

WEDNESDAY March 11, 1:00-5:00 PM

High School Preconference Workshop (high school/no prerequisite)

Computer Science Principles byDesign

Computer Science Principles byDesign aligns with the framework for the Advanced Placement (AP) Computer Science Principles exam. Rigorous and engaging, this new EbD offering is built directly upon the success of the NSF-supported *Beauty and Joy of Computing* curriculum, with the goal of attracting students in groups that are historically underrepresented in computer science. Computational thinking practices are woven throughout.

- Intro to Programming
- Abstraction
- Data Processing and Lists
- How the Internet Works
- Algorithms and Simulations
- How Computers Work

Open to all attendees. Laptop/smart device required. \$95 – ticket required; no charge for Consortium members

Middle /High School Preconference Workshop (Grade 8/9)

Foundations of Technology Online

Foundations of Technology prepares students to understand and apply technological concepts and processes that are the cornerstone for the high school technology program. Group and individual activities engage students in creating ideas, developing innovations, and engineering practical solutions. Technology content, resources, and laboratory/classroom activities apply student applications of science, mathematics, and other school subjects in authentic situations. Each unit is listed below along with the Learning Cycles for the unit. The online course is new for 2020-2021 and allows students to take the course in a variety of situations with minimal guidance from an instructor.

Open to all attendees. Laptop/smart device required. \$95 – ticket required; no charge for Consortium members

Elementary School Preconference Workshop (Grade 6)

EbD TEEMS Grade 6: Programing Devices for Energy Savings

Programming and computational thinking help to control many things in the world around us. Traffic lights, parking garage gates, car sensor systems, and many other items are programed to respond in certain ways to feedback from electronic sensors. Computational thinking and understanding electronic sensor systems are important to students' technological literacy. EbD TEEMS Grade 6 provides an overview of programming, coding, and electronics concepts with everyday examples. Students will build their knowledge and apply it to create a prototype of an automated energy saving device.

Open to all attendees. Laptop/smart device required. \$95 – ticket required; no charge for Consortium members

THURSDAY, MARCH 12, 1:00PM-4:50 PM

High School EbD Lab (Grade 10-12)

Technological Design

In ***Technological Design***, engineering scope, content, and professional practices are presented through practical applications. Discover how students in engineering teams apply technology, science, and mathematics concepts and skills to solve engineering design problems and innovate designs. Learn how students research, develop, test, and analyze engineering designs using criteria such as design effectiveness, public safety, human factors, and ethics. *Open to all attendees. Laptop/smart device required. \$50 – ticket required; no charge for Consortium members*

Middle School EbD Lab (Grades 6-8)

Engineering for All (EfA)

The *Engineering for All (EfA)* project was funded by the National Science Foundation (Grant # DRL 1316601) to create, test, and revise two seven-week modules for middle school technology education classes on the important social contexts of food and water. The units are built on four "drivers" that underpin the Engineering for All approach. These include:

- Promoting the potential of engineering as a social good.
- Revisiting unifying engineering and technology themes (i.e., design, modeling, systems, resources, and human values) in authentic social contexts.
- Using design-based engineering activities as authentic contexts for teaching and learning Science, Technology, Engineering and Mathematics (STEM) ideas and practices
- Using *informed design* as the core pedagogical methodology.

Open to all attendees. Laptop/smart device required. \$50 – ticket required; no charge for Consortium members

Elementary School EbD Lab (Grades PreK-2)

EbD TEEMS PreK-2

The **EbD-TEEMS™ Integrative-STEM Curricula for PreK-2** program leverages technological design challenges in an environmental context as the focus for learning. Science and mathematics conceptual development is supported through deliberate and strategic integration of key content and skills, and as the result of aligning the conceptual sequence of the **EbD-TEEMS™ Integrative-STEM Curricula for PreK-2** to the conceptual sequence of widely adopted science and mathematics curricular programs. A central design component that is unique to the **EbD-TEEMS™** program is the use of the *Grand Challenges for Engineering* identified by the National Academy of Engineering as a context for problem solving. Another important aspect of the program is the use of inquiry and design-based instructional strategies as a curriculum delivery model. Design challenges are used not only as a strategy for

student engagement, but also to foster the development of creativity and innovative thinking. Students explore the following Building Blocks:

Pre-K: Our Living World

Kindergarten: *A Home for All Seasons*

1st Grade: *Can You Hear Me?*

2nd Grade: *From Nature to Me*

Workshop participants will use hands-on activities to explore the course content and implementation strategies. *Open to all attendees. Laptop/smart device required. \$50 – ticket required; no charge for Consortium members*

FRIDAY, MARCH 13, 1:00PM-4:50PM

High School EbD Lab (Grades 9-10)

Foundations of Technology

Foundations of Technology prepares students to understand and apply technological concepts and processes that are the cornerstone for the high school technology program. Group and individual activities engage students in creating ideas, developing innovations, and engineering practical solutions. Technology content, resources, and laboratory/classroom activities apply student applications of science, mathematics, and other school subjects in authentic situations. Each unit is listed below along with the Learning Cycles for the unit.

Open to all attendees. Laptop/smart device required. \$50 – ticket required; no charge for Consortium members

Middle School EbD Lab (Grade 7)

Invention and Innovation

Learn all about invention and innovation! Explore opportunities students have to study the history of inventions and innovations, including their impacts on society. Learn about the core concepts of technology and about the various approaches to solving problems, including engineering design and experimentation. Discover how students apply their creativity in the invention and innovation of new products, processes, or systems. Learn about how various inventions and innovations impact our lives.

Open to all attendees. Laptop/smart device required. \$50 – ticket required; no charge for Consortium members

Elementary School EbD Lab (Grades 3-6)

EbD TEEMS 3-6

The **EbD-TEEMS™ Integrative-STEM Curricula for Grades 3-6** program leverages technological design challenges in an environmental context as the focus for learning. Science and mathematics conceptual development is supported through deliberate and strategic integration of key content and skills, and as the result of aligning the conceptual sequence of the **EbD-TEEMS™ Integrative-STEM Curricula for Grades 3-6** to the conceptual sequence of widely adopted science and mathematics curricular programs. A central design component that is unique to the **EbD-TEEMS™** program is the use of the *Grand Challenges for Engineering* identified by the National Academy of Engineering as a context for problem solving.

Another important aspect of the program is the use of inquiry and design-based instructional strategies as a curriculum delivery model. Design challenges are used not only as a strategy for student engagement, but also to foster the development of creativity and innovative thinking. Students explore the following Building Blocks:

3rd Grade: *Natural Hazards*

4th Grade: *The Power of Solar*

5th Grade: *Every Drop Matters*

6th Grade: *Our World and Me*

Workshop participants will use hands-on activities to explore the course content and implementation strategies. *Open to all attendees. Laptop/smart device required. **\$50 – ticket required; no charge for Consortium members***