

# The Avery Coonley School

## 2026 Project Report



### The Project:

Avery Coonley School students expanded an AI-powered hydroponic garden to improve sustainable food production while reducing water use and resource waste. By integrating artificial intelligence with hydroponic growing systems, students optimized plant growth, monitored environmental conditions, and used real-time data to explore how emerging technologies can support more efficient, sustainable agriculture.

**Project Focus:** Waste Management

**Students involved:** 330

**Staff Involved:** 13

**Location:** Downers Grove, IL

**Students impacted:** 330



The garden also became a visible example of innovation, blending sustainability with technology.



### The Process:

Students first completed the IGSP Sustainability Self-Assessment and Walkthrough to identify opportunities for deeper data-driven learning. Building on the school's six existing Gardyn hydroponic systems, students researched how AI could improve efficiency and educational value. They established baseline data on plant growth, water usage, and environmental conditions, then incorporated sensors to track temperature, humidity, light levels, and nutrient concentrations. Using AI-generated insights, students analyzed data, made real-time adjustments to growing conditions, and refined the system. Throughout the project, students shared progress through demonstrations and explanations that connected hydroponics, data, and sustainability.

### The Outcomes:

The AI-enhanced hydroponic systems demonstrated improved consistency in plant growth and more efficient water use compared to baseline conditions, while reducing waste through precision water and nutrient monitoring. The project strengthened student understanding of sustainable agriculture, artificial intelligence, and data-driven problem-solving, and increased engagement through hands-on learning. Students gained real-world experience with data analysis and systems thinking, and the project strengthened curriculum connections across STEAM courses. Moving forward, Avery Coonley plans to expand AI activation to additional gardens, grow more plant varieties, integrate the system into ongoing coursework, and share the model as a replicable approach to sustainable school-based food systems.

