



2024 Challenge

Pennsylvania agriculture contributes \$132.5 billion to our state economy annually and supports more than 593,600 jobs, paying wages of \$32.8 billion. Did you know that farmers use robots to help them? “High-tech Farming” is important especially as our population grows and food demand increases. Your team is being challenged to help our Pennsylvania farmers by creating an agricultural robot or other type of “high-tech farming” equipment that they could use.

Rules:

- A team of 2-4 students will work together on the project.
- Students must create their prototype using K’Nex including at least 1 motor.
- Each team will need to create and submit a design notebook and a blueprint.
- Each team will need to prepare a presentation (max 2 minutes) on their model and how they answered the challenge.

Judging Criteria:

- Creativity
- Teamwork
- Challenge Success
- Design
- Presentation

Awards:

- Awards will be given to top three teams in grades 4-5.
- The 1st place team at each Intermediate Unit regional competition will advance to the state competition.

Competitions

This year’s regional competitions may be held virtually or in person. Please check with your [Intermediate Unit STEM Design Challenge Coordinator](#) on the specifics of their regional competition.

The state competition will be held on Friday, May 3 at the Farm Show Complex in Harrisburg, PA.



Parts of the competition:

Design Notebook

- This should be a journal of the team's progress from start to finish.
- The Notebook should include elements of the Engineering Design Process.
- [Resources for Design Notebooks](#)

Blueprint

- A blueprint is a technical drawing or design plan for a project. It is used to represent the final product.
- Blueprints for the STEM Design Challenge can be a drawing, cad drawing, online sketch, etc. Be creative!
- [Resources for blueprint ideas](#)

Prototype

- Teams will answer the challenge by creating a prototype of their idea. K'Nex pieces must be used including at least 1 motor.
- Teams may include a backdrop or artwork, but judges will not consider this in their scoring.

Presentation

- Teams are asked to share their ideas in a presentation for the judges.
- Each presentation will be 2 minutes or less.
- Every student on the team should be a part of the presentation.
- Judges may ask questions of the team after the presentation.

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