

Draft Mathematics Extensions  
for Aligning the New York State Alternate Assessment (NYSAA)  
to the Common Core State Standards (CCSS)

HIGH SCHOOL



## **Career Development and Occupational Studies (CDOS) skills crosswalk to the New York State Alternate Assessment (NYSAA) Essence statements and Extensions**

Career Development: Knowledge about the world of work, career options, personal skills, and abilities relating to future career decisions. For example,

- Understand and apply decision-making, based on interpretation of information from equations to personal interest and career choice (wages earned, depending on level of education),

Integrated Learning: Application of academic knowledge and skills to school, community and home settings. For example:

- Apply ability to create equations to address issues in an occupational setting (what amount of materials are needed to construct a small structure, what amount of voltage can be accommodated by a generator).

Universal Foundation Skills: Foundation skills and competencies necessary for success in the workplace. For example:

- Basic skills: Understand concepts of equations, so they can create an equation (When doubling a recipe, how much of each ingredient is needed?).
- Thinking skills: Use skills to compute solutions to real-world situations (How much will be earned when working at an overtime rate?).
- Technology: Use appropriate technology when solving complex equations (calculator).
- Managing Information: Use equations/inequalities to help make decisions (compares the results of survey findings).

# Mathematics – High School

CCSS Domain: Interpreting Functions		Page(s): 58
CCSS Code	Cluster (including Standard(s) within the Cluster)	Essence of Cluster
<b>F-IF</b>	<p><b>Interpret functions that arise in applications in terms of the context.</b></p> <p>4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i></p> <p>5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function <math>h(n)</math> gives the number of person-hours it takes to assemble <math>n</math> engines in a factory, then the positive integers would be an appropriate domain for the function.</i></p> <p>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.</p>	Interpret the key features of functions in terms of the context.
<b>Extensions</b>		
<div style="display: flex; justify-content: space-between; align-items: center;"> <span><b>Less Complex</b></span> <span>◀ ⋯ ⋯ ⋯ ⋯ ⋯ ▶</span> <span><b>More Complex</b></span> </div>		
Complete a function table (e.g., fill in the input/output information).	Identify features on a linear graph.	Identify functions as positive or negative on given graph(s).
<b>Assessment Tasks</b>		
<ul style="list-style-type: none"> <li>The student will complete a function table.</li> </ul>	<ul style="list-style-type: none"> <li>The student will identify features of a linear graph. (<i>e.g., axes, point where <math>x</math> and <math>y</math> axes intersect, two variables increasing at constant rate, etc.</i>)</li> </ul>	<ul style="list-style-type: none"> <li>The student will identify functions as a positive or negative on a given graph(s).</li> <li>Given multiple graphs of functions, the student will identify the positive functions.</li> <li>Given multiple graphs of functions, the student will identify the negative functions.</li> </ul>

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Career Development: Knowledge about the world of work, career options, personal skills, and abilities relating to future career decisions. For example,

- Understand the differences between full-time/ part-time work and the relationship to wages earned.

Integrated Learning: Application of academic knowledge and skills to school, community and home settings. For example:

- Use skills learned across a variety of settings (purchasing additional items at a grocery store will increase the cost of the bill).

Universal Foundation Skills: Foundation skills and competencies necessary for success in the workplace. For example:

- Math: Understand concepts of quantity (more/less when measuring quantities; doubling a recipe).
- Managing Information: Use information from a graph to make decisions (i.e. compare the price of similar items; using a bus schedule-select the proper bus to take to get to work on time).

DRAFT

# Mathematics – High School

CCSS Domain: Expressing Geometric Properties with Equations		Page(s): 66
CCSS Code	Cluster (including Standard(s) within the Cluster)	Essence of Cluster
<b>G-GPE</b>	<p><b>Use coordinates to prove simple geometric theorems algebraically</b></p> <p>4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point <math>(1, \sqrt{3})</math> lies on the circle centered at the origin and containing the point <math>(0, 2)</math>.</p> <p>5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</p> <p>6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</p> <p>7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.</p>	<p>Algebraically prove simple geometric concepts, using coordinates.</p> <p>Be able to calculate perimeter and area of a triangle or rectangle using coordinates.</p>
Extensions		
Less Complex		More Complex
Identify geometric shapes and/or concepts located on a coordinate grid. <i>(For example, identify parallel or perpendicular lines from a set of choices.)</i>	Determine the characteristics of geometric shapes and/or lines located on a coordinate grid. <i>(For example, specify why, in a group of shapes, some shapes are squares.)</i>	Compute the perimeter and/or area of a geometric shape located on a coordinate grid. <i>(For example, find the area of a rectangle using the distance between points.)</i>
Assessment Tasks		
<ul style="list-style-type: none"> <li>The student will identify geometric shapes and/or concepts located on a coordinate grid.</li> <li>The student will identify geometric shapes on a coordinate grid (e.g., triangle, rectangle, etc.).</li> <li>The student will identify geometric concepts on a coordinate grid (e.g., parallel lines, perpendicular lines, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>The student will determine the characteristics of geometric shapes and/or lines located on a coordinate grid.</li> <li>The student will determine the characteristics of geometric shapes located on a coordinate grid.</li> <li>The student will determine the characteristics of lines located on a coordinate grid.</li> </ul>	<ul style="list-style-type: none"> <li>The student will compute the perimeter and/or area of a geometric shape located on a coordinate grid.</li> <li>The student will compute the area of a square or rectangle, on a coordinate grid, where all sides are parallel to an axis (e.g., geo-board, graph, etc.).</li> <li>The student will compute the perimeter of a square or rectangle, on a coordinate grid, where all sides are parallel to an axis.</li> </ul>

## **Career Development and Occupational Studies (CDOS) skills crosswalk to the New York State Alternate Assessment (NYSAA) Essence statements and Extensions**

Career Development: Knowledge about the world of work, career options, personal skills, and abilities relating to future career decisions. For example,

- Use the knowledge gained about characteristics of shapes to identify the characteristics a various careers.

Integrated Learning: Application of academic knowledge and skills to school, community and home settings. For example:

- Apply the ability to calculate area and perimeter when solving problems (measuring room size for a carpet, how much furniture will fit in an area, how much fence is needed for a back yard).

Universal Foundation Skills: Foundation skills and competencies necessary for success in the workplace. For example:

- Basic skills: Understand concepts of geometric shapes when conveying information or solving mathematical problems (purchasing equipment to house different objects, such as a television stand).
- Thinking skills: Use knowledge of coordinates to interpret and use maps.
- Technology: Use an appropriate software program to solve a problem (designing a bathroom remodel, arrange icons on a communication board)
- Managing Information: Use knowledge about shapes and characteristics of shapes in occupational settings (designing fabric patterns, assembling various components to complete a work task).



<ul style="list-style-type: none"> <li>• The student will determine the appropriate unit of measure to solve a problem (e.g., when baking a cake the student will choose what unit will be used from a set of choices).</li> <li>• The student will choose the appropriate unit when measuring, given characteristics (e.g., choose what unit should be used to measure the height of a table).</li> <li>• The student will identify the picture of the appropriate unit of measure used to buy an item.</li> <li>• The student will match the appropriate tool of measure to the item being measured from a set of pictures.</li> </ul>	<ul style="list-style-type: none"> <li>• The student will understand when and/or why to select units based on appropriate levels of precision.</li> <li>• The student will choose the appropriate weight unit (5 lb. weight, 10 1 oz. weights, a pencil, a block, etc.) to put on a balance scale to balance an object.</li> <li>• The student will choose the appropriate length or height unit to measure real life situations (e.g., feet, inches, centimeters, meters, etc.).</li> <li>• The student will solve a real-world problem requiring a unit of capacity measure (e.g., A recipe needs flour and sugar to bake a small cake. Should the baker use a cup or a gallon pack to measure the flour and sugar?).</li> </ul>	<ul style="list-style-type: none"> <li>• The student will solve problems involving conversion of units (e.g., feet to inches, hours to minutes, pounds to ounces, gallons to pints, etc.).</li> <li>• The student will solve word problem(s) converting monetary units (e.g., John has \$1.00 and needs quarters to play a video game. How many quarters will he get for his \$1.00?).</li> </ul>
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Career Development: Knowledge about the world of work, career options, personal skills, and abilities relating to future career decisions. For example,

- Understand the appropriate units of money to influence career choice in a career plan.

Integrated Learning: Application of academic knowledge and skills to school, community and home settings. For example:

- Use skills learned to calculate time requirements of various occupations.
- Integrate conversion skills into personal or work life (converting dollars, converting mileage).

Universal Foundation Skills: Foundation skills and competencies necessary for success in the workplace. For example:

- Basic skills: Understand and use conversion skills to solve mathematical problems (which unit is most appropriate when planning a trip, ordering lumber when planning a project, best units to use to double a recipe).
- Thinking skills: Use conversion to determine appropriate work schedules (How many work hours should be included in a typical work week?).
- Managing resources: How much money should be divided into change for a trip to a video arcade?
- Managing Information: Use information about conversions to make decisions (when given two days to complete several tasks, how many hours should be allocated to each task?).

# Mathematics – High School

CCSS Domain: Interpreting Categorical and Quantitative Data		Page(s): 69
CCSS Code	Cluster (including Standard(s) within the Cluster)	Essence of Cluster
<b>S-ID</b>	<p><b>Summarize, represent, and interpret data on a single count or measurement variable</b></p> <ol style="list-style-type: none"> <li>1. Represent data with plots on the real number line (dot plots, histograms, and box plots).</li> <li>2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</li> <li>3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</li> <li>4. Use the mean and standard deviation of a data set to fit in to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</li> </ol>	Use statistical methods to represent and interpret data on a graph (dot plots, histograms and box plots).
Extensions		
Less Complex		More Complex
Identify given data on a graph.	Create a histogram, dot plot, or box plot based on data. <i>(For example, student places data into a histogram.)</i>	Interpret data displayed on a histogram(s), dot plot(s), or box plots(s). <i>(For example, answer questions on two related graphs about the most common lunch choice.)</i>
Assessment Tasks		
<ul style="list-style-type: none"> <li>• The student will identify given data on a graph.</li> <li>• The student will select which graph represents given data.</li> <li>• The student will identify the mean and/or outlier on a box plot.</li> </ul>	<ul style="list-style-type: none"> <li>• The student will create a histogram, dot plot, or box plot, based on data.</li> <li>• The student will create a graph based on the data (e.g., use manipulatives, Cuisenaire rods, etc.) to create a histogram, dot plot or box plot from given data.</li> <li>• The student will convert data from one type of graph to a histogram, dot plot or box plot.</li> </ul>	<ul style="list-style-type: none"> <li>• The student will interpret data displayed on a histogram(s), dot plot(s), or box plot(s).</li> <li>• The student will compare specific data from two related graphs.</li> <li>• The student will answer a set of questions about data presented in a graph (e.g., What is the median and /or outliers of data in a graph?).</li> </ul>

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Career Development: Knowledge about the world of work, career options, personal skills, and abilities relating to future career decisions. For example,

- Identify the mean number of hours worked per week for various occupations.
- Identify the frequency of a particular career choice of a specified segment of the population from a graph.
- Create a graph of career choices of peers.

Integrated Learning: Application of academic knowledge and skills to school, community and home settings. For example:

- Use skills learned across a variety of settings (when given a graph about specific employers, students can answer given questions about the employer or occupation).

Universal Foundation Skills: Foundation skills and competencies necessary for success in the workplace. For example:

- Basic skills: Understand the use of a graph to convey information about career choices, mean salaries.
- Thinking skills: Identify an outlier when researching starting salaries in a geographic area.
- Technology: Use appropriate software to calculate means when analyzing a set of information.
- Managing Information: Use statistical information, in a graph, to organize and communicate information to others (a report on local employers about participation in internship programs).
- Managing Resources: Create a graph to illustrate salary and material requirements over time to complete a project.