



EduTech

Be Legendary.™

INFORMATION TECHNOLOGY

## Elementary CyberTeacher (16 hours)

Teachers will explore the CYBER.ORG Science Plus Curriculum. Science Plus is a phenomenon-based, hands-on science curriculum with technology ideas built into it. The modules are designed for student to learn the engineering design process to understand concepts and solutions. This course provides teachers with hands-on experience in how the course works and provides them with methods of teaching computer science and cybersecurity concepts in the elementary grade levels.

### Outcomes

- Explore and experience the CYBER.ORG Science+ curriculum.
- Work toward ND Level III Credential for Computer Science and Cybersecurity.
- Work with combination of text-based and visual programming languages (software).

## Middle School CyberTeacher (32 hours)

Teachers will explore the CYBER.ORG curricula for middle school, including STEM EDA, Cybersecurity Basics, and Coding Fundamentals. We will learn how to use the CYBER.ORG curricula and discover innovative ways to incorporate the curricula and micro:bits into all learning. A Blended Learning approach will be used during this workshop series.

### Outcomes

- Middle school teachers will explore the CYBER.ORG curriculum and work toward CYBER.ORG certification and Level II Credential for Computer Science and Cybersecurity.
- Explore and learn how to integrate the CYBER.ORG curriculum, specifically STEM EDA, Coding Fundamentals, and Cybersecurity Basics into their classroom
- Practice using a combination of text-based and visual programming languages (software).
- Discover new uses of the micro:bit using Microsoft MakeCode and ways to incorporate into all subject areas.

## High School CyberTeacher (32 hours)

Teachers will explore CYBER.ORG's Coding Fundamentals and Cyber Literacy courses using the Parallax cyber:bot and the BBC micro:bit platforms to create complex builds that incorporate block based coding, Python coding, and a combination of tactile and infrared sensors. We will learn how to use the CYBER.ORG curricula and explore ways to incorporate computer science and cybersecurity in any subject area.

### Outcomes

- High school teachers will explore the CYBER.ORG curriculum and work toward CYBER.ORG certification and Level II Credential for Computer Science and Cybersecurity
- Explore and learn how to integrate the CYBER.ORG curriculum, specifically Cyber Literacy and Coding Fundamentals into their classrooms

- Use Microsoft MakeCode to program the BBC micro:bit
- Practice creating complex circuit builds that incorporate Python coding and the Parallax cyber:bot
- Discover ways to navigate with the cyber:bot, including using tactile and infrared sensors

**Please Note:** Participants from Spring 2021 received 40 hours of training instead of 32 hours of training.

## Computational Thinking (8 hours)

This course is based on the CYBER.ORG Computational Thinking curriculum which incorporates the four elements of computational thinking (decomposition, pattern recognition, abstraction, and algorithm design) in a project-based approach to learning within core subject areas. Teachers will be provided guidance about how to embed computational thinking vocabulary into everyday learning experiences and upon completion have a developed lesson to incorporate into their classroom.

### Outcomes

- Explore and understand the components of computational thinking.
- Practice designing activities and lessons that integrate the components of computational thinking.
- Reflect on how and appreciate that computational thinking can be applied to PK-12 in all disciplines.

## Cyber Society (8 hours)

Teachers will explore the Cyber Society course within the CYBER.ORG library. Cyber Society has a Media Literacy unit that will be explored in depth that examines how Journalism and Media shape our perspectives. Other topics include Ethics and Communities that explore skills students need to be cyber safe and smart. Understanding how all parts of society are affected by Cyber will be explored.

### Outcomes

- Explore the CYBER.ORG Cyber Society curriculum
- Identify ways for our students to become a better, more educated cyber workforce
- Discover how critical thinking and reading skills improve knowledge about cyberspace as it pertains to law, ethics, terrorism, communications, and business.

## Minecraft (16 hours)

Minecraft Education Edition 2 day workshop-Teachers must commit to both days to receive credit.

Come learn how to use Minecraft Education Edition in the classroom to help students unlock their creative potential. Explore other free resources and tools that will take learning and student engagement to a new level.

**Day 1:** Participants will learn the basic mechanics of how to function within a Minecraft environment and how to create learning experiences for their students. Minecraft Education Edition can be used to teach concepts in any subject area. Teachers will explore the M:EE website and sift through already developed lesson plans for their classroom and adapt those to their current teaching practices.

**Day 2:** Participants will continue developing their lesson plans and participants will be introduced to coding in M:EE. Participants will develop an understanding of how Computer Science concepts can be integrated into all learning experiences using M:EE.

## Outcomes

- To familiarize participants with the basic game mechanics and provide opportunities for practice
- Help participants understand how to bring the game in as an educational tool into their classroom
- Practice navigating and learning to move in the game
- Utilize and manage Minecraft Education Edition as a digital tool
- Understand and deliver an activity using Minecraft Education Edition
- Explore pre-made coding and CS curriculum that can be used in any classroom

Please Note: Participants from sessions prior to Fall 2021 received 8 hours of training instead of 16 hours of training.

## Code.org Computer Science Fundamentals (8 hours)

Code.org's Computer Science Fundamentals courses blend online and "unplugged" non-computer activities to teach students computational thinking, problem solving, programming concepts and digital citizenship.

## Outcomes

- Work toward the Level III Credential for Computer Science and Cybersecurity
- Explore the Code.org Computer Science Fundamentals curriculum and learning tools
- Discuss classroom management and teaching strategies
- Build a community of teachers
- Develop skills while working in small groups
- Deepen their understanding of the materials

## Code.org Computer Science Fundamentals (CSF) Deep Dive (8 hours)

Deep dive into the CSF curriculum that focuses on pedagogy. Participants are encouraged to share what empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun. The curriculum is recommended for elementary school students (grades K-5), and can be taught either as a semester or full-year offering.

## Outcomes

- Reflect and discuss classroom management and teaching strategies
- Continue to build a community of teachers
- Deepen their understanding of the Computer Science Fundamentals curriculum
- Be updated on latest curriculum pieces and learning tools

## Code.org Computer Science Discoveries (CSD) (72 hours)

Computer Science Discoveries (CS Discoveries) is an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.

## Outcomes

- Work toward the Level II Credential for Computer Science and Cybersecurity
- Explore the problem-solving process and the different ways humans and computers solve problems
- Discover the languages powering the web. Build your own websites in HTML and CSS using Web Lab

- Learn the powerful constructs underlying programming languages. Build interactive games in JavaScript using Game Lab
- Follow a design process to identify and empathize with problems faced by a target audience. Prototype an app to help solve that problem using App Lab
- Develop binary representations of different kinds of information. Collect, analyze, visualize, and make automated decisions using data
- Explore the relationship between hardware and software, while building interactive projects on Adafruit's Circuit Playground using App Lab

## Code.org Computer Science Principles (CSP) (72 hours)

Computer Science Principles is a course designed to prepare students (and teachers) who are new to computer science for the AP CS Principles exam. The course covers many topics including the Internet, Big Data and Privacy, and Programming and Algorithms.

### Outcomes

- Work toward the Level II Credential for Computer Science and Cybersecurity
- Students learn how the multi-layered systems of the Internet function as they collaboratively solve problems and puzzles about encoding and transmitting data, both 'unplugged' and using Code.org's Internet Simulator
- Students learn how complex information like text and images is stored in a computer and the way compression helps reduce the size of those files
- In this unit, students learn the JavaScript language with turtle programming in Code.org's App Lab. Students are introduced the general principles of algorithms and program design that are applicable to any programming language
- Students research current events around the complex questions related to public policy, law, ethics, and societal impact. Students are also introduced to the basics of how and why modern encryption works
- Students continue learning how to program in the JavaScript language. Using Code.org's App Lab environment, students create a series of applications that live on the web. Each app highlights a core concept of programming