Group:

Started in 2012 and now meeting at the Lifelong Learning Center, Scott County 4-H provides robotic equipment for students to work at their own pace to learn real world application of robotic technology, programming, design, and construction.

While the primary purpose is to expose students to robotics, several teams have earned outstanding recognition at the Indiana 4-H State Robotics Challenges.

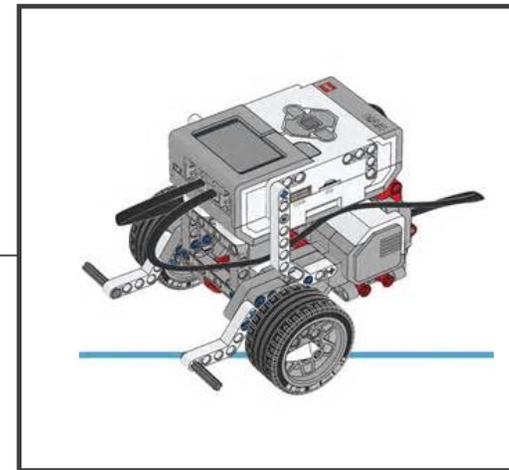Lego Ev3... 3rd through 12th grade

VEX... Middle and High School

This program is made possible through the generous support of

Scott County Community Foundation
Walmart, DC 6017
Scott County Partnership
Private Donors

Robotics Encounter

Where technology & imagination collide to create excellence.

EV3 Skills Passport

Name: _____

Date: _____

The Scott County 4-H Robotics program provides youth with a safe place to understand and practice engineering, technology, math, self-discipline, and teamwork.

With guidance, the students will use Lego Mindstorm EV3 robots to creatively accomplish tasks, resolve conflict, identify the cause of failure, and celebrate success.

Instructions:

Move through the different stations to understand the capabilities of the Lego EV3 system.

A. Foundations
Follow instructions to build a Basic Castor Bot.

B. On-Board Programming
Program the robot from the brick.

C. Computer Programming
Program the robot using the computer.

D. Free Design
Build & Communicate.

E. Reflection
Consider the next step in learning.

E. Reflection

Congratulations on completing the Robotics Encounter.

Think Ahead: Industry analysists predict that by the time you are working, 1/3 of all jobs will use Science, Technology, Engineering, and Math. These "STEM" job holders will earn 11% more compared to their same-degree counterparts in other jobs.

STE*A*M – Remember: **Art is critical too**

Scott County 4-H provides a variety of projects for 3rd-12th graders to explore… Arts & Crafts, Aerospace, Cooking, Gardening, Writing, Electrical, Shooting Sports, Livestock, Horsemanship, Dog Obedience, Bicycling, and so many more.
You don't need expensive equipment to learn about robotic technology, check out the Junk Drawer Robotics project.

Contact the Extension Office to get involved.

(812)752-8450   www.extension.purdue.edu

D. Free Design

Context: Robotics encourages imagination and creativity. While the book and computer provide many options for building a varietey of robots, feel free to build your own design.

Purpose: To apply what you have learned and share it with others.

Task: Create your own task, or use one of ours. Build and/ or program a robot to complete that task.
You have limited time to design & build. You may only use parts from one kit.   Please, **don't mix the kits**!

Skills:

Be Kind.	☐ To each other ☐ To the equipment ☐ To your Guides
Work with a time & resource constraint.	
Help put away the equipment.	
Communication ... Everyone gets better when we share our ideas and encourage others.	

A. Foundations

Context: Perseverence and imagination are important skills. It can take a considerable amount of time to build a robot. Don't give up! Your design could change an industry.

Purpose: To provide an overview of robotic technology and identify steps in the building process.

Task:
1. Discuss as a group the various places robots can work. Write them below:

_____

_____

2. Following the instructions from the Lego Mindstorm EV3 book, determine where you would continue building the robot.

Skills:

Identify real world uses of robotic technology.	
Follow written & verbal instructions.	
Perseverance. ... willingness to keep searching for answers	

B. On Board Programming

Context: The Lego Brick is the brains of the robot. The EV3 can be programmed to complete several different tasks using the Brick.

Purpose: To program a robot using the Brick.

Task: Program the robot using the Brick to accomplish the listed tasks.

Skills:

Navigate the Brick using the buttons.	
Create a program to move the robot.	
Create a program that changes the display or makes a sound.	
Vision ... scroll through multiple menus to find needed program blocks	

C. Computer Programming

Context: You can be more precise in accomplishing tasks when using the Lego EV3 Mindstorm software to program the robot.

Purpose: To become familiar with using the computer software to program a robot.

Task: Use the computer to program a robot to move.

Skills:

Navigate Robot Educator.	
Create, Download, and then Run a program.	
Controlled Investigation ... Change one feature then test to see if the robot does what you expect.	