Algebra 1 Unit Plan

Unit 3: Quadratic Functions and Relationships

January to February

ORANGE PUBLIC SCHOOLS

OFFICE OF CURRICULUM AND INSTRUCTION

OFFICE OF MATHEMATICS

Contents

Curriculum Map

A STORY OF UNITS											
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Alg1 Tier 1/2	QUANTITAIVE RELATIONSHIPS, GRAPHS,		LINEAR EQUATIONS, INEQUALITIES, FUNCTION	QUADRATIC RELATIONSHIPS AND FUNCTION		SOLVING QUADRATIC EQUATION		SEQUENCE AND EXPONENTIAL FUNCTION			
	Identify types of function with graphs and tables		Creating linear functions/equations and inequalities to model situation given and solve the problems	Identify quadratic functions, find key features for their graphs		Sove quadratic equations by graph, table, & algebraically		Identify exponential function, use the function to model situation given and solve problems			

Unit Overview

Unit 3: Quadratic Functions and Relationships

Essential Questions

- How are quadratic functions represented in real life situations?
- What are the different forms of a quadratic function?
- What are key characteristics of a quadratic function?
- How do you write and graph a quadratic function?

Enduring Understandings

- The graph of a quadratic function is a parabola. Parabolas are symmetric and contain a vertex.
- A quadratic function can be written in standard form, factored form, or vertex form.
- The second differences of values from a quadratic relationship are constant.
- The parent function of a quadratic is $f(x) = x^2$, and from there you can have a translation, a dilation, or a reflection.

Common Core State Standards

1) N.Q.1: Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
2) N.Q.2: Define appropriate quantities for the purpose of descriptive modeling.
3) N.Q.3: Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
4) A.REI.10: Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
5) A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
6) F.IF.2: Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
7) F.IF.5: Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*[*]
8) F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima.
9) F-IF-4: For a function that models a relationship between two quantities, and sketch graphs showing key features given a verbal description of the relationship.
10) F-IF-9: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
11) F-IF-6: Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
12) F.BF.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.
13) F.BF.1: Write a function that describes a relationship between two quantities.

M : Major Content S: Supporting Content A : Additional Content

21st Century Career Ready Practice:

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

Calendar

January 2019						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
		1	2	*3*	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

February 2019						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	*4*	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

Algebra 1 Unit 3
Assessment Framework

Formative and Summative Assessments						
Assessment	CCSS	Estimated Time	Date	Format	SAP	Graded
Diagnostic/Readiness Assessment *Unit 3 Diagnostic (In Supplemental Resources on Dropbox)*		½ Block	12/9/14 or when reviewing Unit 2 Exam	Individual	No	Yes (zero weight)
Assessment Checkup		½ Block	1/7/15 or after Lesson 4	Individual	No	Yes
Unit 3 Assessment	All	1 Block	1/22/15	Individual		Yes

Authentic Assessments						
Assessment	CCSS	Estimated Time	Date	Format	SAP	Graded
Pen Problem		1 Block	12/10/14 or as Lesson 1	Pair, or group	No	Optional
Handshake Problem		1 Block	12/11/14 or as Lesson 1	Pair, or group	No	Optional
Parabola project		Varies	In/out of class throughout the unit and 1/14/15	Individual	No	Yes
Who's baseball is higher	A.CED.2, F.IF.4, 7	1 block	1/14/15	Individual	Yes	Yes
Reasoning Task	TBD	1 block	1/20/15	Pair	Yes	Yes

Algebra 1 Unit 3

Scope and Sequence

Overview		
Lesson	Topic	Suggesting Pacing
1	CL 11.1: Exploring quadratic functions	3 days
2	CL 11.2: Comparing linear and quadratic functions	3 days
3	CL 11.3: Domain, range, zeros, and intercepts	3 days
4	CL 11.4: Factored form of a quadratic function	2 days
5	CL 11.5: Investigating the vertex of a quadratic function	2 days
6	CL 11.6: Vertex form of a quadratic function	3 days
7	Parabola Project	1 day
8	CL 11.7: Transformations of quadratic functions	2 days
9	Performance task	1 day
10	Review	1 day

Summary:

18 days on new content (7 lessons/topics)
1 reflection day
1 project day
1 task day
1 review day
1 test day
1 flex day

24 days in Unit 3

Lesson 1: Exploring quadratic functions

Objectives

- After persevering through several rich tasks, students will describe and represent a quadratic relationship in several different ways by scoring ____ out of ____ on a SMP classwork rubric.

Focused Mathematical Practices

- MP 1: Make sense of problems and persevere in solving them
- MP 2: Reason abstractly and quantitatively
- MP 4: Model with mathematics
- MP 5: Use appropriate tools strategically (use the models provided)
- MP 7: Look for and make use of structure

Vocabulary

- Quadratic, parabola, standard form (of a quadratic function)

Common Misconceptions

- Students may struggle with determining the function for a quadratic relationship and use similar approaches for doing so with linear functions. Students will have to rely on sense-making of the problem and understanding structure of expressions and equations

Lesson Clarifications

- Suggested outline:
  - Day 1 is the pen problem
  - Day 2 is the handshake task
  - Day 3 students will investigate standard form with a graphing calculator and make conclusions about the effect of a on a graph (teacher may need to supplement with additional materials)
- Variations of the pen problem and handshake task are widely known. Teachers are encouraged to collaborate and co-plan with one another about best practices for doing these lessons.

CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
F-IF-4: For a function that models a relationship between two quantities, and sketch graphs showing key features given a verbal description of the relationship. A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F-IF-9: Compare properties of two functions each represented in a	***Review*** • A relationship between two quantities can be represented in many ways ***New*** • Quadratic relationships have characteristics that differ from linear • Graphs of quadratics are called parabolas, and have a maximum or minimum point • The value of a in a quadratic function determines its concavity and creates a vertical stretch/shrink	***Review*** • Create a table of values given a verbal description • Graph a table of values • Determine domain of a function in a context ***New*** • Create and graph a quadratic function given a context • Interpret key features of a quadratic graph and explain their meaning in the context of the problem they represent • Determine max or min value of a quadratic graph using a calculator • Determine a, b, c in	CL ST 11.1	3 days	CL SA 11.1

different way (algebraically, graphically, numerically in tables, or by verbal descriptions). N.Q.1: Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. N.Q.2: Define appropriate quantities for the purpose of descriptive modeling. F.IF.5: Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**		standard form • Determine if a parabola is concave up or down, and if it is "wide or narrow" by looking at the value of a			

Lesson 2: Comparing linear and quadratic functions

Objectives

- After comparing linear and quadratic functions, students will calculate and interpret the rate of change of a quadratic function with ____ out of ___ parts answered correctly on an exit ticket.

Focused Mathematical Practices

- MP 2: Reason abstractly and quantitatively
- MP 3: Construct viable arguments and critique the reasoning of others
- MP 8: Look for and express regularity in repeated reasoning

Vocabulary

- Leading coefficient
- Second differences

Common Misconceptions

- Students may struggle with the idea of finding rate of change for a quadratic relationship since it is not constant

Lesson Clarifications

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CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
F-IF-6: Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	***Review*** • The rate of change of a linear function is constant ***New*** • The first differences of a linear function are the same and the second differences of a quadratic function are the same	***Review*** • Calculate the rate of change of a linear function ***New*** • Calculate the rate of change of a quadratic function • Determine first and second differences of a quadratic function	CL ST 11.2	3 days	

Lesson 3: Domain, range, zeros, and intercepts

Objectives

- After exploring a vertical motion model, students will analyze (describe domain/range, interpret intercepts) a quadratic function in a context with ___ out of ___ parts answered correctly on an exit ticket.

Focused Mathematical Practices

- MP 2: Reason abstractly and quantitatively (use numerical examples to reason how combining like terms works with variables)
- MP 3: Construct viable arguments and critique the reasoning of others
- MP 6: Attend to precision (use correct vocabulary and require students to do the same)
- MP 7: Look for and make use of structure

Vocabulary

- Vertical motion model, zeros, interval, open interval, closed interval, half-closed interval, half-open interval

Common Misconceptions

Lesson Clarifications

- Students should be exposed to interval and interval notation, but it is not the main focus of the lesson and instructional time should reflect this

CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F.IF.5: Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.** F-IF-4: For a function that models a relationship between two quantities, and	***Review*** • For functions and graphs that model a problem in a context, their key characteristics represent specific values of that problem ***New*** • The x-intercepts of a quadratic function are also called zeros • Quadratic functions have intervals in which they are increasing and decreasing	***Review*** • Describe the domain of a quadratic function in a context • Interpret key features of a quadratic graph and explain their meaning in the context of the problem they represent • Determine the y-intercept of a function • Graph a quadratic function ***New*** • Determine the domain and range of a quadratic function • Determine the x-intercepts of a quadratic function using the calculator	CL ST 11.3	3 days	

sketch graphs showing key features given a verbal description of the relationship. F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima.					

Lesson 4: Factored form of a quadratic function

Objectives

- After making sense of a problem about revenue, students will create and graph a quadratic function in factored form with ___ out of ___ questions answered correctly on an exit ticket.

Focused Mathematical Practices

- MP 1: Make sense of problems and persevere in solving them
- MP 2: Reason abstractly and quantitatively (use numerical examples to reason how the distributive property works with variables)
- MP 4: Model with mathematics
- MP 5: Use appropriate tools strategically

Vocabulary

- Factor, factored form

Common Misconceptions

- Identifying that the zeros are the opposite of the r1 and r2 seen in the factored form of a quadratic function

Lesson Clarifications

- Supplement lesson with Revenue task (Dropbox folder: Supplemental Material)

CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F-IF-4: For a function that models a relationship between two quantities, and sketch graphs showing key features given a verbal description of the relationship. F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima.	***Review*** • For functions and graphs that model a problem in a context, their key characteristics represent specific values of that problem • The x-intercepts of a quadratic function are also called zeros ***New*** • Quadratic functions can be written in several different but equivalent forms	***Review*** • Interpret key features of a quadratic graph and explain their meaning in the context of the problem they represent • Determine the y-intercept of a function • Determine the x-intercepts of a quadratic function using the calculator • Graph a quadratic function ***New*** • Write a quadratic function in factored form from a context	CL ST 11.4	2 days	

Lesson 5: Investigating the vertex of a quadratic function

Objectives

- After investigating a quadratic function in a context, students will determine the vertex of a quadratic function and understand its relationship to its graph with ___ out of ____ answered correctly on the exit ticket

Focused Mathematical Practices

- MP 2: Reason abstractly and quantitatively (when explaining why a certain input-output table cannot have a rule)
- MP 8: Look for and express regularity in repeated reasoning

Vocabulary

- Vertex, axis of symmetry

Common Misconceptions

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Lesson Clarifications

- At the end of the lesson, introduce formula for vertex and axis of symmetry.

CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima.	***Review*** • Parabolas are symmetric and have a maximum or minimum point ***New*** • The maximum or minimum point of a parabola is the vertex of that function • The x coordinate of the vertex, is the axis of symmetry • The x value of the vertex can be found by finding the midpoint of any two symmetry points	***Review*** • Graph a quadratic function ***New*** • Determine the vertex of a quadratic function	CL ST 11.5	2 days	

Lesson 6: Vertex form of a quadratic function

Objectives

- After investigating graphs of quadratic functions in several forms, students will create and graph a quadratic function in vertex form with ___ out of ___ questions answered correctly on an exit ticket.
- After learning about the 3 forms of a quadratic function, students will compare characteristics of quadratic functions given in different representations with ___ out of ___ parts answered correctly on an exit ticket.

Focused Mathematical Practices

- MP 2: Reason abstractly and quantitatively
- MP 5: Use appropriate tools strategically
- MP 7: Look for and make use of structure

Vocabulary

- Vertex form

Common Misconceptions

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Lesson Clarifications

- Suggested outline:
  - Day 1 is pgs 662-667 plus supplement with *Writing Quadratics tasks* (Dropbox folder: Supplemental Material)
  - Day 2 is pgs 668-671
  - Day 3 is pgs 672-673 plus supplement with the two *comparing quadratics tasks* (Dropbox folder: Supplemental Material)
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CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima. F-IF-9: Compare properties of two	***Review*** • Quadratic functions can be written in several different but equivalent forms ***New*** •	***Review*** • Graph a quadratic function ***New*** • Write and graph a quadratic function in vertex form (given vertex and a point) • Compare characteristics of quadratic functions represented ways	CL 11.6 Tasks located in "Supplemental Material" folder on Dropbox	3 days	

functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).					

Lesson 7: Performance task and Parabola project

Objectives

- Through a parabola project, students will write and graph a quadratic function in several forms by earning at least ___ out of ___ on a rubric

Focused Mathematical Practices

- MP 1: Make sense of problem and persevere in solving them
- MP 4: Model with mathematics
- MP 5: Use appropriate tools strategically
- MP 7: Look for and make use of structure

Vocabulary

Common Misconceptions

Lesson Clarifications

- One this day, spend ~50 minutes having students take the performance task and the remainder of class having students finish their parabola project
- The majority of this project should be done outside of class and during the holiday break. The pacing calendar has suggested days for when to do this project in class.
- Day 1 – introduce the project, give to students before they leave for the holiday break
- Day 2 – Revisit the project, students should know by now what they are going to make their parabola model
- Day 3 – Give students some time during class to make final adjustments to their project

CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F.IF.7a: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* Graph linear and quadratic functions and show intercepts, maxima, and minima.	***Review*** • For functions and graphs that model a problem in a context, their key characteristics represent specific values of that problem • Quadratic functions can be written in several different but equivalent forms ***New***	***Review*** • Interpret key features of a quadratic graph and explain their meaning in the context of the problem they represent • Determine the y-intercept of a function • Determine the x-intercepts of a quadratic function using the calculator • Graph a quadratic function • Write a quadratic function in all three forms ***New*** •	Parabola project Who's baseball is higher task (located in SR on dropbox)	1 day	

Lesson 8: Transformations of quadratic functions

Objectives

- By investigating how a graph, f(x), transforms when it is replaced with $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$, students will describe transformations of functions by answering at least ___ out of ___ questions correctly on an exit ticket.

Focused Mathematical Practices

- MP 3: Construct viable arguments and critique the reasoning of others (when determining the domain from a problem situation)
- MP 6: Attend to precision (use correct vocabulary and require students to do the same)

Vocabulary

- Vertical dilation, dilation factor, translation, reflection

Common Misconceptions

Lesson Clarifications

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CCSS	**Concepts** What students will know	**Skills** What students will be able to do	Material/ Resource	Suggested Pacing	Assessment Check Point
F.BF.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.	***Review*** • A quadratic function can be written in many different but equivalent forms. ***New*** • Replacing $f(x)$ by $f(x) + k$ causes a vertical translation • Replacing $f(x)$ by $f(x + k)$ causes a horizontal translation Replacing $f(x)$ by $k\,f(x)$ and $f(kx)$ causes a dilation	***Review*** • Write and graph quadratic functions ***New*** • Compare the graph of a quadratic function to its parent function	CL ST 11.7	2 days	

Ideal Math Block

The following outline is the department approved ideal math block for grades 9-12.

1) Do Now (7-10 min)
    a. Serves as review from last class' or of prerequisite material
    b. Provides multiple entry points so that it is accessible by all students and quickly scaffolds up

2) Starter/Launch (5 min)
    a. Designed to introduce the lesson
    b. Uses concrete or pictorial examples
    c. Attempts to bridge the gap between grade level deficits and rigorous, on grade level content
    d. Provides multiple entry points so that it is accessible by all students and quickly scaffolds up

3) Mini-Lesson (15-20 min)
    a. Design varies based on content
    b. May include an investigative approach, direct instruction approach, whole class discussion led approach, etc.
    c. Includes CFU's
    d. Anticipates misconceptions and addresses common mistakes

4) Class Activity (25-30 min)
    a. Design varies based on content
    b. May include partner work, group work/project, experiments, investigations, game based activities, etc.

5) Independent Practice (7-10 min)
    a. Provides students an opportunity to work/think independently

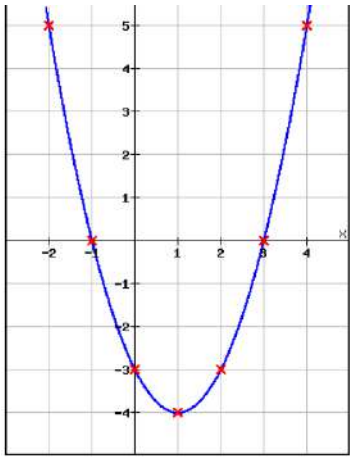
6) Closure (5-10 min)
    a. Connects lesson/activities to big ideas
    b. Allows students to reflect and summarize what they have learned
    c. May occur after the activity or independent practice depending on the content and objective

7) DOL (5 min)
    a. Exit ticket

Algebra 1 Unit 3

Multiple Representations

Quadratic function	
	Make connection between equations and graphs



Vertex: (**1**, **-4**) ---- minimum/maximum
Axis of symmetry --- x = **1**
Vertex form: y = a(x-**h**)2 + **k**
y = a(x -**1**)^2 + **(-4)**

Zeros: x = **3** , x=**-1** ---- solutions/roots (*x-intercept*)
Factor form: y = a (x –**x_1**)(x-**x_2**)
y = a (x -**3**)(x- **-1**)

y-intercept: (0, ***-3***)
Standard form: y = ax^2 + bx + ***c***
y = ax2 + bx + ***(-3)***
a is a positive number (because the graph is upward)

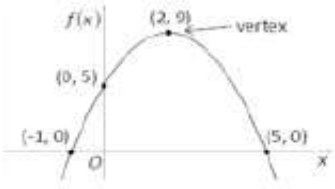
PARCC Sample Assessment Items

SAMPLE ITEM

High School	Functions
Type	Type I, Claim A
Most relevant	F-IF.9. Compare properties of two functions each represented in a

High School – Functions

A portion of the graph of a quardratic function $f(x)$ is shown in the xy - plane. Selected values of a linear function $g(x)$ are shown in the table.



x	g(x)
-4	7
-1	1
2	-5
5	-11

For each comparison below, use the drop-down menu to select a symbol that correctly indicates the realtionship betweeen the first and the second quantity.

First Quantity	Comparison	Second Quantity
The y-coordinate of the y-intercept $f(x)$		The y-coordinate of the y-intercept $g(x)$
$f(3)$		$g(3)$
Maximum value of $f(x)$ on the interval $-5 \le x \le 5$		Maximum value of $g(x)$ on the interval $-5 \le x \le 5$
$\frac{f(5) - f(2)}{5 - 2}$		$\frac{g(5) - g(2)}{5 - 2}$

Standard(s) for Mathematical Content	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. Also relies on knowledge and skills from the first cluster in F-IF ("Understand the concept of a function and use function notation").
Most relevant Standard(s) for Mathematical Practice	MP.6 (Attend to precision) - The task requires the student to parse a dense set of statements involving formal language (e.g., "the y-coordinate of the y-intercept of g(x)").
Item description and assessment qualities	This task requires an understanding of the function concept across representations, as well as a number of basic skills in functions. The multi-part nature of the task allows for greater depth of comparison between the two functions than a one-point item would. Unlike traditional multiple choice, it is difficult to guess the correct answer or use a choice elimination strategy.
Scoring	Full credit requires selecting the correct values from all of the drop-down menus. Partial credit can be given for each answer that is correct.

Appendix A – Acronyms

#	Acronym	Meaning
1	AA	Authentic Assessment
2	AM	Agile Minds
3	AR	Additional Resources
4	CCSS	Common Core State Standards
5	CFU	Check for understanding
6	CL	Carnegie Learning
7	CL SA	Carnegie Learning Student Assignments
8	CL SP	Carnegie Learning Skills Practice
9	CL ST	Carnegie Learning Student Text
10	EOY	End of Year (assessment)
11	MP	Math Practice
12	MYA	Mid-Year Assessment (same as PBA)
13	PBA	Problem Based Assessment (same as MYA)
14	PLD	Performance Level Descriptors
15	SAP	Student Assessment Portfolio
16	SMP	Standards for Mathematical Practice