# CCSS PrBL Curriculum Map: Algebra 2

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/).



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| **Unit/Problems** | **Content Standards (CCSS)** | **Days** |
| **Intro Unit (5 days)nt** | **Days** |  |
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| [Too Hot to Handle](http://illuminations.nctm.org/LessonDetail.aspx?id=L852) (NCTM Illuminations) |  | 3 |

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| **UNIT: Exponential Functions** | **N-RN.1,2,3, A-SSE.3,4\*, F-IF.3,7e,8b, F-BF.2,4a, F-LE.1a,1b,1c,2,3,4,5** | **25** |
| [Wolfram Alpha Real Numbers Investigation](http://www.scribd.com/doc/25729580/Wolfram-Alpha-Activity-Topic-Real-Numbers-Intermediate-Algebra-Activity-1) (Fred) | N-RN.1,2,3 | 2 |
| [Lost in Recursion](http://lostinrecursion.wordpress.com/2012/03/12/the-lost-in-recursion-recursion/) (Paul) | F-IF.3 | 1 |
| [National Debt and Wars](http://illuminations.nctm.org/LessonDetail.aspx?id=L670) (NCTM Illuminations) | F-IF.8c | 2 |
| [Exponential Growth and Credit Cards](http://function-of-time.blogspot.com/2009/11/exponential-growth-and-credit-cards.html) (Kate) | F-IF.8c | 1 |
| [Aaron’s Rent-to-buy](http://blog.recursiveprocess.com/2010/06/03/aarons-rent-to-buy/) (Dan) | F-IF.8c | 2 |
| [The Amazing Shrinking Dollar](http://mrmeyer.com/threeacts/shrinkingdollar/) (Dan) | F-LE.2 | 1 |
| [Falling Glowsticks](http://mrmeyer.com/threeacts/fallingglowsticks/) (Dan) | A-CED.1, BF.1, F-LE.3 | 3 |
| [Falling Rocks](http://mrmeyer.com/threeacts/fallingrocks/) (Dan) | A-CED.1, BF.1, F-LE.3 | 2 |
| [Modeling: Having Kittens](http://map.mathshell.org/materials/lessons.php?taskid=407#task407) (MARS) | F-LE.1,1a,2 | 3 |
| [Comparing Investments](http://map.mathshell.org/materials/lessons.php?taskid=426#task426) (MARS) | A-SSE.1,1b,F-IF.7e,8b | 3 |
| [Logarithms Demystified](http://illuminations.nctm.org/LessonDetail.aspx?id=L817) (NCTM Illuminations) | A-7e | 1 |
| [Logarithms and Reddit](http://scienceblogs.com/builtonfacts/2013/01/16/the-mathematics-of-reddit-rankings-or-how-upvotes-are-time-travel/) (Science Blogs) | A-7e | 3 |
| **Extension/Differentiation/ Assessment** |  | 2 |

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| **UNIT: Trigonometric Functions** | **F-TF.1,2,5\*,8,7e** | **15** |
| [Foxes and Rabbits](http://www.illustrativemathematics.org/illustrations/816) (Illustrative Mathematics) | F-TF.5 | 1 |
| [Foxes and Rabbits continued](http://www.illustrativemathematics.org/illustrations/817) (Illustrative Mathematics) | F-TF.5 | 1 |
| [As the wheel turns](http://www.illustrativemathematics.org/illustrations/595) (Illustrative Mathematics)  |  F-TF.B.5, F-IF.B.4 | 2 |
| [Ferris Wheel](http://map.mathshell.org/materials/lessons.php?taskid=427#task427) (MARS) | F-TF.1,5, F-BF.1,1a,1c | 3 |
| [Scrambler](http://threeacts.mrmeyer.com/scrambler/) (Dan) | F-TF.5 | 4 |
| **Extension/Differentiation/ Assessment** |  | 4 |

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| **UNIT: Functions** |  **F-BF.1a,1b,3, F-LE.2,3,5, F-IF.4,7b,7c** | **26** |
| [A Visit to the Functions Zoo](http://exzuberant.blogspot.com/2012/03/visit-to-function-zoo.html) (Dan) | F-BF.1a,1b,3 | 1 |
| [Moving Day](http://samjshah.com/2009/04/07/moving-day/) (Sam) | F-BF.1a,1b,3 | 2 |
| [Dirt Bike Dilemma](http://illuminations.nctm.org/LessonDetail.aspx?id=L685) (NCTM Illuminations) | F-BF.1a,1b,3,F-LE.2,3,5 | 2 |
| Stop Sign or Stop Light? [Part 1](http://emergentmath.com/2011/03/09/a-stop-sign-vs-a-stoplight-when-does-each-make-sense-part-1-math-modeling/) and [Part 2](http://emergentmath.com/2011/03/30/a-stop-sign-vs-a-stoplight-when-does-each-make-sense-part-2-math-modeling/) (Geoff) | F-BF.1a,1b,3, F-LE.2,3,5 | 3 |
| [Allow Me 2 Reiterate](http://illuminations.nctm.org/LessonDetail.aspx?id=L374) (NCTM Illuminations) | F-IF.3,F-IF.4,7b,7c | 2 |
| [How long to fill the sink](http://kalamitykat.com/2010/03/07/how-long-to-fill-the-sink/) (Megan) | F-BF.1a,1b,3, A-APR.1,A-REI.2 | 2 |
| [NFL Draft Chart](http://mrhonner.com/2011/04/26/nfl-draft-math/#comment-711) (Patrick) | F-LE.2,3,5 | 1 |
| [NFL Draft Chart response](http://emergentmath.com/2011/04/27/do-nfl-teams-actually-use-that-draft-pick-chart-when-trading-draft-picks/) (Geoff) | F-LE.2,3,5 | 2 |
| [Boat in the River](http://blog.mrmeyer.com/?p=7649) (Dan) |  F-BF.1a,1b,3, F-LE.2,3,5, F-IF.4,7b,7c | 3 |
| **Extension/Differentiation/ Assessment** |  | **8** |

\*\* Modeling Unit \*\* (8 days)

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| **Modeling Unit (8 days)nt** | **Days** |  |
| [Farming Project](http://coxmath.blogspot.com/2010/03/farming-project.html) (David) |  | 8 |

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| **UNIT: Rational and Polynomial Expressions** | **A-SSE.1,1a, 1b,2, A-APR.1,2,3, 4, 6, A-REI.2** | **12** |
| [Rational Expressions Speed Dating](http://function-of-time.blogspot.com/2009/10/speed-dating.html) (Kate) | A-APR.1 | 1 |
| [Rational Expressions Intro](http://function-of-time.blogspot.com/2009/06/evolving-rational-expressions-and.html) (Kate) | A-APR.1, A-REI.2 | 1 |
| [Polynomial Puzzler](http://illuminations.nctm.org/LessonDetail.aspx?id=L798) (NCTM Illuminations) | A-APR.1,2 | 1 |
| [Rational Expressions Treasure Hunt](http://cheesemonkeysf.blogspot.com/2012/04/rational-expressions-treasure-hunt-or.html) (Elizabeth) | A-APR.1,2 | 1 |
| [Interpreting Rational Expressions](http://map.mathshell.org/materials/lessons.php?taskid=221#task221) (MARS) | A-APR.1,2, A-SSE.1,1a,1b | 3 |
| [Rational Equations and Circuits](http://kalamitykat.com/2010/02/21/solving-rational-equations-project/) (Megan) | A-APR.1,2,4,6 | 3 |
| [Light it up](http://illuminations.nctm.org/LessonDetail.aspx?id=L606) (NCTM Illuminations) | A-SSE.1,1a,1b,2 | 2 |
| **Extension/Differentiation/ Assessment** |  |  |

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| **UNIT: Probability** | **S-CP.1,2,3,4,5,6,7** | **28** |
| [Whoa - Wheel of Fortune](http://www.101qs.com/1774) (Chris via 101qs) | S-CP.4,5 | 1 |
| [Fred’s Fun Factory](http://www.illustrativemathematics.org/illustrations/1197) (Illustrative Mathematics) | S-MD.A.2, S-MD.B.7, S-MD.B.5 | ½  |
| [Return to Fred’s Fun Factory](http://www.illustrativemathematics.org/illustrations/1198) (Illustrative Mathematics) | S-CP.A.1, S-CP.A.2, S-CP.B.9 | ½  |
| [Yellow Starburst](http://threeacts.mrmeyer.com/yellowstarbursts/) (Dan) | S-CP.1,2,3,4,5 | 2 |
| [Cards and Independence](http://www.illustrativemathematics.org/illustrations/943) | S-CP.2,3 | 1 |
| [How do you get to school?](http://www.illustrativemathematics.org/illustrations/1025) (Illustrative Mathematics) | S-CP.4,6 | 1 |
| [Lucky Envelopes](http://www.illustrativemathematics.org/illustrations/944) (Illustrative Mathematics) | S-CP.3 | ½  |
| [Breakfast Before School](http://www.illustrativemathematics.org/illustrations/1019) (Illustrative Mathematics) | S-CP.5 | ½  |
| [Rain and Lightning](http://www.illustrativemathematics.org/illustrations/1112) (Illustrative Mathematics) |  S-CP.A.2, S-CP.A.3, S-CP.A.5, S-CP.B.7 | 2 |
| [Explorations with Chance](http://illuminations.nctm.org/LessonDetail.aspx?id=L290) (NCTM Illuminations) | S-CP.1,2,3,4,5 | 2 |
| [Three Shots](http://www.mathalicious.com/lesson/three-shots/) (Mathalicious) | S-CP.4,5,6,7, S-MD.7 | 2 |
| [Modeling Conditional Probability 1: Lucky Dip](http://map.mathshell.org/materials/lessons.php?taskid=409&subpage=problem) (MARS) | S-CP.1,2,3,4,5 | 3 |
| [Modeling Conditional Probability 2](http://map.mathshell.org/materials/lessons.php?taskid=405#task405) (MARS) | S-CP.1,2,3,4,5 | 3 |
| [Stick or Switch](http://illuminations.nctm.org/LessonDetail.aspx?id=L377) (NCTM Illuminations) | S-CP.1,2,3,4,5 | 2 |
| [The Titanic 1](http://www.illustrativemathematics.org/illustrations/949) (Illustrative Mathematics) | S-CP.A.1, S-CP.A.4, S-CP.B.6 | 2 |
| [The Titanic 2](http://www.illustrativemathematics.org/illustrations/950) (Illustrative Mathematics) | S-CP.A.2, S-CP.A.3, S-CP.A.4, S-CP.A.5, S-CP.B.6 | 1 |
| [The Titatic 3](http://www.illustrativemathematics.org/illustrations/951) (Illustrative Mathematics) | S-CP.A.4, S-CP.A.5, S-CP.B.6 | 1 |
| [Coffee at Mom’s Diner](http://www.illustrativemathematics.org/illustrations/1024) (Illustrative Mathematics) | S-CP.7 | 1 |
| **Extension/Differentiation/ Assessment** |  | 2 |

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| **UNIT: Statistics (random processes)** | **S-IC 1,2,3,4,5,6 , S-ID.4** | **27** |
| [School Advisory Panel](http://www.illustrativemathematics.org/illustrations/186) (Illustrative Mathematics) | S-IC.1 | 1 |
| [Why Randomize?](http://www.illustrativemathematics.org/illustrations/191) (Illustrative Mathematics) | S-IC.1 | 1 |
| [Strict Parents](http://www.illustrativemathematics.org/illustrations/122) (Illustrative Mathematics) | S-IC.1,3 | 1 |
| [Musical Preferences](http://www.illustrativemathematics.org/illustrations/123) (Illustrative Mathematics) | S-ID.5, S-IC.1 | 2 |
| [Sarah the Chimpanzee](http://www.illustrativemathematics.org/illustrations/244) (Illustrative Mathematics) | S-IC.2 | 1 |
| [Block Scheduling](http://www.illustrativemathematics.org/illustrations/125) (Illustrative Mathematics) | S-IC.2 | 1 |
| [NBA Officiating](http://emergentmath.com/2011/04/19/the-dallas-mavericks-are-2-16-in-playoff-games-officiated-by-danny-crawford-is-this-statistically-significant/) (Geoff) | S-SP, S-IC.5,  | 4 |
| [Accuracy of Carbon Dating](http://www.illustrativemathematics.org/illustrations/782) (Illustrative Mathematics) | N-Q.A.3, S-ID.4 | 2 |
| [Will the Best Candidate Win?](http://illuminations.nctm.org/LessonDetail.aspx?id=L723) (NCTM Illuminations) | S-IC.2 | 3 |
| [High Blood Pressure](http://www.illustrativemathematics.org/illustrations/1100) (Illustrative Mathematics) | S-IC.3, ID.9  | ½  |
| [Words and Music](http://www.illustrativemathematics.org/illustrations/1029) (Illustrative Mathematics) | S-IC.3 | ½  |
| [Determining Functions Using Regression](http://illuminations.nctm.org/LessonDetail.aspx?id=U180) (NCTM Illuminations) | S-IC 6,6a,6b,6c | 3 |
| **Extension/Differentiation/ Assessment** |  | 5 |

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| **Modeling Unit (4 days)nt** | **Days** |  |
| [Weather Forecasting Model Error](http://emergentmath.com/2013/08/08/just-how-silly-is-a-45-day-weather-forecast-and-while-were-at-it-just-how-good-is-a-2-day-forecast/) (Geoff) | S-IC.2,6 | 4 |

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Notes

Additional activities

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

Scaffolding tasks