Science Experiment: HEXBUG Nano Livestock Challenge

Project: Robotics, Livestock Projects

Supplies:

- *HEXBUG Nano Robots*
- *Cardboard*
- *Colored Pencils, Crayons, or Markers*
- *Paper Straws*
- *Tape*
- *Scissors*

Time: 30-45 minutes

What to Do:
1. Allow youth time to discuss the various types of livestock species that are considered 4-H projects either in their specific counties or at the Indiana State Fair.
2. Explain to youth that they will all be given one HEXBUG and they need to designate it as a specific livestock species (swine, goat, cow, goat, etc.).
3. Explain to the youth that they will use the cardboard, paper straws, tape, and scissors to create a maze for the HEXBUGS. The cardboard can be designed to look like a field or barn.
4. Give youth approximately 20-25 minutes to design their maze. *(Very little instruction is given by the instructor during this time. The goal is for participants to work together and be creative using their own skills and background knowledge.)*
5. Have youth test out how long it takes the livestock (HEXBUG) robots to make it through the maze.
6. Give youth time to change the design of their mazes and test out the time it takes for the robots to make it through with each new design.

Reflect:
1. Did the number of turns in your maze make an impact on the time it took for the HEXBUG robots to make it through the maze?
2. Did the straws you used to design the maze keep the robots contained?
3. Did you have to add anything to your maze design to keep the robots contained?
4. Why do you think farmers put up fences on their farms?

Apply:

Robots and sophisticated computer systems are already being used on farms. *In what ways are robots already being used on farms? What are some additional ways you think farmers could benefit from the use of robots on their farms? How do farmers use computer systems? What are some additional ways you think farmers could benefit from the use of sophisticated computer and technology systems?*