# CCSS PrBL Curriculum Map: Algebra 1

The following sample Problem Based Learning (PrBL) curriculum map is modeled after the scope and sequence shown below. Each of the tasks are mapped to the [Common Core State Standards](http://www.corestandards.org/Math) and can be found online. Note that this curriculum map only outlines the problem progression and does NOT address student-centered scaffolding, which is a crucial aspect of an effective math classroom. For student-centered scaffolding ideas and sample tasks, go [here](http://emergentmath.com/2012/03/01/seven-sneaky-activities-to-get-your-students-talking-mathematically/).

[[1]](#footnote-1)

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| **Title** | **Common Core State Standards: Math Content** | **Days** |
| **Intro Unit**  |  | **5** |
| [Broken Calculator](http://mrpiccmath.weebly.com/1/post/2012/07/3-acts-broken-calculator.html) (Timon) | N-Q.1, N-Q.2, N-Q.3, A.CED.4 | 2 |
| [Mullets](http://mrvaudrey.com/2012/05/03/the-only-lesson-theyll-remember/) (Matt) | N-Q A.1,2,3, A.CED.1,4 | 2 |
| [remediation, extension, assessment, skill practice] |  | 1 |

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| **UNIT: Modeling with Functions**  | **N-Q.1,2,3; F-IF 1,2,3,4\*,5\*,9\*; F-LE 1,1a,1b,3,5** | **15** |
| [Hiking](http://fivetriangles.blogspot.com/2012/10/36-hiking.html) (FiveTriangles) | N-Q.1,2 | 1 |
| [How much is a penny worth](http://www.illustrativemathematics.org/illustrations/473)? (Illustrative Mathematics) | N-Q.1 | 1 |
| [Fuel Efficiency](http://www.illustrativemathematics.org/illustrations/930) (Illustrative Mathematics) | N-Q.1 | 1 |
| [Building a Better Nike+ App](http://emergentmath.com/2012/08/08/why-doesnt-nike-use-math-to-encourage-me-to-run/) (Geoff) | N-Q.2 | 2 |
| [Jack In The Box](http://wmh3acts.weebly.com/jack-in-the-box.html) (Dane) | N-Q.1,2,3, F-LE.1a,1b | 1 |
| [Domain and Range](https://www.box.com/s/cpd2ayhuxblhyaljyy7v) (Pete)  | F-IF.1 | 1 |
| [Domain and Range Follow-Up](http://thescamdog.wordpress.com/2012/10/26/domain-and-range-lesson/) (John) | F-IF.1 | 1 |
| [Graphing Stories](http://graphingstories.com/) (1-3 stories) | F-BF.1 | 1 |
| [Which is the better deal?](http://whenmathhappens.files.wordpress.com/2013/12/which-is-the-better-deal.pdf) (Dane) | N-Q.1,2,3, F-IF.4 | ½  |
| [Points on a Graph](http://www.illustrativemathematics.org/illustrations/630) (Illustrative Mathematics) | F-IF.1 | ½  |
| FAL: [Functions and Everyday Situations](http://map.mathshell.org/materials/lessons.php?taskid=430&subpage=concept) (MARS) | F-BF.1, F-LE.1,1a,1b,1c,2,3,5, F-IF.1,4,5,9 | 3 |
| [remediation, extension, assessment, skill practice] |  | 1 |

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| **UNIT: Linear Functions**  | **F-IF 6,7a,9; F-BF 1,1a, 2,4a; F-LE 1,1a,1b** | **15** |
| [Math Tabboo](http://fawnnguyen.com/2013/03/08/math-taboo-game.aspx) (Fawn) | F-LE 1,1a,1b | 1 |
| [More Graphing Stories](http://www.google.com/url?q=http%3A%2F%2Fgraphingstories.com%2F&sa=D&sntz=1&usg=AFQjCNFUVtkro0SgeLtfGgAXqkZWMw_Kog) (1-3 Stories) | F-BF, F-IF | 1 |
| [Double Sunglasses](http://threeacts.mrmeyer.com/doublesunglasses/) (Dan)  | F-LE.1 | 1 |
| [Relation Stations](http://musingmathematically.blogspot.ca/2013/02/relation-stations.html) (Nat) | F-IF.1, F-BF.1, 1a, F-LE.1,1a,1b | 1 |
| [Pixel Patterns](http://threeacts.mrmeyer.com/pixelpattern/) (Dan) | F-LE.2 | 1 |
| [Moving on Up](http://emergentmath.com/2011/05/11/u-haul-linear-systems-problem-updated-and-improved/) (Geoff) | F-BF.1a,b,c; F-LE.2, F-IF.6,7a | 2 |
| FAL: [Generalizing Patterns: Table Tiles](http://map.mathshell.org/materials/lessons.php?taskid=215&subpage=problem) (MARS) | F-BF | 3 |
| [Taco Cart](http://threeacts.mrmeyer.com/tacocart/) (Dan) | F-IF.4 | 2 |
| [remediation, extension, assessment, skill practice] |  |  |

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| **UNIT: Linear Equations in One Variable**  | **A-REI 1,3,11\*; A-CED 1,3,4** | **15** |
| [KD vs. Lebron](http://whenmathhappens.files.wordpress.com/2013/12/lebron-kd-warm-up.pdf) (Dane) | A-REI.1,3, A-CED.1 | ½  |
| [Pepsi Points](http://mrpiccmath.weebly.com/1/post/2012/07/3-acts-pepsi-points.html) (Timon) | A-REI.1, 3,A-CED.1 | 2 |
| [Gas Pump](http://wmh3acts.weebly.com/gas-pump.html) (Dane) | A-REI.1, 3, A-CED.1 | 1 |
| [Bottomless Coffee Mug](http://mr-stadel.blogspot.com/2013/01/bottomless-mug.html) (Andrew) | A-REI.1, 3,A-CED.1 | 1 |
| [The Perfect Chocolate Milk Mix](http://www.yummymath.com/2010/chocolate-milk-and-mixture-problems/) (Yummymath) | A-CED.1, 8.EE.7 | 1 |
| [Styrofoam Cups](http://mr-stadel.blogspot.com/2013/01/styrofoam-cups.html) (Andrew) | A-CED.1,2,3,4, A-REI.3 | 2 |
| [M&M’s](http://wmh3acts.weebly.com/mms.html) (Dane) | A-CED.1,2, A-REI.1 | 1 |
| [remediation, extension, assessment, skill practice] |  | 7 ½ |

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| **Modeling Unit** |  |  |
| [Bungee Barbie](http://illuminations.nctm.org/LessonDetail.aspx?id=L646) (NCTM Illuminations) |  | 4 |

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| **UNIT: Linear Equations & Inequalities in Two Variables**  |  **A-CED 2,3,4; A-REI 6,10,12** | **15**  |
| [Functions](http://map.mathshell.org/materials/tasks.php?taskid=255&subpage=apprentice) (MARS) | A-CED.1,2 | 1 |
| FAL: [Optimization Problem: Boomerangs](http://map.mathshell.org/materials/lessons.php?taskid=207&subpage=problem) (MARS) | A-REI-6,10,12, A-CED.2,3,4 | 3 |
| [Energy Efficiency](http://emergentmath.com/2013/03/31/evaluating-energy-efficiency-claims/) (Geoff) | A-CED.2,3,4, A-CED.2,3,4 | 2 |
| FAL: [Solving Linear Equations in Two Variables](http://map.mathshell.org/materials/lessons.php?taskid=209&subpage=concept) (MARS)  | A-REI.5,6,10,11,12, A-CED.1,2,3,4,F-BF-1 | 3 |
| FAL: [Sorting Equations and Identities](http://map.mathshell.org/materials/lessons.php?taskid=218&subpage=concept) (MARS) | A-SSE.1,1a,3, A-REI.1,3 | 3 |
| [Road Trippin’](http://wmh3acts.weebly.com/road-trippin.html) (Dane) | A-CED.4, A-REI.12 | 1 |
| FAL: [Defining Regions Using Inequalities](http://map.mathshell.org/materials/lessons.php?taskid=219&subpage=concept) (MARS) | A-REI.3,10,12 | 3 |
| [A $103,000 Speeding Ticket](http://robertkaplinsky.com/work/finland-speeding-ticket/) (Robert) | A-CED.2,F-BF.1,4,6 | 2 |
| [NFL QB Rating](http://emergentmath.com/2011/02/22/the-wacky-algebra-of-nfl-passer-rating/) (Geoff) | A-REI.5,6, F-IF.4,5,7,8 | 1 |
| [remediation, extension, assessment, skill practice] |  |  |

\*\* Project \*\* (5 days)

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| **UNIT: Quadratic Functions**  |  **F-IF 4,5,6,7,7a,8,8a,9; F-BF 1,1a,1b,3** | **20** |
| [Des-man](http://fawnnguyen.com/2013/03/20/des-man.aspx) (Fawn) | F-BF.1c,3, F-IF.4,5 | 2 |
| [Snow Days](http://www.yummymath.com/2013/snow-days/) (Yummymath) | F-IF.6, 8-EE.5 | 1 |
| [Shoveling Snow](http://www.yummymath.com/2011/done-with-the-leaves-now-for-the-snow-2/) (Yummymath) | 8.F.4,5, A.CED.2, A.REI.10, F-IF.4,5, 7 | 1 |
| [Garden Problem](http://www.scribd.com/doc/68802196/Garden-Problem-Michelle-Sweeney) (Michelle) | F-IF.4,5,7a,c,8a, F-BF1,1a | 3 |
| [Sorting Functions](http://map.mathshell.org/materials/tasks.php?taskid=264#task264) | F-IF.1,2,4, A-SSE.3 | 1 |
| [Will it hit the hoop?](https://s3.amazonaws.com/threeacts/willithitthehoop.zip) (Dan) | F-BF.3 | 2 |
| [Hot Rod Quadratics](http://emergentmath.com/2013/04/23/hot-rod-quadratics-lets-jump-this-jump/) (Geoff) | F-BF.3 | 1 |
| [XBOX XPonential](http://www.mathalicious.com/lesson/xboxxponential/) (Mathalicious) | F-IF.8b,9, F-BF.2, F-LE.1c,2,5 | 2 |
| [Framing and Quadratics](http://fawnnguyen.com/2013/04/10/20130410.aspx) (Fawn) | A-SSE.3, F-IF.7,7a,8,8a | 1 |
| [The Fall of Javert](http://www.mathalicious.com/lesson/the-fall-of-javert/) (Mathalicious) | A-CED.1, F-BF.1, F-IF.6,7 | 2 |
| [remediation, extension, assessment, skill practice] |  | 1 |

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| **UNIT: Quadratic Equations**  | **N-CN 7; A-SSE 3a, 3b; A-REI 4,4a,4b,7** | **26** |
| [Egg Launch](http://illuminations.nctm.org/LessonDetail.aspx?id=L738) (NCTM Illuminations) | F-BF.9, A-SSE.3,3a,3b,A-REI.4,4a,4b | 3 |
| [Bacterial Growth and Quadratics](http://www.scribd.com/doc/139559000/Quadratics-Vertex-Form-and-Bacterial-Growth) (Geoff) | A-CED.1, A-REI.4,A-SSE.3 | 3 |
| [Angry Birds and Geogebra](http://sweeneymath.blogspot.com/2011/02/angry-birds-geogebra.html) (Sean) | F-BF.3, A-REI.4,4a,4b, A-SSE.3 | 3 |
| Angry Bird Extension w/ complex numbers (??) | N-CN.7 | 3 |
| FAL: [Representing Polynomials](http://map.mathshell.org/materials/lessons.php?taskid=436&subpage=concept) | A-SSE.3, A-APR.1, F-IF.7,7a,9 | 3 |
| [Braking Distance](http://www.illustrativemathematics.org/illustrations/586) (Illustrative Mathematics) | A-REI.4b | 2 |
| [Seeing Dots](http://www.illustrativemathematics.org/illustrations/21) (Illustrative Mathematics) | A-SSE.3a,b | 2 |
| [A Linear and Quadratic System](http://www.illustrativemathematics.org/illustrations/576) (Illustrative Mathematics) | A-REI.7c | 1 |
| [Two Equal Squares](http://www.illustrativemathematics.org/illustrations/618) (Illustrative Mathematics) | A-REI.4b, A-REI.11 | 1 |
| [The Circle and the Line](http://www.illustrativemathematics.org/illustrations/223) (Illustrative Mathematics)  | A-REI 7c | 1 |
| [remediation, extension, assessment, skill practice] |  | 0 |

\*\* Modeling Unit \*\* (4 days)

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| [Histograms, Standard Deviation and Digital Cameras](http://samjshah.com/2010/06/01/histograms-standard-deviations-and-digital-cameras/) (Sam) | S-ID.1,2,4 | 4 |

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| **Statistics** |  **S-ID 1,2,3,4,5,6, 6a,6b,6c,7,8,9** | **30** |
| [Birds’ Eggs](http://map.mathshell.org/materials/tasks.php?taskid=262&subpage=apprentice) (MARS) | S-ID 1,6a,b,c, 7 | 1 |
| FAL: [Representing Data 1: Frequency Graphs](http://map.mathshell.org/materials/lessons.php?taskid=404&subpage=concept) (MARS) | S-ID 3,4,5 | 3 |
| FAL: [Representing Data 2: Using Box Plots](http://map.mathshell.org/materials/lessons.php?taskid=423&subpage=concept) (MARS) | S-ID 3,4,5 | 3 |
| FAL: [Muddying the Waters](http://map.mathshell.org/materials/lessons.php?taskid=217&subpage=problem) (MARS) | S-ID 9 | 3 |
| FAL: [Devising a Measure for Correlation](http://map.mathshell.org/materials/lessons.php?taskid=420&subpage=problem) (MARS) | S-ID 1,3,4,6,6a,6b,8 | 3 |
| [Super Bowl Scores](http://www.yummymath.com/2013/typical-super-bowl-scores-2013/) (Yummymath) | 6.SP.2, 6.SP.5, 7.SP.4, S-ID.2 | 2 |
| [Do the “Best” Movies Make the Most Money?](http://www.yummymath.com/2012/do-the-best-movies-make-more-money/) (Yummymath) | 7.SP.2. , 7.SP.3 , 7.SP.4 , 8.SP.1 , S-ID.5 , S-ID.6 , S-IC.1 | 2 |
| [Team Salaries vs. Team Wins](http://www.yummymath.com/2011/team-salaries-versus-team-wins/) (Yummymath) | 5.G.1, 5.G.2, 6.SP.2, 6.SP.5, 8.SP.1, 8.SP.2, 8.SP.3, S-ID.6 | 3 |
| [Impact of a Superstar](http://illuminations.nctm.org/LessonDetail.aspx?id=L673) (NCTM Illuminations) | S-ID.1,2,3 | 2 |
| [The 2000 Election](http://emergentmath.com/2012/09/18/who-doesnt-want-to-relive-the-2000-election-stats-problem/) (Geoff) | S-ID 1,3,6a,b,c,7,9 | 3 |
| [Tracking Temperature Data](http://emergentmath.com/2013/03/06/how-does-one-provide-the-complex-data-of-global-warming-to-students/) (Geoff) | S-ID 1,3,6a,b,c,7,8 | 5 |
| [remediation, extension, assessment, skill practice] |  |  |

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| Project  |  | 5 |
| [Modeling Orbital Debris](http://illuminations.nctm.org/LessonDetail.aspx?id=L376) (NCTM Illuminations) |  | 5 |

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Notes

Additional activities

* <http://www.dailydesmos.com/>

Scaffolding tasks

1. [↑](#footnote-ref-1)