

DRAFT*

**subject to modification prior to August*

Getting Started with CS First

Professional Development provider: Kern Kelley

Aug. 9 & 10 9:00 AM

In this hands-on professional development workshop, teachers will learn how to use CS First, Google's free ready-to-teach introductory computer science (CS) curriculum for elementary and middle school students. Students follow step-by-step instructional videos that introduce fundamental computer science concepts and build computer programs using *Scratch for CS First*, a special version of the Scratch coding editor inside the CS First website. Scratch is a block-based programming language that gives kids the opportunity to code their own interactive games, stories, and more.

During the workshop, teachers will review the CS First curriculum, test drive a CS First class from a student and teacher perspective. Teachers will walk away with a plan of action and strategies for starting to teach CS First in their classrooms. Most importantly, teachers will join the growing community of CS First educators from around the world.

CS1 Toolbox

Professional Development provider: Eric Eisaman, ELHS Computer Science

Aug. 9, 10 & 11 9:00 AM

This three-day course introduces a set of confidence-building and action-driving tools empowering teachers and students through computational designs and implementations. Bring these tools to your classroom and no longer hear, "I don't know where to start.". Walk away with a clear vision on how you can drive student confidence and productivity forward! This minicourse will be conducted in the curricular context of CMU CS Academy but these methods are easily applicable to any CS curriculum.

PopFizz Computer Science

Professional development provider: Jane Lee and Megan Brown

Aug. 10 Time: 1PM (2-hr session)

Introduction to computer science activity: hands-on python workshop!

Python is a great language to learn. Not only is it easy to pick up, but you can also create complex programs using its vast libraries. In this 2 hour session, we will create a simple

text-based game. We'll also look into activities that can help students transition from Scratch to Python. All participants will get access to a 30-hour Python PD course.

CS Robotics PK-3 & 2-6 session

Professional development provider: Geoff Cyr

Why robotics? Discuss the tangible application of CS concepts, integration of STEM and core content, hands-on, learning to fail, changes classroom dynamics and gives struggling students a way to shine, etc.

Introduce robots at different levels:

Aug. 9 - 11:00 AM

Pre-K and K: basic moving robots like Beebots and Code and Go

Introduce some content integration examples (crosswalk in other content)

Grades 1 through 3: Dash robots

Aug. 10 - 11:00 AM

Grades 2 through 4: LEGO WeDo 2.0 (talk about the shift from pre-built robots where you basically are programming movement to building robots and the integration of STEM that happens with that)

Aug. 10 - 1:00 PM

Grades 4 through 6: LEGO Spike Prime

Microsoft TEALS - Best Practices in CS Education

Professional Development Provider: Michael English

Aug 10th & 12th - 10 am

In this 90-minute session, educators will learn about the Microsoft Philanthropies Technology Education and Literacy in Schools (TEALS) Program and some best practices in CS education. The session will begin with a quick overview of the Microsoft TEALS Program model and how we support schools and teachers. Then, participants will learn about the “Four Pillars of CS Pedagogy” – the notional machine, problem solving, hierarchy of skills, and diversity and inclusion. At the end of this session, participants will have learned how to tailor classic instructional techniques to a computer science class and some actionable steps towards creating a more diverse and inclusive population of learners in computer science.

Inclusive Techniques for Teaching Code

Professional Development Providers: Jon Ippolito and Katarina Hoeger

Aug 12th at 10 AM

Learning to code is already a challenge for most beginners, but many students suffer from additional hurdles due to their gender, race, or class. Participants in this interactive workshop will practice novel techniques for breaking through those barriers, as tested in UMaine's introductory programming course for the New Media major. Creative coding using online platforms like P5js can help compensate for uneven access to hardware, and a focus on scripting designs, animations, and games teaches advanced computer science concepts while appealing to visual thinkers with an aversion to mathematics. Sharing the stereotype-busting history of women in programming—a field that emerged from a desire to weave beautiful textiles—can help defeat imposter syndrome. Seeing other qualities in student code beyond correctness can help, as can flipping the classroom with online tutorials and “exit tickets” that accommodate learners at different levels in the same classroom.

The workshop will acquaint participants with tools to encourage inclusion, such as UMaine's Just-in-Time Learning badges, the P5js web editor, and Slack. A series of challenges will invite participants to question their own stereotypes about computer programmers and what makes for good code. No prior experience with programming is assumed.

Python Starter Kit, Dungeons and Dragons

Professional development provider: Jeff Gunn, LoisLab

Wednesday, Thursday, and Friday (11th-13th) from 1:00-2:30pm

LoisLab provides interactive computer science education for high school teachers and students for free. In this 3-session workshop, we will work our way through lessons in our new course, "Python Starter Kit, Dungeons and Dragons". Start learning Python, using D&D for programming examples, because kobolds are more interesting than print statements. No previous programming experience is necessary.

LoisLab provides the courseware and an online learning environment. All you need is a computer with an internet connection, and any Google account to log in.

We will make time to discuss how the free courseware can be used in your own unique settings (for independent student work, as a module in a CS course, others) and how LoisLab can provide support and collaboration resources.

TEACH Cyber: The What, Why, and How of Teaching High School Cybersecurity

Professional Development provider: Jenny Daugherty and Sabrina Smiley of Teach Cyber

Aug. 10 11:00 AM

In this 60-minute session, educators will learn about the cybersecurity workforce needs in this country, as well as the needs within Maine. Then we will explore three synergistic approaches for thinking about the cybersecurity workforce supply and demand: 1) building pipelines; 2) creating pathways; and 3) nurturing an ecosystem. In response, the High School Cybersecurity Curriculum Guidelines (HSCCG) were developed to 1) set the parameters, directions, and standards for curriculum policy and practice, 2) enable educators to effectively plan properly sequenced activities so as to provide learning opportunities targeting desired learning outcomes, and 3) ensure that students develop a base of knowledge, skills, attitudes, beliefs and values that will enable them to function successfully in cybersecurity college programs and careers. The session will outline the 8 Big Ideas of Cybersecurity addressed in the HSCCG that were used to develop the Teach Cyber courseware. The courseware is a rigorously developed, student-centered, relevant, and hands-on curriculum, where students can learn cybersecurity in the U.S. Cyber Range, a safe, "sand-boxed" virtual environment. Educators who attend this session will learn how to work with Teach Cyber to bring the Teach Cyber courseware into the cybersecurity pipeline, pathway, and ecosystem they are building for their students.

TEACH Cyber: How secure is your data?

Professional Development provider: Nancy Stevens of Teach Cyber

Aug. 10 Time: 1:00 PM

In this 2-hour workshop, participants will be introduced to data security. Our starting point is to examine your personal perspective on risk, and we will end with a look at security concerns that affect our communities and our nation. We will investigate data threats and vulnerabilities, and then explore what it means to protect data. The abundance of information stored online creates a myriad of privacy and security concerns. Data breaches, ransomware, password dumps, and phishing attacks are familiar terms to us. The activities in this workshop are drawn from the Teach Cyber course, Introduction to the Challenge of Cybersecurity. The course is based on the 8 Big Ideas of Cybersecurity addressed in the High School Cybersecurity Curriculum Guidelines.

Teaching Engineering Design with CAD

Professional development provider: MacKenzie Brunelle from PTC

Aug. 11 Time: 1:00 PM

Learn how to incorporate Computer Aided Design into your engineering classes with Onshape, a fully online professional CAD program available FREE to educators and students. During this session we will discuss:

- Where CAD fits in the engineering design process
- How to get students and classes setup in Onshape (no downloading or installations necessary!)

- How to enable students to collaborate with CAD

**CS Fundamentals Intro course
AUG 9 & 10 8:00 am - 11:00 am**

Facilitator: Greg Young

At the end of the workshop, teachers will know:

- The importance of CS for all students, and the teachers' role in creating an environment where all students can learn equitably.
- How CS Fundamentals can be used as an avenue for getting CS to all students.
- What CS Fundamentals courses look like (lesson plans, online activities, unplugged activities).
- Which courses and lessons of CS Fundamentals are most appropriate for their students.

At the end of the workshop, teachers will have:

- A plan of action for starting to teach CSF.
- Long(er) term goals about how deep into the course they would like to try to get.
- Strategies for teaching CS Fundamentals lessons.
- A connection to the community of CS Fundamentals teachers.

CS Fundamentals Deep Dive (For those already taken Intro)

AUG 11 & 12 8:00 am - 11:00 am

Facilitator: Greg Young

Deep Dive workshop provides teachers with a hands-on learning experience with other like-minded teachers. Teachers are given the space to work through the individual challenges in carefully crafted sessions led by experienced facilitators, most of whom were (and often still are) classroom teachers.

Teachers will leave their Deep Dive workshop not only with an understanding of the details, philosophy, values, and rationale behind how the CS Fundamentals course is structured but also with a customized plan for how to implement more of the CS Fundamentals courses. Teachers will have ideas for fostering and developing a strong classroom rapport that nurtures learners of all types and strategies for addressing roadblocks to implementation. Ongoing support through the Code.org teacher forum and online support after the workshop will continue to build a strong community of practice and support for participating teachers.

TUES. 8/10 1:00 PM

Topic: Decoding Coding: Integrating Computer Science in the Elementary Classroom

Description: Computer science has become an essential skill for student success, but can often feel like “another thing” that needs to “fit” in with all of the other learning requirements that teachers need to ensure are covered within a given year. Join this session to learn about computer science education strategies and best practices and engage in a discussion about integrating computer science skills, topics, and core competencies into the elementary classroom.

Duration: 1 Hour

Contact: For more information contact Emma-Marie Banks emma-marie.banks@maine.gov or Jonathan Graham jonathan.m.graham@maine.gov

WED. 8/11 @1:00 PM

Topic: Decoding Coding: Integrating Computer Science in the Middle School Classroom

Description: Computer science has become an essential skill for student success, but can often feel like “another thing” that needs to “fit” in with all of the other learning requirements that teachers need to ensure are covered within a given year. Join this session to learn about computer science education strategies and best practices and engage in a discussion about integrating computer science skills, topics, and core competencies into the middle school classroom.

Duration: 1 Hour

Contact: For more information contact Emma-Marie Banks emma-marie.banks@maine.gov or Jonathan Graham jonathan.m.graham@maine.gov

THURS. 8/12 @ 1:00 PM

Topic: Decoding Coding: Integrating Computer Science in the High School Classroom

Description: Computer science has become an essential skill for student success, but can often feel like “another thing” that needs to “fit” in with all of the other learning requirements that teachers need to ensure are covered within a given year. Join this session to learn about computer science education strategies and best practices and engage in a discussion about integrating computer science skills, topics, and core competencies into the high school classroom.

Duration: 1 Hour

Contact: For more information contact Emma-Marie Banks emma-marie.banks@maine.gov
or Jonathan Graham jonathan.m.graham@maine.gov