

Lesson Plan Template

Grade: 9th		Subject: Algebra I	
Materials: notes,		Technology Needed: smartboard for projecting notes	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/ <input type="checkbox"/> Guided practice cooperative learning <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Learning Centers <input type="checkbox"/> PBL <input type="checkbox"/> Lecture <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Technology integration <input type="checkbox"/> Modeling <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input type="checkbox"/> Independent activity <input type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) HS.NRN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.		Differentiation Below Proficiency: Provide extra guidance while they are working on assignment. Above Proficiency: If they finish the assignment in class, they can help classmates that are struggling. Approaching/Emerging Proficiency: They can begin working on assignment and ask for help if they are stuck. Modalities/Learning Preferences: Visual and auditory learning through guided practice example problems.	
Objective(s) The learner will be able to divide powers with the same base. The learner will be able to raise a quotient to a power. Bloom's Taxonomy Cognitive Level: applying		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students will be expected to be engaged and actively participating discussion and taking notes.	
Classroom Management- (grouping(s), movement/transitions, etc.) Love and Logic and Conscious Discipline.			
Minutes	Procedures		
	Set-up/Prep: Prepare teaching notes and worksheet assignment.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Have students recall what they learned the day before, have short discussion about zero and negative exponent properties.		
20	Explain: (concepts, procedures, vocabulary, etc.) Introduce the Quotient of Powers and Powers of a Quotient properties. Go through direct instruction with guided notes and examples in their white packets. Quotient of Powers Rule: When dividing two powers with the same base, we subtract the exponents. Power of a Quotient Rule: Power of a quotient is equal to the quotient obtained when the numerator and denominator are each raised to the indicated power separately Examples: $\frac{7^5}{7^2} = 7^3$ $\frac{3^5}{3^6} = 3^{-1} = \frac{1}{3}$ $\frac{5^3}{5^8} = 5^{-5} = \frac{1}{5^5}$ $\frac{a^8b^5}{a^2b} = a^6b^4$ $\left(\frac{4}{7}\right)^3 = \frac{4^3}{7^3}$ $\left(\frac{1}{5}\right)^7 = \frac{1}{5^7}$ $\left(\frac{-2a}{3b}\right)^6 = \frac{(-2a)^6}{(3b)^6} = \frac{64a^6}{729b^6}$		
20	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Have students practice writing powers in expanded for and simplifying on their assignments. Only after they have expanded on the first 6 problems can they use the property as a short cut to solve the problems more efficiently.		
5	Review (wrap up and transition to next activity): Ask students to recall what they learned about quotient power rules. Ask them to summarize the property in their own words.		
Formative Assessment: (linked to objectives)		Summative Assessment (linked back to objectives)	

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Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. Moving around the room while students are working on their assignments. I will be making sure they are properly dividing powers of the same base and raising a quotient to a power.

Consideration for Back-up Plan: If students are not ready to learn quotient power rules, we will review what they learned about negative and zero exponents.

End of lesson: Students completing assignment and properly applying quotient power rules so they can divide powers with the same base and raise a quotient to the same power.

If applicable- overall unit, chapter, concept, etc.:

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

Overall, I think the lesson went really well. If I were to teach this lesson again, I would want to include explaining when a base is in the numerator or denominator. Some of the students seemed to get confused, when they didn't see a fraction bar, they couldn't tell if the term went in the numerator or denominator when they made their expression into a fraction. I would want to include an example with going from a single term to a fraction.