

# Math ONE - MVP Lessons with Identified OAS Standards

\*This document is for the *lesson* only. ReadySetGo may cover other standards.

| Module 1: Sequences                        |                                    |                           |   |  |
|--|------------------------------------|---------------------------|---|--|
| MVP Lesson                                 |                                    | MVP Type of Understanding | Description   | OAS-M  |
| 1.1  | Checkerboard Borders               | Develop                   | Defining quantities and interpreting expressions  | PA.A.3.2   |
| 1.2  | Growing Dots                       | Develop                   | Representing arithmetic sequences with equations, tables, graphs, and story context       | A1.F.2.1, A1.A.4.3, A1.A.3.5, A1.A.3.6, A1.F.1.3                     |
| 1.3  | Growing, Growing Dots              | Solidify                  | Representing geometric sequences with equations, tables, graphs and story context         | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.4  | Scott's Workout                    | Solidify                  | Arithmetic Sequences: Constant difference between consecutive terms, initial values       | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.5  | Don't Break the Chain              | Solidify                  | Geometric Sequences: Constant ratio between consecutive terms, initial values             | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.6  | Something to Chew On               | Solidify                  | Arithmetic Sequences: Increasing and decreasing at a constant rate                        | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.7  | Chew On This                       | Solidify                  | Comparing rates of growth in arithmetic and geometric sequences                           | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.8  | What Comes Next? What Comes Later? | Practice                  | Recursive and explicit equations for arithmetic and geometric sequences                   | A1.F.3.1, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.3, A1.A.3.5, A1.A.3.6 |
| 1.9  | What Does it Mean?                 | Solidify                  | Using rate of change to find missing terms in an arithmetic sequence                      | A1.A.1.1, A1.A.2.1   |
| 1.10                                       | Geometric Meanies                  | Solidify                  | Using a constant ratio to find missing terms in a geometric sequence                      | A1.A.1.1, A1.A.2.1   |
| 1.11                                       | Know...What Do You Know?           | Practice                  | Developing fluency with geometric and arithmetic sequences                                | PA.A.2.1, A1.A.4.3, A1.A.1.1, A1.A.2.1                               |
| Module 2: Linear and Exponential Functions |                                    |                           |   |  |
| MVP Lesson                                 |                                    | MVP Type of Understanding | Description   | OAS-M  |
| 2.1  | Piggies and Pools                  | Develop                   | Introducing continuous linear and exponential functions                                   | A1.A.3.5, A1.A.3.6, A1.F.3.1, A1.F.3.2, A1.F.2.1, A1.F.1.3           |
| 2.2  | Shh! Please Be Discrete!           | Solidify                  | Connecting context with domain and distinctions between discrete and continuous functions | A1.A.3.5, A1.A.3.6, A1.F.2.1, PA.A.2.1, A1.A.4.3, A1.F.1.2,          |

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|------|---------------------------------|----------|---|--|
| 2.3  | Linear, Exponential, or Neither | Practice | Distinguishing between linear and exponential functions using various representations                   | A1.A.3.5, A1.A.3.6, A1.F.2.1, A1.F.1.3                               |
| 2.4  | Getting Down to Business        | Solidify | Comparing growth of linear and exponential models   | PA.A.2.1, A1.A.4.3, A1.A.3.5, A1.A.3.6, A2.A.1.7, A1.F.2.1, A1.F.1.3 |
| 2.5  | Making My Point                 | Solidify | Interpreting equations that model linear and exponential functions                                      | A1.A.4.3, A1.F.2.1, A1.A.4.3, PA.A.2.1                               |
| 2.6  | Form Follows Function           | Solidify | Building fluency and efficiency in working with linear and exponential functions in their various forms | PA.A.2.1, A1.A.4.3, A1.F.2.1, A1.A.4.3, A1.D.1.3                     |
| 2.7H | I Can't See You?                |          | Calculating and interpreting the average rate of change of a function in a given interval.              | A1.A.4.1   |

### Module 3: Features of Functions

| MVP Lesson |                                | MVP Type of Understanding | Description   | OAS-M   |
|------------|--------------------------------|---------------------------|---|---|
| 3.1        | Getting Ready for a Pool Party | Develop                   | Using a story context to graph and describe key features of functions                                     | A1.A.4.4  |
| 3.2        | Floating Down the River        | Solidify                  | Using tables and graphs to interpret key features of functions  | A1.A.4.4, A1.F.1.2, A1.A.4.1, A1.D.1.3, A2.F.1.8            |
| 3.3        | Features of Functions          | Practice                  | Working to achieve fluency with the identification of feature of functions from various representations   | A1.A.4.4, A1.F.1.2, A1.F.3.2, A1.D.1.3                      |
| 3.4        | The Water Park                 | Solidify                  | Interpreting functions and their notation   | A1.F.3.2, A1.A.4.4, A1.F.1.2, A1.F.1.3                      |
| 3.5        | Pooling it Together            | Solidify                  | Combining functions and analyzing contexts using functions  | A1.F.3.3, A2.F.2.1, A1.F.3.2, A1.A.4.4*, A1.F.1.2, A2.F.1.5 |
| 3.6        | Interpreting Functions         | Practice                  | Using graphs to solve problems when given function notation   | A1.F.3.3, A2.F.2.1, A1.F.3.2, A1.A.4.4*, A1.F.1.2, A2.F.1.5 |
| 3.7        | To Function or Not to Function | Practice                  | Identify whether or not a relation is a function given various representations                            | A1.F.1.1, A2.F.1.1, A1.A.3.5, A1.A.3.6                      |
| 3.8        | It's A Match                   | Assessment                | Matching stories, graphs and equations to assess how well you can connect features across representations | A1.A.4.4, A1.F.1  |

### Module 4: Equations and Inequalities

| MVP Lesson |  | MVP Type of Understanding | Description | OAS-M |
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| 4.1  | Cafeteria Actions and Reactions | Develop  | Explaining each step in the process of solving an equation      | A1.A.1.1           |
| 4.2  | Elvira's Equations              | Solidify | Rearranging formulas to solve for a variable                    | A1.A.1.1, A1.A.3.1 |
| 4.3  | Solving Equations Literally     | Practice | Solving literal equations                                       | A1.A.3.1           |
| 4.4  | Greater Than                    | Develop  | Reasoning about inequalities and the properties of inequalities | A1.A.2.1, 7A.3.2   |
| 4.5  | May I have More, Please?        | Solidify | Applying the properties of inequalities to solve inequalities   | A1.A.2.1           |
| 4.6  | Taking Sides                    | Practice | Solving linear inequalities and representing the solution       | A1.A.2.1           |
| 4.7H | Cafeteria Consumption and Cost  | Develop  | Organizing data into rectangular arrays or matrices             | A2.N.1.3           |
| 4.8H | Eating Up the Lunchroom Budget  | Solidify | Multiplying matrices  | A2.N.1.3           |
| 4.9H | The Arithmetic of Matrices      | Practice | Practice the arithmetic of matrices                             | A2.N.1.3           |

### Module 5: Systems of Equations and Inequalities

| MVP Lesson |  | MVP Type of Understanding | Description   | OAS-M                        |
|------------|--|---------------------------|---|------------------------------|
| 5.1        | Pet Sitters                            | Develop                   | An introduction to representing constraints with systems of inequalities    | A1.A.1.3, A1.A.2.1, A1.A.2.3 |
| 5.2        | Too Big or Not Too Big is the Question | Solidify                  | Writing and graphing linear inequalities in two variables                   | A1.A.2.1, A1.A.2.3           |
| 5.3        | Some of One, None of the Other         | Solidify                  | Writing and solving equations in two variables                              | A1.A.4.3, A1.F.2.1, PA.A.2.1 |
| 5.4        | Pampering and Feeding Time             | Practice                  | Writing and graphing inequalities in two variables to represent constraints | A1.A.2.1, A1.A.2.3           |
| 5.5        | All for One, One for All               | Solidify                  | Graphing the solution set to a linear system of inequalities                | A1.A.2.1, A1.A.2.3           |
| 5.6        | More or Less                           | Practice                  | Solving systems of linear inequalities and representing their boundaries    | A1.A.2.1, A1.A.2.3           |
| 5.7        | Get to the Point                       | Solidify                  | Solving systems of linear equations in two variables                        | A1.A.1.3                     |
| 5.8        | Shopping for Cats and Dogs             | Develop                   | An introduction to solving systems of linear equations by elimination       | A1.A.1.3                     |

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| 5.9   | Can you Get to the Point, Too? | Solidify | Solving systems of linear equations by elimination                                     | A1.A.1.3 |
| 5.1   | Taken Out of Context           | Practice | Working with systems of linear equations, including inconsistent and dependent systems | A1.A.1.3 |
| 5.11H | To Market with Matrices        | Develop  | An introduction to solving systems of linear equations using matrices                  | A1.A.1.3 |
| 5.12H | Solving with Matrices          | Solidify | Solving systems of linear equations using matrices                                     | A1.A.1.3 |

### Module 6: Transformations & Symmetry

| MVP Lesson |                                    | MVP Type of Understanding | Description   | OAS-M                        |
|------------|------------------------------------|---------------------------|---|------------------------------|
| 6.1        | Leaping Lizards                    | Develop                   | Developing the definitions of the rigid-motion transformations: translations, reflections and rotations               | GRL.1.1, G.2D.1.9            |
| 6.2        | Is It Right?                       | Solidify                  | Examining the slope of perpendicular lines  | G.RL.1.1, G.2D.1.9, G.2D.1.5 |
| 6.3        | Leap Frog                          | Solidify                  | Determining which rigid-motion transformations will carry one image onto another congruent image                      | G.2D.1.9                     |
| 6.4        | Leap Year                          | Practice                  | Writing and applying formal definitions of the rigid-motion transformations: translations, reflections and rotations- | G.RL.1.1, G.2D.1.9           |
| 6.5        | Symmetries of Quadrilaterals       | Develop                   | Finding rotational symmetry and lines of symmetry in special types of quadrilaterals                                  | G.2D.1.9, G.2D.1.4           |
| 6.6        | Symmetries of Regular Polygons     | Solidify                  | Examining characteristics of regular polygons that emerge from rotational symmetry and lines of symmetry              | G.2D.1.9, G.2D.1.3           |
| 6.7        | Quadrilaterals - Beyond Definition | Practice                  | Making and justifying properties of quadrilaterals using symmetry transformations                                     | G.2D.1.9, G.2D.1.4           |

### Module 7: Congruence, Construction, & Proof

| MVP Lesson |                                | MVP Type of Understanding | Description  | OAS-M  |
|------------|--------------------------------|---------------------------|--|--------|
| 7.1        | Under Construction             | Develop                   | Exploring compass and straightedge constructions to construct rhombuses and squares  | No OAS |
| 7.2        | More Things Under Construction | Develop                   | Exploring compass and straightedge constructions to construct parallelograms, equilateral triangles and inscribed hexagons | No OAS |

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| 7.3  | Can You Get There From Here?             | Develop                   | Describing a sequence of transformations that will carry congruent images onto each other             | G.2D.1.9   |
| 7.4  | Congruent Triangles                      | Solidify                  | Establishing the ASA, SAS and SSS criteria for congruent triangles                                    | G.2D.1.7, G.2D.1.8, G.2D.1.9                     |
| 7.5  | Congruent Triangles to the Rescue        | Practice                  | Identifying congruent triangles and using them to justify claims                                      | G.2D.1.8   |
| 7.6  | Justifying Constructions                 | Solidify                  | Examining why compass and straightedge constructions produce the desired results                      | No OAS   |
| <b>Module 8: Connecting Algebra &amp; Geometry</b> |  |                           |   |  |
|  | MVP Lesson                               | MVP Type of Understanding | Description   | OAS-M  |
| 8.1  | Go the Distance                          | Develop                   | Using coordinates to find distances and determine the perimeter of geometric shapes                   | G.2D.1.5, G.2D.1.6                               |
| 8.2  | Slippery Slopes                          | Solidify                  | Proving slope criteria for parallel and perpendicular lines   | G.2D.1.5   |
| 8.3  | Prove It!                                | Practice                  | Using coordinates to algebraically prove geometric theorems   | G.2D.1.5   |
| 8.4  | Training Day                             | Solidify                  | Writing the equation $f(t) = m(t) + k$ by comparing parallel lines and finding $k$                    | A1.F.2.1, A1.A.4.3, A1.A.3.5, A1.A.3.6, A1.F.1.3 |
| 8.5  | Training Day Part II                     | Practice                  | Determining the transformations from one function to another  | A1.F.2.2   |
| 8.6  | Shifting Functions                       | Practice                  | Translating linear and exponential functions using multiple representations                           | A2.F.1.2   |
| 8.7H   | The Arithmetic of Vectors                | Solidify                  | Defining and operating with vectors as quantities with magnitude and direction                        | PC.V.2.1   |
| 8.8H   | More Arithmetic of Matrices              | Solidify                  | Examining properties of matrix addition and multiplication, including identity and inverse properties | A2.N.1.3   |
| 8.9H   | The Determinant of a Matrix              | Solidify                  | Finding the determinant of a matrix and relating it to the area of a parallelogram                    | A2.N.1.3   |
| 8.10H  | Solving Systems with Matrices, Revisited | Solidify                  | Solving a system of linear equations using the multiplicative inverse matrix                          | A2.N.1.3   |
| 8.11H  | Transformations with Matrices            | Solidify                  | Using matrix multiplication to reflect and rotate vectors and images                                  | No OAS   |

| 8.12H                          | Plane Geometry         | Practice                  | Solving problems involving quantities that can be represented by vectors   | PC.V.2.4                   |
|--------------------------------|------------------------|---------------------------|--|----------------------------|
| <b>Module 9: Modeling Data</b> |                        |                           |  |                            |
| MVP Lesson                     |                        | MVP Type of Understanding | Description  | OAS-M                      |
| 9.1                            | Texting by the Numbers | Solidify                  | Use context to describe data distribution and compare statistical representations  | 6.D.1.3, 7.D.1.2, PA.D.1.2 |
| 9.2                            | Data Distribution      | Solidify/Practice         | Describe data distributions and compare two or more data sets  | 6.D.1.3, 7.D.1.2, PA.D.1.2 |
| 9.3                            | After School Activity  | Solidify                  | Interpret two way frequency tables   | No OAS                     |
| 9.4                            | Relative Frequency     | Solidify/Practice         | Use context to interpret and write conditional statements using relative frequency tables  | No OAS                     |
| 9.5                            | Connect the Dots       | Develop                   | Develop an understanding of the value of the correlation co-efficient  | PA.D.1.3                   |
| 9.6                            | Making More \$         | Solidify                  | Estimate correlation and lines of best fit. Compare to the calculated results of linear regressions and the correlation co-efficient | A1.D.1.2                   |
| 9.7                            | Getting Schooled       | Solidify                  | Use linear models of data and interpret the slope and intercept of regression lines with various units                               | A1.D.1.2                   |
| 9.8                            | Rocking the Residuals  | Develop                   | Use residual plots to analyze the strength of a linear model for data  | No OAS                     |
| 9.9                            | Lies and Statistics    | Practice                  | Use definitions and examples to explain understanding of correlation coefficients, residuals, and linear regressions                 | A1.D.1.2, A2.D.1.2         |