Lesson Plan Template

Grade:11	Subject: Algebra II
Materials:	Technology Needed: Laptop and Desmos

Instructional Strategies:	Guided Practices and Concrete Application:
☐ Direct instruction ☐ Peer teaching/collaboration/ cooperative learning ☐ Guided practice ☐ Socratic Seminar ☐ Visuals/Graphic organizers ☐ Learning Centers ☐ PBL ☐ Lecture ☐ Discussion/Debate ☐ Technology integration ☐ Modeling ☐ Other (list)	☐ Large group activity ☐ Hands-on ☐ Independent activity ☐ Technology integration ☐ Pairing/collaboration ☐ Imitation/Repeat/Mimic ☐ Simulations/Scenarios ☐ Other (list) Explain:

Standard(s)	Differentiation
ISTE Standard 3: Knowledge Constructor Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. HS.ACED.3*: Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. HS.FIF.4*: Use tables, graphs, verbal descriptions, and equations to interpret and sketch the key features of a function modeling the relationship between two quantities.	**Below Proficiency:** Student places minimal effort into the project and does not meet the minimum requirements. Student has wrong equations, minimums, maximums, or bounds. **Above Proficiency:** Student goes above and beyond in terms of effort. Everything is correct and displayed in a creative manner. **Approaching/Emerging Proficiency:** Student meets the minimum requirements and has the proper equations, minimums, maximums, and bounds **Modalities/Learning Preferences:** This project will help specifically with visual or hands on learners. The directions will be both written and verbal.

Objective(s):	
The student should be able to see a quadratic equation and give the equation for it, and vice versa The student should be able to determine a maximum and minimum of a graph (or the range) The student should be able to bound a graph using inequalities **Bloom's Taxonomy Cognitive Level: Level 6**	

Classroom Management- (grouping(s), movement/transitions, etc.)	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)
Questions for managing: These will be gentle reminders throughout the class [Bloom's taxonomy level 1] Questions for structuring or redirecting: Why do you think this? What were the steps to that answer? What parts of the question do you understanding? [Bloom's taxonomy level 2] Pairs will be predetermined.	I expect students to be on task when given work time in class and to work effectively with their partner.

Minutes	Procedures
	Set-up/Prep: Have my computer connected to some form of projector with Desmos pulled up. Have instructions printed out and ready to go. Have laptops ready for the students.
	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Questions for gathering interest and attention: Who has ridden a roller coaster? Who has a favorite roller coaster? [Bloom's taxonomy level 4] Questions for encouraging higher level thought processes: I will be asking students to think about when these parabolas could be applied, as we will be discussing applications in the next few lessons. [Bloom's taxonomy level 3]
	Explain: (concepts, procedures, vocabulary, etc.) Questions for recalling specific facts: What is the general equation for a parabola? How can you tell this equation has a minimum/maximum? [Bloom's taxonomy level 1] Questions will be sprinkled into the lesson as I introduce the project. At this point we would have gone through a majority of the unit on conic sections. I will explain my handout on our project where students will build a roller coaster using parabolas and constraints on a graph. They will be required to use at least 4 parabolas and give me the equations, minimums, and maximums of each parabola. Then, they will give me the overall minimum and maximum. They will do all of this using a graphing program called

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	Desmos that will make it easier to move the constraints and manipulate the graphs until it looks correct. We will later print these out onto larger paper and emphasize creativity as they make their graphs look like rollercoasters.
	Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) The rest of the class will be students to begin working on the projects.
	Review (wrap up and transition to next activity): At the end of class I will be reiterating the next half of the project (printing).

Formative Assessment: (linked to objectives)	Summative Assessment (linked back to objectives)
Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc. Questions for Diagnosing and Checking: This will be progressively through the lesson; I will ask students to reword things I had just defined or steps I just did. [Bloom's taxonomy level 5] **Consideration for Back-up Plan:**	**End of lesson:** **If applicable- overall unit, chapter, concept, etc.:** Exam on the unit, It's already written if you'd like to see it

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):