



4-H Robotics



The goal of the Mississippi 4-H Robotics Youth Development Program is to provide youth, ages 5-18, with opportunities to engage in hands-on learning experiences that enable them to develop the life skills necessary to succeed in today's digital economy. Objectives of this project include: (1) Provide a safe environment in which youth can participate. (2) Offer training to Extension Agents and volunteers. (3) Deliver fun, informal educational opportunities which provide hands-on learning opportunities for youth. (4) Create interest in robotics and other STEM (Science, Technology, Engineering, and Mathematics) related projects. There is a place for you in the 4-H Robotics program!

Starting Out Beginner

4-H'ers ages 5-8 years old start out in 4-H robotics using the Dash robot from MakeWonder.

At this stage, helping youth develop computational thinking skills is important. The focus is on small successes that build confidence and understanding.

Learning More Intermediate

At the Junior level (8-13 years old) 4-H youth are moving from block or icon based programming to word based programming.

Juniors use the LEGO® SPIKE robot. A key focus at this age, in addition to robotics, is teamwork and public speaking.

Exploring Depth Advanced

Senior 4-H youth (ages 14-18 years old) utilize the SPIKE robot and the Python programming language.

Senior 4-H'ers are asked to think about how robotics can be applied to real world applications. Senior 4-H'ers may also work with drones as part of the project.

4-H Thrive

Positive Youth Development

Developing Competence

Adults create environments where youth can develop competence in their chosen project area.

Building Confidence

Youth build confidence as they learn to think for themselves, build mastery, and are recognized for their efforts.

Nurturing Caring

Adults nurture a caring environment where mutual trust between youth and adults is established. Caring relationships with adults are key to resilient youth.

Finding Connection

Youth build solid connections which are critical to their well-being.

Forming Character

Create a community where youth play an active role in developing their character.

Determining Contribution

Youth actively contribute to their clubs and communities.

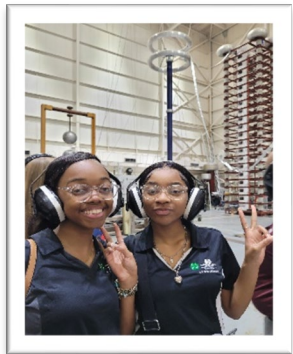
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Expand your experiences!



In addition to events at the county and region level, 4-H youth can also participate in statewide events. These events are 4-H STEAM Day which features contest for both the Cloverbuds and Juniors. While Cloverbuds are not scored and ranked, they are allowed to participate so that they can get used to working together as a team and speaking with judges. 4-H STEAM Day also features contests in LEGO Building, ScratchJr, Makerspace, Art, Science Snacks, and recording a science experiment in a studio. 4-H STEAM Day is typically held in June.



Both Juniors and Seniors can participate in the 4-H Robot Round-Up at the Mississippi State Fair. This event is held during 4-H Day at the Fair. Teams compete to build a robotic animal and it's habitat. Seniors can participate in 4-H Club Congress and 4-H Career Camp. Senior 4-H youth have an opportunity to participate in workshops and network with others who share similar interest.

Resources

Cordero-Irizarry, P. M. et al., (2023). The 6 C's of Positive Youth Development: Developing Competence in Youth. P3893. Mississippi State University Extension Service, MS.



Connections & Events

For Cloverbuds & Juniors:

- Project Achievement Days (PAD)
- STEAM Day

For Seniors:

- Club Congress
- MSU Engineering Camps

Contact your local Extension office to discover additional opportunities.

Curriculum

Dash Robot:

- Snowtastrophe: Volunteer Facilitator Guide
- Wonder Workshop Challenge Cards

SPIKE Robot:

- <https://www.cmu.edu/roboticsacademy/>

Python:

- <https://tinyurl.com/LEGOSpikePython>

4-H Record Book

The 4-H Record Book is an opportunity for youth to reflect on their project and to record information about their activities and lessons learned throughout the year.

Typically, a Robotics project area record book is submitted under Engineering. As a reward for hard work, 4-H'ers can receive awards and/or recognition through money and/or trips. Additionally, record books may be used to inform the Congressional Award Record book.



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