



Algebra

Bootstrap:Algebra applies algebraic concepts and rigorous programming principles to creating a simple videogame.

Students use order of operations, function composition, the distance formula, coordinates and inequalities in the plane to detect collisions, handle keystrokes, and determine how they move and interact – with each challenge framed as a standard word-problem. The module is aligned to National & State Standards for Mathematics, the CSTA standards and K12CS frameworks, and has been shown to improve students' performance on standards algebraic tasks*.



DataScience

Which artist do you listen to most? Do schools in richer areas of your town do better than those in poorer ones? What's the healthiest cuisine? Our Data Science module teaches students to view programs as questions we ask of data. Students form their own questions about the world around them, and learn to analyze data critically and carefully to find answers. Business, science, and history teachers can utilize this module to help students make inferences from data. Math teachers can use this module to introduce statistics in an accessible way. It also works great as a module for AP CS Principles' unit on data!



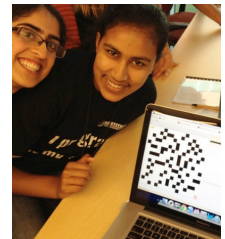
Physics

This module is developed in partnership with the American Association of Physics Teachers & American Modeling Teachers Association. It helps students understand dynamics concepts by using programming to build models of the physical world. The module is targeted at ninth grade, a year in which every student is expected to take science. The module is aligned to the Physics First movement, allowing teachers to present computational modeling as a basic tool to students preparing to study science more broadly.



Reactive

Bootstrap:Reactive goes deeper into programming, building events and data structures on top of the foundation laid by our intro courses and allowing students to build far more sophisticated programs. Students learn how the event loop that drives their Bootstrap:Algebra game works, and use it to create animations using simple datatypes. They then learn about data structures, and design a structure for a sophisticated game of their own design. Bootstrap:Reactive is aligned to the CSTA standards and K12CS frameworks.



*For more information, see www.BootstrapWorld.org/impact