

## DEPARTMENT H – SET ROBOTICS

This category involves the many different aspects of Robotics. 4-H'ers will learn more about how robots are designed and developed as well as the mechanical and electronic elements of robots. Involvement in SET Robotics gives 4-H'ers a first-hand experience in modern technology.

**4-H'ers enrolled in Virtual Robotics, Junk Drawer Robotics (Levels 1, 2, or 3), or Robotics Platforms may exhibit in any class within this division.** Creating a video of robot in action would be helpful for the judge but not mandatory. Present on a CD Rom with entry.

**Team Entries:** Team materials entered in robotic classes **MUST** clearly be the work of a team instead of an individual and **MUST** have at least 50% of all team members enrolled in 4-H. Additionally, all enrolled 4-H'ers on the team should complete and attach an entry tag to the materials. A supplemental page documenting the individual contributions to the project should be included. The entry will be judged as a team, with all team members receiving the same ribbon placing.

### DIVISION 861

#### Class

- \*1. **Robots Poster** – Create a poster (14"x22") communicating a robotics theme such as "Robot or Not", "Pseudocode", "Real World Robots", "Careers in Robots", "Autonomous Robotics", "Precision Agriculture" or a robotic topic of interest to the 4-H'er.
- \*2. **Robotics Notebook** – Explore a robotics topic in-depth and present your findings in a notebook. Documentation should include any designs, research, notes, pseudocode, data tables, or other evidence of the 4-H'ers learning experience. The notebook should contain at least three pages. Topics could include a programming challenge, a programming skill, calibration, sensor exploration, or any of the topics suggested in Class 1.
- \*3. **Robotics Video** – This class should be displayed in a notebook. The notebook should include a video clip on a CD/DVD that demonstrates the robot performing the programmed function. Files **MUST** be saved in a PC compatible format. Include your pseudocode and screenshots of the actual code with a written description of the icon/command functions.
- \*4. **Robotics Careers Interview** – Interview someone who is working in the field of robotics and research the career in robotics. Interviews can either be written or in a multimedia format (CD/DVD). Written interviews should be in a notebook. Written reports should be 3 to 5 pages, double-spaced, 12-point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.
- \*5. **Robotics Sensor Notebook** – Write pseudo code which includes at least one sensor activity. Include the code written and explain the code function.
- \*6. **Build a Robot (may use kit)** – Include a robot and notebook including the pseudocodes for at least one program you have written for the robot, the robot's purpose, and any challenges or changes you would make in the robot design or programming. If robot is more than 15" wide and 20" tall, they may not be displayed in locked cases. We recommend that you submit the project under Class 3 - Robotics Video. Junk Drawer Robotics do **NOT** qualify.
- \*7. **Kit Labeled Robot (CANNOT be programmed)** – This class is intended for explorations of robotic components such as arms or vehicles **OR** educational kits marketed as robots that do **NOT** have the ability to be programmed to "sense, plan, and act". The exhibit should include a project the 4-H'er has constructed, a description of what it does and an explanation of how it is similar to and different from a robot. If robot is more than 15" wide and 20" tall, they may not be displayed in locked cases. We recommend that you submit the project under Class 3 - Robotics Video.
- \*8. **3D Printed Robotics Parts** – This class is intended for youth to create parts through 3D printing, that help create their robot or aid the robot in completing a coded function. Project should include notebook describing the process used to create the project, describe the success of your designed piece (did it work), intended use of the product, and the modifications made to the item.