ROBOTICS
Each county may submit 4 entries total from 50284, 50285, 50286, 50287, 50289, 50290, 50291, 50292; and 1 from 50293.

NOTE: If applicable for their class and display, exhibitors must bring their own computers for demonstration purposes; computers will not be provided. Internet access will not be available.

- Exhibits in classes 50284, 50285, or 50286 are designed to be used with the 4-H Robotics Platforms curriculum which uses LEGO Mindstorms (NXT or EV3).
- Any other programmable robot kit such as Arduino or Raspberry Pi, should be exhibited under Open Source Robotics Class (50293), Innovation Class (50290) or Ready4Life Challenge Class (50292).

Robotics Platforms: Exhibitors in Robotics Platforms are required to bring a Robotics Notebook in which they have recorded their engineering design experience. State fair exhibits for this class are individual only.

50284 Robotics 1: Beginning: Exhibitors should complete Activities 1-6. Exhibitors will design, build and program a robot that can autonomously follow a predetermined path that changes direction at least 4 times during a single run. They will bring their Robotics Notebook to share what they learned about the engineering design process and programming.

50285 Robotics 1: Intermediate: Exhibitors should complete Activities 7-12. Exhibitors will design, build and program a robot that uses at least one sensor to autonomously follow a path, respond to, and or avoid obstacles. Exhibitors in this class must use at least one sensor in their robot design. They will bring their Robotics Notebook to share what they learned about the engineering design process and programming.

50286 Robotics 2: Exhibitors should complete Activities 1-7. Exhibitors will design, build and program a robot that uses sensors and programming to complete one of the provided challenges. They will bring their robot and Robotics Notebook to share changes they made to the robot and/or program along the way, and to describe their experience with completing the challenge.

Junk Drawer Robotics: All exhibits should be original designs made with everyday objects and materials. Exhibits with purchased kits will not be accepted. Exhibitors are also required to bring their Junk Drawer Robotics Youth Robotics Notebook with the sections completed for the project they are exhibiting, including the sections leading up to the activity they are exhibiting. For example, if a youth is bringing Activity E from Junk Drawer Level 1, they should have robotics notebook sections A-E completed.

50287 Junk Drawer Robotics 1, Give Robots a Hand: Exhibit any item from the “To Make” activity from the Junk Drawer Robotics Level 1 Book. Be sure all robotics notebook sections within the module being exhibited are filled in.

50288 Junk Drawer Robotics 2, Robots on the Move: Exhibit any item from the “To Make” activity from the Junk Drawer Robotics Level 2 Book. Be sure all robotics notebook sections within the module being exhibited are filled in.

50289 Junk Drawer Robotics 3, Mechatronics: Exhibit any item from the “To Make” activity from the Junk Drawer Robotics Level 3 Book. Be sure all robotics notebook sections within the module being exhibited are filled in.

50290 Robotics Innovation Class: (Open to youth who were at least 13 years of age on 9/1/16 and are enrolled in Robotics Platform or Junk Drawer Robotics.) Exhibit an original robot, either homemade or a kit that does not
fall under Robotics Platforms that can complete a task using sensors. If a robot kit is used, then some parts of the robot must be built using other components such as wood, plastic or metal. The robot can include any types of motors, pneumatics or sensors. The Innovation class can also be used for LEGO Mindstorms or Vex kits where the exhibit does not fall under Robotics Platforms exhibit option. Exhibitors in Robotics Innovation Class must bring a detailed Engineering notebook that describes how the exhibitor designed, built and programmed the exhibit.

50292  **Open Source Robotics: (Open to youth in either Robotics 1-2, Junk Drawer Robotics 1-3, Computer Science 1, Computer Science Explore)** Robot exhibits in this class must be either originally designed or built from a kit of reconfigurable parts and components. Autonomous control of the robot must be achieved using an “open source” platform such as Arduino or Raspberry Pi and can be programmed using a coding language that is publicly available. Robots must be able to complete at least one physical task that may include following a path or manipulating an object, and it must receive and respond to at least one form of input such as avoiding an obstacle or choosing between two colors. Exhibits must include an engineering notebook that describes the exhibitor designed, built, and programmed the robot.

50291  **Robotics Clover Challenge: (Open to 15- to 18-year-olds enrolled in the Robotics Clover Challenge Project who have completed Robotics 1, 2 and 3.)** Exhibits in this category should go “above and beyond” what the 4-H project books cover and should represent an accumulation of years of project study. The exhibit may include, but isn’t limited to, original works, objects, demonstrations, digital presentations, programs, websites, games, apps, performances, or posters which you have made. Choose whatever method best shows what you’ve learned. You must furnish any equipment you need for your exhibit. Internet service will not be provided for the exhibit. All exhibits must include something visual, such as a printed copy of a digital presentation, which will remain on display during the exhibition. Electronic equipment will only be used during your personal judging time and will not remain on display during the entire exhibit period. The completed Illinois 4-H Clover Challenge Agreement must be presented with the exhibit.

50293  **Robotics Ready4LiFE Challenge: (Open to 11- to 18-year-olds enrolled in any Robotics project)** Exhibits in this category must include the following: a) a physical representation of the career or business product such as a model, prototype or display/portfolio that includes images of accomplished work; b) verbal or written explanations that demonstrate knowledge of the related career or business fields, potential careers, and the appropriate requirements for achievement in those fields. The judging criteria for this class values thoroughness of career and/or business exploration and pursuit above the workmanship of the physical specimen on display.