

Expanding YIE³LD in Agriculture

Week-long Summer Workshop

Penn State Harrisburg



Presented by

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Center for Science and the Schools
June 22 - 26, 2020 and one day TBD

8:30 AM - 4 PM, Daily

Target Audience: Teachers of Grades 6 - 12

Note: Preference will be given to pairs of interdisciplinary teachers intending to complete a joint project.

To address the challenge of food production for the world's increasing population, we need to train our youth in state-of-art technology to satisfy the needs of the agricultural industry. The Expanding Youth Involvement in Exploring Exciting Employment Directions in Agriculture (Expanding YIE³LD in Ag) professional development (PD) workshop allows teachers to explore the agricultural industry through academic research labs and two tours to food and agricultural industries. In this workshop, teachers will also learn how to prepare their students for an Automated Hydroponic System Challenge that will take place at Penn State Harrisburg in Spring 2021.

Teacher Benefits:

- Teachers receive a \$300 stipend for participating in the workshop and a \$300 stipend for classroom implementation.
- This workshop is **FREE** to all educators with Act 48 credit available.
- This workshop is aligned to PA State Standards, Next Generation Science Standards, and Common Core.
- Continental breakfast and lunch provided by the Center for Science and the Schools.

Maximum enrollment is 8 teachers. To apply, visit csats.psu.edu/overview-of-csats-programs/summer-workshops

For more information, contact:

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This workshop is sponsored by:

The Penn State College of Education
Center for Science and the Schools
182 Chambers Building
University Park, PA 16802

Pennsylvania and Next Generation Science Standards

Science Technology and Engineering Standards

- 3.1.7.A.** Explain the parts of a simple system and their relationship to each other.
- 3.1.10.A.** Discriminate among the concepts of systems, subsystems, feedback and control in solving technological problems.
- 3.2.7.D** Know and use the technological design process to solve problems.
- 3.8.10.A.** Analyze the relationship between societal demands and scientific and technological enterprises.
- 3.8.7.B.** Explain how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.
- 3.8.10.C.** Evaluate possibilities, consequences, and impacts of scientific and technological solutions.
- 4.4.7.A.** Describe how agricultural practices, the environment, and the availability of natural resources are related.
- 4.4.7.B.** Describe the economic importance of agriculture to society.
- 4.3.10.A.** Evaluate factors affecting the use of natural resources.
- 4.4.10.C.** Analyze how agricultural science and technologies strive to increase efficiency while balancing the needs of society with the conservation of natural resources.
- 4.4.10.D.** Evaluate the use of technologies to increase plant and animal productivity.
- 4.3.12.B.** Analyze factors that influence the local, regional, national, and global availability of natural resources

NGSS Science and Engineering Practices

- Asking questions and defining problems
- Plan and carry out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Obtaining, evaluating, and communicating information

Pennsylvania and Next Generation Science Standards

Math Standards

CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.

CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.

CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations.

CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables.

CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.

English Language Arts Standards

CC.3.5.9-10.G. Translate quantitative and technical information expressed in words in a text into visual form and translate information expressed visually or mathematically into words.

CC.3.5.9-10.J. By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.

CC.3.6.9-10.F. Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

CC.3.6.9-10.H. Draw evidence from informational texts to support analysis, reflection, and research.

CC.3.5.6-8.A Cite specific textual evidence to support analysis of science and technical texts.

CC.3.5.6-8.I Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CC.3.6.6-8.G Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of other while avoiding plagiarism and following a standard format for citation.