# CAR Unit Template

## Unit Title: Algebra 1 – Quadratic Modeling – Unit 3 - Module C

**Grade level:**

**Timeframe:**

## Essential Questions

## Standards

### Standards (Taught and Assessed):

 **F.IF.C.7** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more

 complicated cases.★ (modeling standard)

a. Graph linear and quadratic functions and show intercepts, maxima, and minima.

 **F.LE.A.3** Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically,

 or (more generally) as a polynomial function.

 **F.IF.C.8** Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph,

and interpret these in terms of a context.

 **F.IF.C.9** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal

 descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

 **F.BF.B.3.** Identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*, *k* *f*(*x*), *f*(*kx*), and *f*(*x* + *k*) for specific values of *k* (both positive and negative); find the value of *k* given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

**Key**: Major Cluster Supporting Cluster Additional Cluster

### Highlighted Career Ready Practices and 21st Century Themes/Skills

### Social-Emotional Learning Competencies

## Instructional Plan

Pre-Assessment and Reflection

| **Pre-Assessment** | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections** |
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Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

| **SLO – WALT****We are learning to/that** | **Student Strategies** | **Formative Assessment** | **Activities and Resources** | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections** |
| --- | --- | --- | --- | --- |
| **F.IF.C.7. - WALT** graph quadratic functions expressed symbolically and show intercepts, maxima or minima |  |  |  |  |
| **F.LE.A.3. – WALT** use graphs and tables to observe that a quantity that increases exponentially eventually exceeds a quantity that increases quadratically |  |  |  |  |
| **F.IF.C.8. - WALT** use the process of factoring in a quadratic function to show and interpret the zeros of the function in the context of the problem |  |  |  |  |
| **F.IF.C.8. - WALT** use the process of completing the square in a quadratic function to show extreme values and symmetry of the graph and interpret these in the context of the problem |  |  |  |  |
| **F.IF.C.9. - WALT** compare properties of two quadratic functions each represented in different ways (numerically, graphically, algebraically, or verbally) |  |  |  |  |
| **F.BF.B.3. - WALT** identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*, *k* *f*(*x*), *f*(*kx*), and *f*(*x* + *k*) for specific values of *k*, and illustrate an explanation of the effects on the graph using technology |  |  |  |  |
| **F.BF.B.3. - WALT** identify the effect on the graph of quadratic functions by replacing *f*(*x*) by *kf*(*x*) and *f*(*kx*) for specific values of *k*, and illustrate an explanation of the effects on the graph using technology |  |  |  |  |
| **F.BF.B.3. - WALT** find the value of *k* given graphs of quadratic functions |  |  |  |  |
| **F.BF.B.3. - WALT** experiment with all cases, *f*(*x*) + *k*, *f*(*x* + *k*), *kf*(*x*) and *f*(*kx*), and illustrate an explanation of the effects on the graph using technology |  |  |  |  |
| **F.BF.B.3. - WALT** recognize even and odd functions from their graphs and algebraic expressions for them |  |  |  |  |

Benchmark Assessment 1

| **Benchmark Assessment** | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections**  |
| --- | --- |
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Benchmark Assessment 2

| **Benchmark Assessment**  | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections** |
| --- | --- |
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Summative Assessments (add rows as needed)

| **Summative Assessment**  | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections** |
| --- | --- |
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Interdisciplinary Connections

| **Interdisciplinary Connections** | **Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections** |
| --- | --- |
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