Curriculum Sample Template

Max. 8 Pages

Grade Level	9th Grade	**Content Area**	Math
Course Title (grades 9-12 Only)	Algebra		
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	• Students understand how to work in precision partnerships effectively. • Students know how to use their math journals effectively. • Students are familiar with, and have used, the 8 CCSS Mathematical Practices. • Students will have mastered basic graphing principles. • Students will be familiar with the rules of solving inequalities, and the meaning of the symbols of inequalities.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	This unit is built on the framework of the SIOP Model and incorporates all 8 of the SIOP Model components. Sentence framing and precision partnering are instructional strategies which promote the use and mastery of academic language. Instructional technology is incorporated by teacher and students. The core curriculum is implemented with fidelity.		
Standard Number and Description *List the Number* and the full description for the Required Standard or Science Performance Objective listed in section A.6.*	Algebra Domain: Reasoning with Equations and Inequalities Standard: #12: Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.		
Materials/Resources Needed	Chrome Books SMART Board Graphing White Boards		

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed)	**Instructional Strategies**	**Student Activities**
1	**Vocab:** **Linear Inequalities** • Teacher guides student pairs through graphing linear equations, reasoning about models and interpreting inequalities. • Teacher prompts students to shade half-planes for each linear model. • Teacher provides and collects an exit ticket to be used for intervention the following day.	• Students add vocabulary definitions, pictures, and sentences/examples into their vocabulary journals. • Students will graph the linear equation form of the line with their precision partners on graphing white boards. • Students will reason with partners and write a brief description of the model including in their description their interpretation of the slope and y-intercept for the line. • Students will discuss the meaning of the inequality symbol that is included in the given algebraic models. • In their precision partners students will shade the half plane for the linear inequality on their graph based on their interpreted meanings. • Students will summarize the overall meaning of their graphic model including the shaded half planes. • Students will complete a formative 'exit ticket' to demonstrate their understanding of graphing linear inequalities.
2	• Teacher allows students to complete bell ringer and pulls selected students to provide intervention based on the students' exit tickets from previous day. • Teacher will pose questions related to the boundaries of a linear graphical model and review methods used to identify domain and range. • Teacher will pose questions regarding selected points and require students to provide evidence to support whether the points are solutions or not algebraically, and justify how two additional points are solutions to the inequality model. • Teacher will provide practice for students to	• Students complete bell ringer activity related to previous day's tasks involving graphing of linear inequalities. • Students will work with precision partners to determine and define the boundaries for each given situation and model. • Students will write a brief description for each model to summarize the boundaries in relation to the situations. • Students will work independently to prove algebraically that the teachers point is or is not a solution to the model. • Students will work in pairs to evaluate their algebraic methods and justify two solution points using either algebraic methods or visual justification. • Students complete practice activity.

	manipulate and graph linear inequalities. • Teacher will monitor student's practice work, check for understanding, and provide intervention to individual students as needed. • Teacher will provide and collect an exit ticket to be used for intervention the following day.	• Students will complete a formative 'exit ticket' to demonstrate their understanding of identifying and interpreting the boundaries of a linear inequality graphical model.
3	**Vocab:** **Systems of Linear Inequalities** • Teacher allows students to complete bell ringer and pulls selected students to provide intervention based on the students' exit tickets from previous day. • Teacher shares the Dan Meyer Algebra 1 Week 20 slide 33-39 in Power Point (Makes Money Diagram to Employee happiness Diagram). • Teacher guides student pairs through graphing linear equations, reasoning about models and interpreting inequalities. • Teacher prompts students to shade half-planes for each linear model. • Teacher provides and collects exit ticket to be used for intervention the following day.	• Students add vocabulary definitions, pictures, and sentences/examples into their vocabulary journals. • Students will complete bell ringer activity related to previous days tasks involving graphing of linear inequalities and defining the boundaries of the models. • Students add vocabulary definitions, pictures, and sentences/examples into their vocabulary journals. • Students will graph the linear equation form of the linear system with their precision partners on graphing white boards. • Students will reason with partners and write a brief description of the Dan Meyer model that has been graphed related to the situation. • Students will discuss the meaning of the inequalities that are included in the given algebraic models. • In their precision partners students will shade the half plane for both of the linear inequalities on their graph based on their interpreted meanings. • Students will summarize the overall meaning of their graphic model including the shaded half planes and their evaluation of the solution region for the system. • Students complete a formative ‘exit ticket’ to demonstrate their understanding of graphing systems of linear inequalities and interpreting the solution region.
4	• Teacher allows students to complete bell ringer and pulls selected student to provide intervention based on the students exit tickets from previous day. • Teacher will set up stations for students to review	• Students will evaluate their understanding of the essential concepts from the previous days lessons based on their exit tickets, bell ringers, and activities completed. The will identify and write a goal for any concept that is not yet at

	concepts and build understanding. Stations will include a station where students will use the Chromebooks to graph using the plotting tool from Quick Math at http://www.quickmath.com/webMathematica3/quickmath/graphs/inequalities/basic.jsp, and a station that involves the application of a word problem related to real life, and a final station that includes the opportunity for students to interpret the meaning of the regions shaded in a system of equations. • Teacher will establish heterogeneously selected groups to work collaboratively at stations based on previous days exit slip and needs for intervention. • Teacher will monitor class productivity and level of understanding by rotating around each station periodically and checking for understanding. • Teacher will debrief the whole-class on any station(s) that proved challenging to many groups. • Teacher will collect tasks results from each station before rotating the groups and will review the student work for intervention the following day.	mastery level. • Students will move into their stations and complete the station task. The tasks will be submitted to teacher before the next rotation. • Station 1: Students will work on Chromebooks to graph a set of linear inequalities and systems of linear inequalities and interpret the meaning by matching the graphical models to the appropriate application provided at station. • Station 2: Students will be given a system of equations that is modeled graphically and they must create an application for the model including the appropriate boundaries, and their interpretation the of the solution region for the system. • Station 3: Students will be given a real life application that is graphically modeled and they are required to write a complete description for each region of the system and accurately interpret the solution region and its meaning. • Students will participate in a whole-class discussion/reflection on any station(s) that proved challenging to many groups. • Students will complete reassessment of their learning from the beginning of class period and submit to teacher with previously written goals.
5	• Teacher will allows students to complete bell ringer and pulls selected student to provide intervention based on the students completed tasks from previous day. • Teacher will provide additional review if needed. • Teacher will allow students to complete summative assessment.	• Students will complete bell ringer activity related to previous days tasks involving graphing of linear inequalities, defining the boundaries of the models, and interpreting the solution region to a system of inequalities. • Students will complete the summative assessment.

Summative Assessment Items: *Attach here.* For each summative assessment item, include an answer key or scoring rubric describing how points are to be awarded.

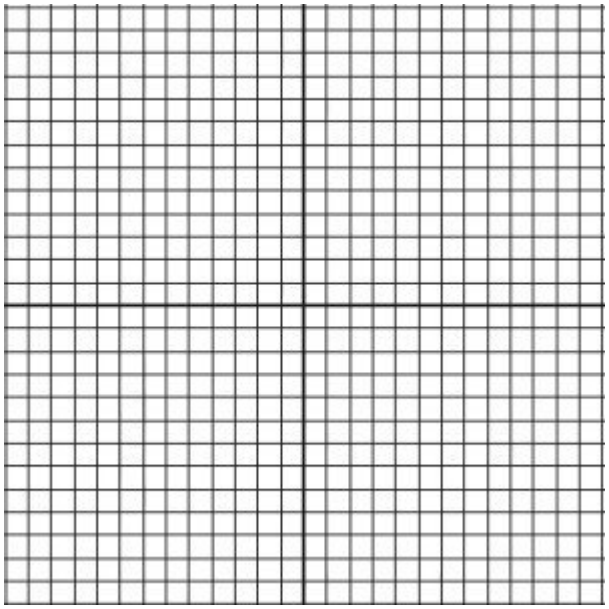
Graphing Linear Inequalities Quiz

Domain: Reasoning with Equations and Inequalities

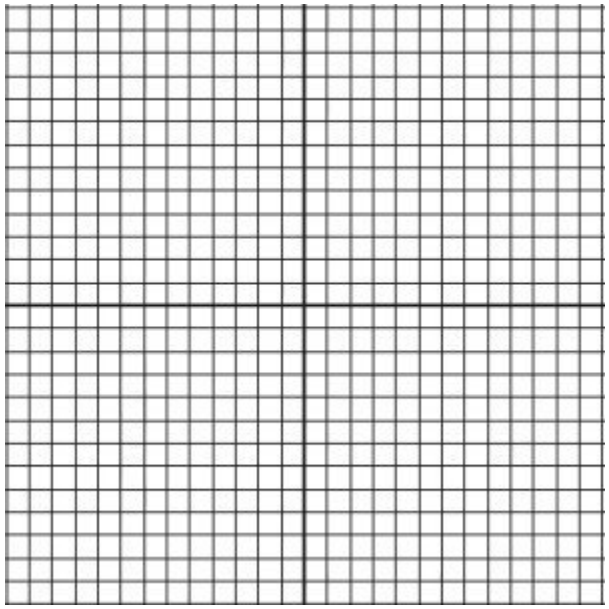
Standard: Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Essential Student Question: Can you graph linear inequalities and explain what the graphs show?

1. Graph. $y \geq -\frac{2}{5}x + 3$



2. Graph. $2x - 3y > 15$

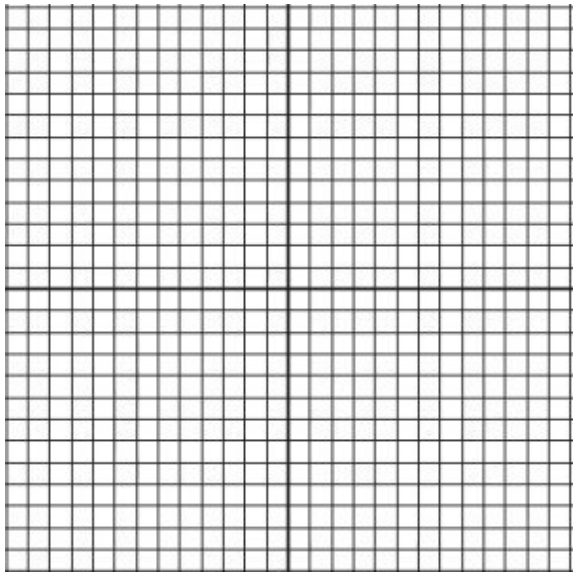


3. In your own words, explain what graph #1 shows for its solution.

_____

4. Claree has to purchase tickets to her favorite amusement park for her family . She has a budget of $350. If she purchases an adult ticket it will cost her $35 and a child's ticket will cost $14. She needs to purchase at least one adult ticket for every two children's tickets purchased.

   a. Graph the situation.

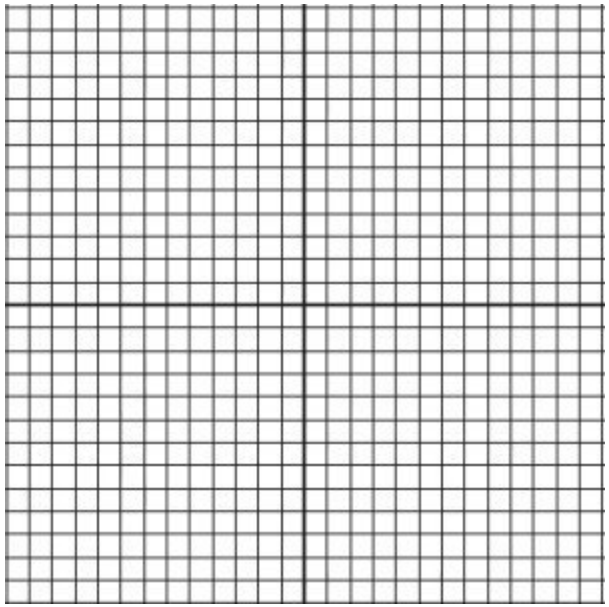


   b. Identify 3 combinations of parent and children tickets she could purchase and still remain within her budget.

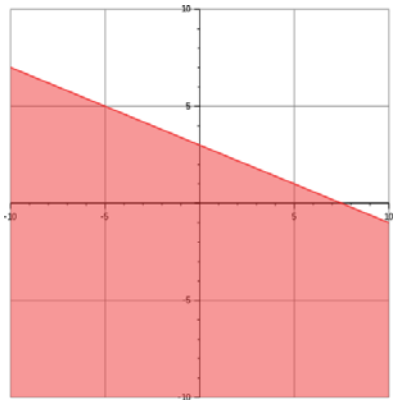
5. Graph.

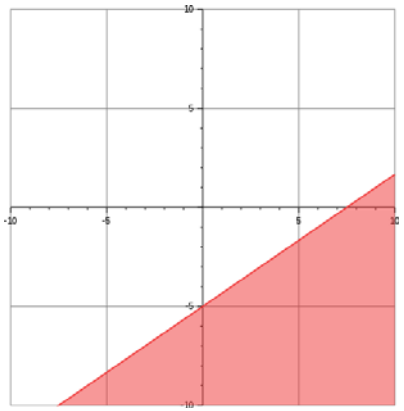
   $-4x - 3y > -15$

   $2x - y \geq -4$



Graphing Linear Inequalities Quiz Answer Key

1. 

2. 

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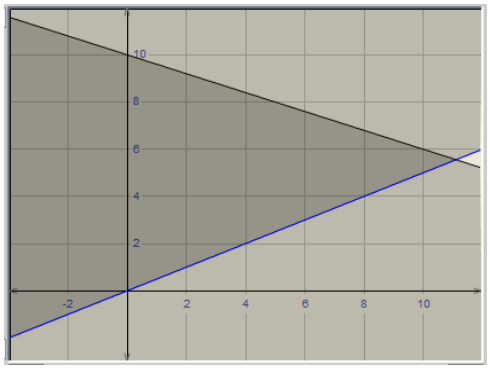
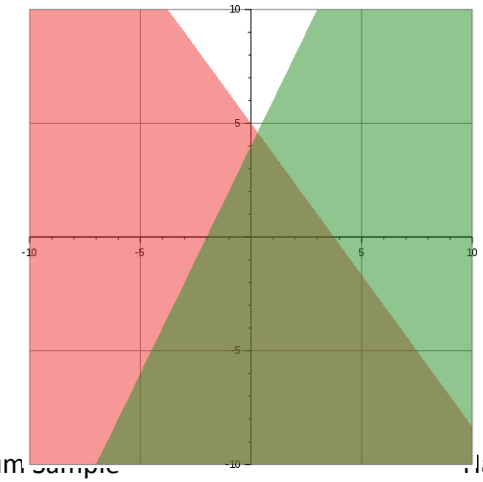
3. The solution region is above the line graphed and the line is solid to show that the boundary is included in the solution.

4. a. 

b. any integer points within the darkest shaded region of Quadrant 1. ex. (2, 9), (5, 8), (10, 6)

5. 

Graphing Linear Inequalities Quiz Scoring Guide

5 questions weighted at 1 points each **5 points total**

Raw score X 20 = _____/100 points

The 100 points possible assessment will reflect the school's grading scale:

90 -100 = A – Mastery

80 – 89 = B - Mastery

70 – 79 = C – Needs Screening for Remediation

60 – 69 = D – Needs Remediation

0 – 59 = F – Needs Intensive Remediation