

# Robotics Clubs

in Elementary Grades

Midwest ROBOLAB Conference  
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## About me

- starting my 10<sup>th</sup> year at McLean Science/Technology Magnet
- serve on Technology Committee
- teach educational technology courses for Wichita State
- have used LEGO Mindstorms kits with students for 5 years
- not an expert... just a passionate fan

## What I like about Robotics

- it's DISCOVERY learning
- it is a REAL WORLD connection
- it provides an opportunity to succeed for students who may not be successful in other academic areas



## Robotics Club – take 1

- **After School (Thursdays from 3:15 – 5:15)**
  - met in January and February
  - 8-10 fifth grade students
  - 2 Teachers to help
  - basically prepared for the Mindstorms Challenge at WSU
- **What we found**
  - we intentionally started small... now we need to do more
  - students needed more instruction and time with equipment
  - fifth graders move on and we have to start over

## Robotics Club – take 2

- **After School (Thursdays from 3:15 – 5:15)**
  - met November and December
  - 30 fourth and fifth grade students
  - staff and parent volunteers
  - learned to build and do simple programming
  - work on simple challenges
  - no commitment
  - asked who wanted to continue on the Robotics Team in Jan-Feb
- **What we found**
  - took 2 teams to the Mindstorms Challenge @ WSU
  - needed clear guidelines for choosing team members
  - saw gaps in student understanding
  - students were fighting over who got to do what
  - needed more kits!



## Robotics Club – take 3

- **After School (Thursdays from 3:15 – 5:15)**
  - met November and December
  - grew to 40 fourth and fifth grade students
  - grant provided more kits
  - focused on group roles (programmer, builder, tester, recorder)
  - started each week with “mini-lessons” on key programming/building skills
  - made student notebooks with helpful information
  - adults recommended members for the Robotics Team in Jan-Feb
- **What we found**
  - took 2 teams to the Mindstorms Challenge @ WSU
  - still needed clearer guidelines for choosing team members

## Robotics Club – take 4

- **Workshop (Saturday from 8:30 – 4:30)**
  - charged \$10 (included lunch)
  - limited to 30 fourth and fifth grade students (3 per kit)
  - used former students as assistants
  - AM – “mini-lessons”, PM – challenges
  - assigned groups – rotated group roles
  - no commitment
  - held try-outs the Robotics Team in Jan-Feb
- **What we found**
  - we can get as much done in one day as we can in 8 weeks of after-school meetings
  - we need to offer more than one workshop



## What has WORKED

- **“Mini-Lessons” on**
  - kit parts and functions
  - turning
  - touch sensors & light sensors
  - building stronger robots
  - gearing up and gearing down (speed v. power)
- **Meeting Format**
  - introduce new concept (mini-lessons)
  - explore (build and program to complete challenges)
  - discuss & reflect



## What has WORKED

- **Group Roles**
  - programmer
  - builder
  - tester
  - recorder
- **Student Notebooks**
  - troubleshooting guide
  - programming plan sheets
  - helpful worksheets



## Where the \$\$\$ comes from

- PTA / PTO
- taking WSU Robotics Workshop (get free kit)
- grants
- charging students a club fee

## STAFFING the club

- other teachers
- parents & grandparents
- former students



## Additional Information

- **Website**
  - <http://mclean.usd259.org/robotics>
- **Email**
  - [steve.smith@wichita.edu](mailto:steve.smith@wichita.edu)
- **Address**
  - McLean Science/Technology Magnet
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