2018 Kansas BEST Breakout Sessions

Mentors
September 8, 2018
AGENDA

- What is a Mentor
- Expectations
- Responsibilities
- The Engineering Design Process
- Typical Project Timeline
- Tips
- Resources
- Contacts
- Questions and Answers
WHAT IS A MENTOR?

- Help guide the students during the 6 weeks of the competition within the areas of your expertise
  - Engineering processes
  - Project management
  - Documentation
  - Design
  - Manufacturing methods
  - Scope
  - Limitations
  - Resources

- Allow the students to focus on designing, building, documenting, and testing
MENTOR EXPECTATIONS

- Please let the coaches/teachers know what you do and how you can help.
- Coordinate with the coach/teacher about meeting times.
  - To be an effective mentor, you need to be there for at least one meeting a week.
- The coach/teacher is the boss at the school.
- The purpose of Kansas BEST is to promote Science, Technology, Engineering, and Math careers to young adults.
- The focus is the students. Let them learn.
RESPONSIBILITIES

School
- Administration support
- Faculty
- Students
- Classroom/Shop access after school hours
- Transportation

Teacher
- Point of contact
- Facilitate/coordinate between students and mentors
- Administration
- Provide a safe environment conducive to learning and working together
- Support mentors
- Find students to be on the team
RESPONSIBILITIES

- Guide the students in the design process
- Give advice about design decisions
- Project management – identify priorities
- Make sure that all voices are heard
- Keep the calm
- Get out of the way
- Safety
- Be a MENTOR
RESPONSIBILITIES

Students

- Read the rules
- Lead the project
- Design the robot
- Build the robot
- Document the robot

- Create the notebook
- Create the display
- Create the presentation
- Lead marketing activities
FOLLOW THE ENGINEERING PROCESS

Problem
- Define what you need to solve – read the rules

Brainstorm
- Come up with ideas

Design
- Make decisions

Build
- Make the robot

Test
- Try out the robot
  - MAKE IT FAIL

Improve
- Make adjustments and try new things
FINAL STEP

SOLVE

• Finish the robot
• Doesn’t mean perfect
BEST SUGGESTED TIMELINE

BEST Suggested Timeline

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BEST TYPICAL TIMELINE

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TIPS

- The rules are usually complicated. Assign a student to become a rules guru.
- The students are the ones doing the work. If they don’t show up, nothing gets done.
- Assign roles to students. Make them responsible.
- The motors do not have a lot of torque capacity. Gears or pulleys are necessary.
- Make a point strategy. A feasible point strategy.
- Make a list of requirements and a list of wants
- Learn some basic C programming
- Keep it simple
RESOURCES

- Large motor
  - [http://www.vexrobotics.com/276-1611.html](http://www.vexrobotics.com/276-1611.html)

- Small motor

- Controller
  - Read the section about connecting the joystick!

- Learning C
  - Go through all of the “basics”

- Simple torque equation
  - Torque = weight * length of arm
REMEMBER!!!!

- Establish a safe environment of creativity, learning, and respect
- Promote the engineering process
- Share responsibilities & contributions
- Maintain the BEST example
- Provide positive feedback
- HAVE FUN!
KANSAS BEST CONTACTS 2018

- Chair:  Steven Skinner,  
  steven.skinner@Wichita.edu, 316-978-6197

- Schools:  Jason Bilberry,  
  Jason.bilberry@Wichita.edu, 316-978-3159

- Mentors:  Coleen Thomas,  
  bestmentor@wichita.edu, 316-209-4784

- Websites:  
  - http://webs.wichita.edu/?u=kansasbest&p=/index  
  - http://best.eng.auburn.edu/
QUESTIONS?