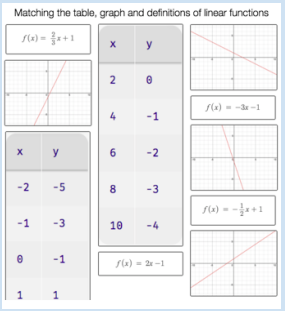
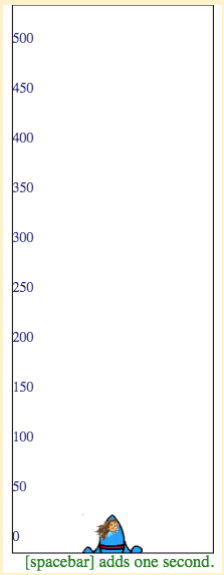
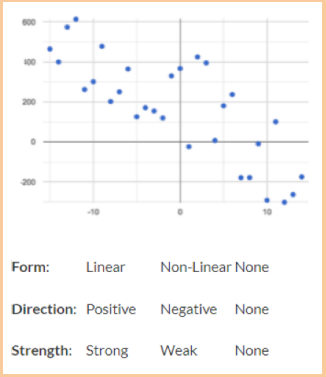
BOOTSTRAP
Computing Creatively + Thriving Mathematically

Materials for Teachers using IM Algebra 1™

Like IM Algebra™, Bootstrap is field-tested and research-validated, with a focus on deep exploration that supports and engages all kinds of learners. Our integrated computing modules have been proven to support math transfer and can be mixed and matched to supplement what you're already doing in your classroom. *Teaching High School math with Bootstrap also addresses many CS Standards, including: 1B-AP-10, 2-AP-1, 2-AP-10, 2-AP-11, 2-AP-12, 2-AP-13, 2-AP-14, 2-AP-17, 2-AP-19, 3B-AP-14, and 3B-AP-21.*

IM Unit	Integrated Computing Lessons that can extend the IM Unit
Linear Equations, Inequalities, and Systems	**Linear Relationships**  • We offer an abundance of interactive materials to get students thinking about whether relationships represented in tables and graphs are linear. • No programming required. **Defining Linear Relationships** • Check out our interactive materials that invite students to investigate linear relationships in tables, graphs, and function definitions. **Simple Inequalities** and **Compound Inequalities** • Simple code enables students to test solutions and non-solutions to inequalities. • The computer plots points provided by students on a numberline in either green or red, depending on if those points make the inequality true or false. **Sam the Butterfly - Applying Inequalities**  • Students use what they know about inequalities to define the boundaries that will keep a video game character on screen. • Finally - a real-world application of inequalities that your students will care about! • This activity dovetails nicely into the culminating project of student video game design and creation - but our individual lessons are engaging and worthwhile whether you facilitate a final project or not.

IM Unit	Integrated Computing Lessons that can extend the IM Unit
Functions	**Solving Word Problems** • Students solve a classic function word problem about the velocity and height of a rocket - and then write simple code to see the rocket blast off. • Discovering functions as an abstraction over an arithmetic pattern builds meaningful and lasting conceptual understanding. • Your students will enjoy modifying their code to change the speed and direction of the rocket - further developing their understanding of the distance / velocity relationship. **Piecewise Functions** • A fictional restaurant owner, Alice, solicits students' help in improving some code used at the restaurant. As students analyze the code, they interact with piecewise functions in an engaging new context. • video games rely on piecewise functions for player animation! • Apply new and otherwise abstract mathematical knowledge in a relevant context, and awe your students with a real-world application they will care about. 
Two-variable Statistics	**Scatter Plots** • Simple code allows students to quickly generate scatterplots from any dataset, allowing for lively discussion about trends observed. • Our datasets are designed to spark interest, foster deep thinking, and ultimately lead students to a nuanced understanding of data science concepts. **Correlations** • Your students will search out correlations in a dataset, discussing and analyzing the form, direction, and strength of the linear relationships they see in the scatterplots they generate. • Students will repeat this process in a dataset of their choice, one that sparks their interest. Simple code enables students to use linear regression to quantify patterns in their dataset. • Our data science curriculum leverages students' curiosity about the world around them to inspire real data analysis and original research. Individual lessons are impactful regardless of whether you opt to facilitate the culminating research project or not. 

Excited to learn more? Our materials are free of charge, and we love training teachers to use them! Sign up for a workshop today!

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