STEM 360 – Growing Opportunities in Changing Environments
2021 Summer Institute
Posters

Poster: Implementing the New York Computer Science and Digital Fluency Standards

In December of 2020, the Board of Regents approved the NYS Computer Science & Digital Fluency Standards for grades K-12. Join this session to learn more about the standards, including the path to the standards approval, 5 key concept areas, the progression of these concepts across grade bands, the rollout timeline, and ideas and strategies for implementation.

The new standards are to be implemented in all content areas, yielding great opportunity to establish rich connections between disciplines, helping our students better understand important connections between their learning, their world, and future careers.

Target Audiences: Primary Grades (PK-4), Intermediate Grades (5-8), Senior Grades (9-12), College (13-16), All audiences

Disciplinary Connections: Science, Technology, Engineering, Math, ELA, The Arts

Blank, Lisa, Watertown City School District, STEM Learning Ecosystems- North Country STEM Learning Network

Amanda Zullo- J.W. Leary JHigh School, Massena

Mary Margaret Small- Clarkson University, STEM Learning Ecosystems- North Country STEM Learning Network

Poster: Fits Like a Glove! Computer Science and Digital Fluency Standards in Core Instruction

This poster will focus on assisting the educational community in understanding the "fit" of New York State Computer Science and Digital Fluency Standards into core instruction K-12. This session will provide an overview of the standards structure, including the five key concept areas, relevant sub-concepts, and grade bands.

The presenters/authors have been actively engaged with educators from across the state in the curation of resources to help educators with standards implementation. The team will share a variety of tools, strategies, and resources that have been gathered to support rich integration of the standards across content areas and grade bands.

The presentation team will also address how many of the standards, particularly those involving cybersecurity and digital fluency, are not just useful, but rather essential in equipping our students. beginning in the earliest grades, with core knowledge and habits of practice essential for operating safely in the digital world.

Target Audiences: Primary Grades (PK-4), Intermediate Grades (5-8), Senior Grades (9-12), All audiences

Disciplinary Connections: Science, Technology, Engineering, Math, ELA, The Arts

Blank, Lisa, Director of STEM Programs, Watertown City School District/ North Country STEM Learning Network

Cameron Fadjo, Assistant Superintendent Pleasantville Schools

Gerald Ardito, Computer Science Education, Manhattanville College of Education

Laurie Yager, Instructional Computing Specialist, Madison-Oneida Regional Information Center, NYSCATE Board of Directors

Poster: Solving the problem of elastic collisions

The poster will show that some simple, self-evident assumptions about collisions can be substituted for the mere imposition of conservation of kinetic energy. Another set of assumptions focuses more on the nature of the physical collision itself, and less on some expected outcome after the collision. The poster graphics will clearly and simply demonstrate the assumptions made and their consequences.

Target Audiences: Intermediate Grades (5-8), Senior Grades (9-12), College (13-16)
Disciplinary Connections: Science, Math
Duveen, Peter, Museum of Brooklyn Art and Culture

Poster: Utilizing 3D Mathematical Modelling Activities in NYS Common Core

This study observes preservice teachers utilizing a mathematical modelling and 3D printing activity to explore their mathematical affect and competence in NYS Common Core curriculum for topics in three-dimensional solid shape. Research shows that preservice teachers often lack the basic mathematical foundation to teach elementary school mathematics to their future students. Some preservice teachers approach mathematics with trepidation and they portray a lack of confidence towards teaching it. In the field of mathematics education, this skeptical perspective toward mathematics is termed "negative mathematical affect." In this poster presentation, I present a mathematical modelling and 3D printing activity that could aid preservice teachers' mathematical competence and confidence in teaching at the elementary school level, thus encouraging a more positive mathematical affect.

Target Audiences: Primary Grades (PK-4)
Disciplinary Connections: Technology, Engineering, Math
Meangru , Matthew , University of East Anglia

Poster: The Red/Purple/Blue fundamentals of DWC

TBD

Target Audiences: Senior Grades (9-12), College (13-16), Industries
Disciplinary Connections: Technology, Engineering
Mulford, Samantha , NYS - Educator K-12
Jarrett Heintz - DWC Instructor/Presenter
Ross Everett - DWC Instructor/Presenter

1. **Poster: Exploring Electricity Using LED's**

This poster will describe the use of LED's to explore 1) the basic principles underlying LED operation, 2) fundamental concepts in electricity, and 3) the design of badges using the tools developed in the workshop.

2. **Poster: Teacher Generated Questions, Learner Generated Models**

Best teaching practices support the exploration of phenomena and the development of student models for the operation of that phenomena. This workshop will explore teacher questioning approaches and their impact on eliciting testable student models.

Target Audiences: Intermediate Grades (5-8), Senior Grades (9-12)
Disciplinary Connections: Science, Technology, Math, ELA, The Arts
Zawicki, Joseph, SUNY Buffalo State, STANYS, NYSSEC, WNY STEM Hub