
HAVE FUN!