

# Office of Professional Learning



## — October 2025 Education Bulletin —

Welcome to the October 2025 edition of the **Luzerne Intermediate Unit (LIU) Office of Professional Learning's (OPL)** monthly education bulletin. The intent of this communication is to provide subscribers with:

- Professional learning opportunities offered by our department,
- Provide school leaders with educational policy support, and
- Provide tips for practicing educators.

This edition will focus on our state's transition to updated standards in the area of K-12 Science. Other items included are:

- A Grant Partnership Opportunity for STEELS in Grades 5 – 8.

Don't forget to subscribe to the OPL Education Bulletin!!!



### STEELS STANDARDS

## STEELS STANDARDS TIMELINE

In September 2019, the creation/approval process began to replace the 2002 Standards for Science and Technology and Environment and Ecology. In January 2022, a final draft of the proposed standards were developed and approved. These standards were entitled the Science, Technology & Engineering, and Environmental Literacy & Sustainability (STEELS) Standards. The standards took effect on July 1, 2025. Meaning, that the 2025-2026 School Year Science PSSAs and the Spring Keystone Biology Exam will be based on these standards. Additionally, all instruction related to science in grades K-12 should be shifted to these standards by this school year.

#### These standards include:

- **Research-based** approaches to teaching science as highlighted in the seminal research publication, "How Students Learn: Science in the Classroom".
- Earth and Space Science, Life Science, and Physical Science standards were adopted from the **Next Generation Science Standards (NGSS)**.
- While there is some overlap between the NGSS and STEELS Technology and Engineering (T&E) standards, the STEELS standards does have **T&E standards** exclusive to Pennsylvania. The **Environmental Literacy & Sustainability (ELS)** standards do have less overlap with NGSS and are largely exclusive to Pennsylvania.



# STEELS DISCIPLINARY CORE IDEAS

Below is a review of topics educators and their students will encounter. Depending on the grade level, some areas will receive a heavier emphasis than others while other areas may be absent. Below is a breakdown of the grade categorization of the STEELS standards:

- Life, Physical, and Earth and Space Sciences: these are designed to be grade level specific in grades K-5 and stretch across grade bands in grades 6-8 and again in grades 9-12.
- Technology & Engineering and Environmental Literacy & Sustainability: these are designed into K-2, 3-5, 6-8, and 9-12 grade bands.

## 3.1 Life Sciences

- Structure and Function
- Growth and Development of Organisms
- Organization for Matter and Energy Flow in Organisms
- Information Processing
- Interdependent Relationships in Ecosystems
- Cycles of Matter and Energy
- Transfer in Ecosystems
- Ecosystem Dynamics, Functioning, and Resilience
- Social Interactions and Group Behavior
- Inheritance of Traits
- Variation of Traits
- Evidence of Common Ancestry and Diversity
- Natural Selection
- Adaptation
- Biodiversity and Humans

## 3.2 Physical Sciences

- 3.2 Physical Science
- Structure and Properties of Matter
- Chemical Reactions
- Nuclear Processes
- Forces and Motion
- Types of Interactions
- Definitions of Energy
- Conservation of Energy and Energy Transfer
- Relationship Between Energy and Forces
- Energy in Chemical Processes and Everyday Life
- Wave Properties
- Electromagnetic Radiation
- Information Technologies and Instrumentation

## 3.3 Earth and Space Science

- The Universe and Its Stars
- Earth and the Solar System
- The History of Planet Earth
- Earth Materials and Systems
- Plate Tectonics and Large-Scale Interactions
- The Role of Water in Earth's Surface Processes
- Weather and Climate
- Biogeology
- Natural Resources
- Natural Hazards
- Human Impact on Earth System

## 3.4 Environmental Literacy and Sustainability

- Agricultural and Environmental Systems and Resources
- Agricultural Systems
- Environment and Society
- Watersheds and Wetlands
- Environmental Literacy Skills
- Investigating Environmental Issues
- Environmental Experiences
- Evaluating Solutions
- Sustainability and Stewardship
- Environmental Sustainability
- Environmental Stewardship
- Environmental Justice

## 3.5 Technology and Engineering

- Applying, Maintaining, and Assessing Technological Products and Systems
- Impacts of Technology
- Influence of Society on Technological Development
- Design in Technology and Engineering Education
- Integration of Knowledge, Technologies, and Practices
- Nature and Characteristics of Technology and Engineering
- Core Concepts of Technology and Engineering
- History of Technology

Additional concepts related to the adoption of these standards can be found on <https://pdesas.org> in their STEELS Hub. For immediate inquiries, please reach out to Dr. Rich Mackrell ([rmackrell@liu18.org](mailto:rmackrell@liu18.org)). Dr. Mackrell is our lead on all things STEELS.



### STEELS Hub

Science, Technology & Engineering,  
and Environmental Literacy &  
Sustainability

## GRANT OPPORTUNITY

# *ENGAGING SCHOOL COMMUNITIES IN ENVIRONMENTAL STEWARDSHIP THROUGH THE VISUAL ARTS*

The Luzerne Intermediate Unit is thrilled to announce the launch of an exciting new program, "Engaging School Communities in Environmental Stewardship through the Visual Arts," made possible by a generous award from the Department of Environmental Protection.

This impactful initiative is more than just a grant program—it's a hands-on, project-based educational journey designed for schools within designated Environmental Justice areas. The core of the program is to ignite a passion for environmental responsibility by seamlessly weaving together the PA Environmental Literacy and Sustainability Standards with the Academic Standards for the Arts and Humanities.

Students will dive into Meaningful Watershed Educational Experiences (MWEEs), developing a deep, personal understanding of local environmental issues, with a keen focus on safeguarding our vital water resources. But here's the creative twist: the program empowers students to transform their learning into creative expression through the visual arts. This powerful combination not only deepens engagement and learning but is also building a sustainable curriculum model that will inspire environmental action for years to come.



Commonwealth  
of Pennsylvania

**Target Population:** Funding will support four cohorts of students in grades 5 - 8 who are in schools designated as an Environmental Justice Area. A cohort of students will consist of three groups, with each group containing up to 10 students. These areas include students from the following LEAs.

- Greater Nanticoke Area School District
- Hanover Area School District
- Hazleton Area School District
- Pittston Area School District
- Wilkes-Barre Area School District
- Wyoming Valley West School District

**Teacher Support:** Educators involved are asked to participate in three days of professional development to become familiar with the program, meet the classroom visitors who will support teachers and their students, and connect this project with current STEELS standards. Ideally, each participating school building will assign a science and art teacher to join in this project.

**Student Support Per School Package:** Each school will receive access to an artist in residence, an expert in water quality and watershed, and an expert in environmental health. Participation also includes funding for materials for student groups.

**Culminating Event Participation:** Each student group will showcase their product at a public event. The date and location have not been determined. The showcase will also be captured via photography and video recording meant to develop sharable media production artifacts.

If you are interested in participating, please reach out to Dr. Rich Mackrell, Asst. Director of STEM and Innovative Practices at [rmackrell@liu18.org](mailto:rmackrell@liu18.org).

## LIU OPL NETWORK TRAININGS (FALL 2025)

Did you know that the Office of Professional Learning regularly offers workshops at several locations? Areas of educator support include all core content areas, support for students with special needs, and classroom management. Below are a few networking workshops we are kicking off this Fall.

Visit our website at [www.liu18.org](http://www.liu18.org) and head to MyLearningPlan to find out more about these opportunities and to register.

- LIU Elementary Math Teacher's Network (Grades K-2), 10/10/2025, 12/2/2025, and 2/5/2026
- LIU Intermediate Math Teacher's Network (Grades 3-5), 10/20/2025, 12/8/2025, and 2/12/2026.
- LIU Middle School Math Teacher's Network (Grades 6-8), 10/27/2025, 12/15/2025, and 2/17/2025
- Engaging in Health and Physical Education in PA, 10/16/2025
- AI in the Secondary Classroom: Empowering Teachers for Smarter Learning, 11/3/2025 and 2/26/2026
- AI Made Simple: Empowering Elementary Educators, 11/18/2025 and 2/11/2026.
- Writing Effective Positive Behavior Support Plans, 10/23/2025
- Financial Literacy Workshop for Grades K-8: Preparing for the New Standards, 12/4/2025
- Financial Literacy for High Schools: Preparing for the New Standards, 12/5/2025

We also hold monthly network meetings for Curriculum Coordinators and School Improvement teams.



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