



Professional Development Teacher Objectives

Computer Science Content

Teachers will be able to introduce and implement the following into their teaching:

- **Computational Thinking concepts:** Algorithm, Decomposition, Pattern Recognition, Abstraction, and Analysis (Debugging)
- **Coding Concepts:** Loops/Repetition, Events, Conditionals, Variables, Iteration, Boolean Logic (IF, AND, NOT, OR), Input/Output Process, and Equation
- **21st-Century skills:** Communication, Collaboration, Critical Thinking, Creativity

Building Foundations

Teachers will help their students understand the importance of learning coding by teaching the students:

- **Foundations:** Why teach coding, What is Computer Science, What does it look like, All Kids Can Code, Digital Citizenship
- **Practices/Standards:** CSTA K-12 Framework
- **Attitudes and Behaviors:** Community of Practice (PLC), Growth-Mindset, Risk-Taking, Persistence, Explorer, Tinkerer, Facilitator, Problem-Solver, Equity, Building a positive classroom culture, and Paired Programming

Pedagogy

Teachers will learn several pedagogical techniques including:

- **Management:** Managing tablets & technology, Developing a collaborative classroom, Content safety, and Classroom configuration
- **Teaching Approaches:** Modeling, Whole group lesson, Guided lesson (I do, you do), Reverse engineering, Scaffolding, Teacher as facilitator, RAG (self-marking for help), and Being a reflective teacher (using BootUp Journals),
- **Classroom Materials/Configurations:** Resources and setup

BootUp Lessons

Teachers will learn how to use the BootUp lesson plans, which include:

- Project based & interest based lessons that can be adjusted to fit a myriad of interests/subject areas, Coder resources that bring new students up to speed and help guide struggling students, "I will learn" statements, Assessment questions and activities, reflection questions, reverse engineering guidance, differentiation/extensions; and Design/storyboarding guidance

Creative Computing

Teachers will become proficient at teaching coding using the following online tools:

- **ScratchJr (K-2)** Sharing projects, Finding lessons, App tutorials, and Using the picture editor
- **Scratch (3-6)** Creating teacher accounts, Managing studios, Remixing, Commenting on code, and Sharing projects

Physical Computing

Teachers will learn to share developmental and age appropriate physical computing activities:

- **Unplugged activities**
- **Robots/Paper Robots**
- **Optional Purchased Materials:** Let's Go Code, Robot Mouse/Mats, Bee Bot Robots, Dash Robots, Debugging Ducks, Rosie's Runtime, Puzzlets, Coding books, library activities, Ozobot, Microbit, etc.