

# ROBOTICS & ENGINEERING TIP SHEET

General/Natural  
Resources Projects

## Robotic & Engineering Information:

The overall project name was changed to “Robotics & Engineering” to better reflect the fact that a few of the units (1 & 2) don’t really involve robotics, but instead are more engineering-focused.

- Junk Drawer Units 1-3 have remained mostly the same, just the names changed to include “engineering” --Robotics & Engineering Unit 1 -Give Robots A Hand; Robotics & Engineering Unit 2-Robots on the Move; Robotics & Engineering Unit 3 -Mechatronics
- The platform units (4-6) are also still there, but they have been renamed with “beginner”, “intermediate”, and “advanced” to better help members decide when they should advance to the next unit. If a child is working on a robotics platform (VEX, EV3, NXT) by themselves, this is the set of units they should enroll in. Youth are encouraged to move up units yearly or every other year as they gain more confidence and experience.
- All the team robotic units have been combined into the new unit 7 “Team Robotics” --this unit is for any youth on a youth robotics team (any platform). Youth who were in BEST, First, FRC or FTC should switch to this unit. Additionally, youth who were on a team but enrolled in the platform units in previous years are encouraged to switch to this unit.

## Literature Needed:

### Leader Literature

Leader’s Guide --All Units

Facilitator’s Resources:

<http://www.4-h.org/resource-library/curriculum/4-h-robotics/facilitator-resources/professional-development/>

### Member Literature

MC1601 Junk Drawer Robotics --Give Robots a Hand --Unit 1-- Jr./Int./Sr.

MC1602 Junk Drawer Robotics --Robots on the Move --Unit 2--- Jr./Int./Sr.

MC1603 Junk Drawer Robotics --Mechatronics--Unit 3--- Jr./Int./Sr.

MC1600 Youth Robotic Notebook supplement for the above units

MC1606 Robotics with EV3 --- Robotics Platform --Beginner --Unit 4

MC1606 Robotics with EV3 ---- Robotics Platform --Intermediate --Unit 5

MC1606 Robotics with EV3Robotics Platform --Advanced--Unit 6

Unit 7 --Team Robotics

Robotics supplement is required for the Unit 1-7

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Exhibit Requirements can be found at:

[http://www.colorado4h.org/projects\\_resources/StateFairExhibitReq.pdf](http://www.colorado4h.org/projects_resources/StateFairExhibitReq.pdf)

Score Sheets can be found at:

[http://www.colorado4h.org/events\\_opportunities/state\\_fair/score\\_sheets/index.php](http://www.colorado4h.org/events_opportunities/state_fair/score_sheets/index.php)

e-Record can be found at:

[http://www.colorado4h.org/projects\\_resources/erecords/index.php](http://www.colorado4h.org/projects_resources/erecords/index.php)

## Project Tips:

- The first three robotic units are for members who want to learn about and build robots.
- Unit 7 is for competitive teams --groups of 4-H members who want to learn how to build robots and compete
- Take part in at least two leadership experiences each year
- Be sure to include your e-record in secure binder with your exhibit
- If you plan to take the unit more than one year, make sure that your exhibit is different for each unit
- Enter your exhibit (s) in the county fair
- Share the information learned in talks and displays

## Judging Criteria:

- Completeness of answers
- E-record includes demonstrations, talks, story, and pictures, with at least one action shot of the members doing something with their project.
- Neatness and legibility
- How you completed your activities and the quality of exhibit

## Robotics Cheat Sheet:

- Robotics Platforms--just a fancy way to say robotic kits or robotics materials. Some types of commercial kits or platforms include: Arduinio Kits, EV3, Brushbot, Make, Hexy, Pushbutton Programmable Robotic Kit, Sparky, Cubelets, Robotic Arm Edge, Sparkfun Red Bot, WeDo Multiplo, NXT, TETRIX, CEENBoT, and VEX
- For more information about the FIRST Robotics organization check out: [www.usfirst.org](http://www.usfirst.org)
- For more information about the BEST Robotics organization check out [www.bestinc.org](http://www.bestinc.org)