Curriculum Sample Template

Max. 8 Pages

Grade Level	9th	**Content Area**	Math
Course Title (grades 9-12 Only)	Algebra II		
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	How to graph y=mx+b equations. Know slope and y-intercept. Know how to convert equations into slope intercept form		
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.*	Within this Algebra unit plan, a heavy emphasis is placed upon Blended Learning using videos. These videos have been carefully considered and many come directly from the acclaimed website Khan Academy. These Blended Learning techniques apply to Tier 1 instruction but can further be applied to Tier 2. As an algebra unit, the content itself is aligned to STEM. Kagan cooperative strategies (individual white boards, centers, gallery walks) and Marzano high yield strategies (objective driven vocabulary) are also built into these lessons.		
Standard Number and Description *List the Number* and the full description for the Required Standard or Science Performance Objective listed in section A.6.*	A-REI.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	Whiteboards. Mimeo board. Math glossary. Timer.		

* ***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	**Objective:** Students will ("SW") Graph a linear equation **Key Points:** • Equations are in the form y=mx+b • "m" is the slope of the line. • Slope is the rise/run ($\Delta y/\Delta x$) • "b" is the y-intercept. • Positive graphs go up, negative graphs go down. **Flipped Classroom/Blended Learning:** https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/graphs-of-linear-equations **Activation of Prior Knowledge:** Teacher will ("TW") put a coordinate plane (Cartesian plane) on the Mimeo board and direct students to name the four quadrants. I**ntroduction to New Material ("INM")/Modeling**: TW illustrate the key points with example problems using the coordinate plane on the Mimeo board **Guided Practice**: TW pass out whiteboard to students. TW put 10 equations on the board, SW draw the graphs of the equations using their individual whiteboards. If less than 80% of the classroom answer correctly, TW model the correct method for finding the equations. **Independent Practice:** TW pass out a coordinate plane sheet and crayons to each students. With 10 example problems on the board, all color coded to match the crayons, SW complete the activity, graphing each equation using the corresponding crayon. SW must achieve 80% correct or better to master the objective. TW monitor student progress and answer and clarifying questions. **Assessment:** TW pass out a coordinate plane quiz. 10 questions worth 1 point each. SW must correctly answer 8/10 questions to master the objective.	SW open their interactive notebooks to a new page and write the objective on top. SW write the key points in their interactive notebook, noting any new vocabulary by highlighting the unfamiliar words. Students will find the definitions of the unknown words and rewrite these definitions in their own words. SW write their own example word problem using similar phrasing to the Khan Academy video but with different numbers. SW participate by naming the four quadrants of the coordinate plane. SW copy examples and take notes in their INM section of their interactive notebook SW actively participate in the whiteboard activity and quietly return the whiteboards and Expo markers to the teacher at the conclusion of the activity. SW quietly complete the coordinate plane worksheet and return to the teacher once finished. SW return all crayons to the teacher once finished. SW answer any clarifying questions by raising their hand and waiting for the teacher to approach them. SW complete the quiz, working diligently to master the objective, and return to the teacher once finished.
2	**Objective:** SW graph linear inequalities (both strict and non-strict inequalities) **Key Points:** • When graphing an inequality, imagine the inequality sign is an equal sign to visualize the line on the graph • A strict inequality ($<, >$) has no "equal to" component and is	SW write the objective on a new page in their interactive notebooks. SW write the key points in their interactive notebook. SW highlight unfamiliar words, find the definitions of those unfamiliar words in their math glossary, and rewrite the unknown terms in their own words

	graphed with a dashed line • A non-strict inequality ($\leq, \geq$) is graphed with a solid line • $>, \geq$ Shade "above" the line • $<, \leq$ Shade "below" the line **Flipped Classroom/Blended Learning:** https://www.khanacademy.org/math/trigonometry/graphs/graphing_inequalities/v/graphing-inequalities **Activation of Prior Knowledge:** TW write up a "do now"/"bell ringer" activity on the board about graphing linear inequalities similar to the previous lesson. **INM/Modeling:** TW model how to graph linear inequalities, referencing the key points, using examples from the board. Teacher will ask students multiple checks for understanding before proceeding to the guided practice. **Guided Practice:** TW place chart paper with different linear inequalities around the room, creating a centers activity. TW model how each student will have 5 minutes at each center to graph as many linear inequality problems as possible. TW pass out question and answer sheet. **Independent Practice** TW pass out an exit sheet of linear inequalities to graph. The sheet will include graphing inequalities from given equations and writing equations from graphed inequalities. **Assessment**: SW graph two inequalities on stickies and post on the classroom door before leaving.	SW watch the Khan Academy video and write down all examples. SW complete the "do now"/"bell ringer" activity by graphing linear inequalities similar to the previous lesson in their interactive notebook. SW copy examples and follow along in their interactive notebook. SW answer checks for understanding and ask clarifying questions. SW participate in the center activity, answering as many questions as possible in the allotted 5 minutes, then quietly transition to the next center. Once finished, SW pass back papers to the teacher. SW complete the exit tickets of linear inequalities. Must answer 80% or better to master the objective. SW graph inequalities on the exit ticket and place on the door of the classroom prior to leaving.
3	**Objective:** SW graph a system of linear inequalities**.** **Key Points:** • When graphing a system inequalities, you are looking for the shaded parts that overlap. • A strict inequality ($<, >$) has no "equal to" component and is graphed with a dashed line • A non-strict inequality ($\leq, \geq$) is graphed with a solid line • $>, \geq$ Shade "above" the line • $<, \leq$ Shade "below" the line. **Flipped Classroom/Blended Learning:** SW watch http://www.youtube.com/watch?v=6oehycq06vo (systems of inequalities)	SW write the objective on a new page in their interactive notebooks. SW write the key points in their interactive notebook. SW highlight unfamiliar words, find the definitions of those unfamiliar words in their math glossary, and rewrite the unknown terms in their own words. SW watch the Khan Academy video, copying all examples, and preparing 4 follow questions for the narrator. SW answer their follow questions to the best of their ability in their interactive notebooks.

	INM/Modeling: TW model how to graph systems of linear inequalities, referencing the key points, using examples from the board. Teacher will ask students multiple checks for understanding before proceeding to the guided practice. **Guided Practice:** TW hang chart paper with different systems of linear inequalities around the room, creating a "gallery walk" activity. TW model how each student will have 5 minutes at each location to graph as many systems of linear inequalities as possible. TW pass out question and answer sheet. **Independent Practice** TW pass out a matching sheet of systems of linear inequalities and their corresponding graphs. TW instruct students to match the shaded graph with the system of linear inequalities. **Assessment**: SW create their own system of linear of inequalities and draw the graphs on the back of the matching sheet from the independent practice activity. Students must correctly create and answer a system of linear inequalities to master the objective.	SW copy examples and follow along in their interactive notebook. SW answer checks for understanding and ask clarifying questions. SW participate in the "gallery walk" activity, answering as many questions as possible in the allotted 5 minutes, then quietly transition to the next location. Once finished, SW pass back papers to the teacher. SW complete the matching sheet of systems of linear inequalities. SW create their own system of linear of inequalities and draw the graphs on the back of the matching sheet from the independent practice activity. SW remain quiet once finished and must answer their own question correctly to master the objective.
4	TW instruct students to complete the summative assessment	SW 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.

2 Points Each

1) $y = 4x + 7$
2) $y = -2x - 4$
3) $y = -\frac{1}{2}x + 2$

4) $y > 2x + 3$
5) $y \leq -4x + 4$
6) $y < -x - 1$

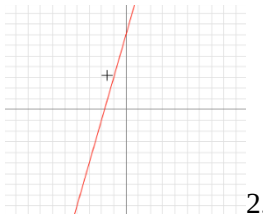
Graph the following systems of inequalities.

7) $y < 3x + 6$
   $y > 4x - 2$

8) $y > x + 1$
   $y < 2x - 2$

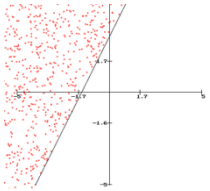
9) $y > \frac{1}{2}x - 4$
   $y < 2x + 5$

Answer Key:

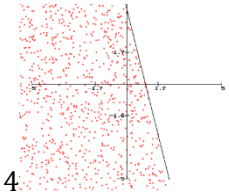
1. $y = 4x + 7$ 

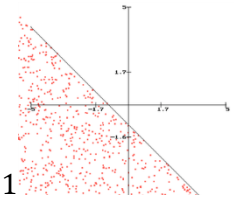
2. $y = -2x - 4$

3. $y = -\frac{1}{2}x + 2$

4. $y > 2x + 3$ 

*Line should be dotted

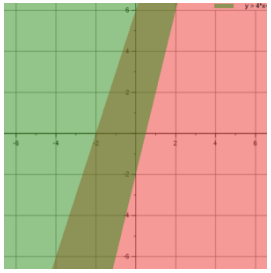
5. $y \leq -4x + 4$ 

6. $y < -x - 1$ 

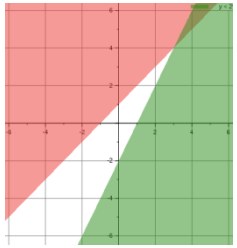
*Line should be dotted

Graphs the following systems of inequalities.

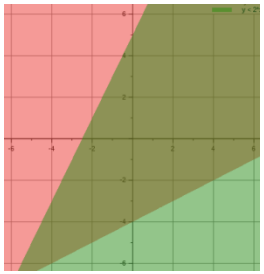
7. $y < 3x + 6$ (red)
$y > 4x - 2$ (green)



8. $y > x + 1$ (red)
$y < 2x - 2$ (green)



9. $y > \frac{1}{2}x - 4$ (red)
$y < 2x + 5$ (green)



Total: _____/18; Grading Scale: 0-13=Incomplete; 14=C; 15-16=B; 17-18=A. 80%=Mastery.