Lesson Plan Template

Grade: 9th Grade	Subject: Algebra
Materials: Quiz, Notebooks, Pencil	Technology Needed: None

Instructional Strategies:		Guided Practices and Concrete Application:	
☑ Direct instruction ☑ Guided practice ☐ Socratic Seminar ☐ Learning Centers ☐ Lecture ☐ Technology integration ☐ Other (list)	☑ Peer teaching/collaboration/ cooperative learning ☐ Visuals/Graphic organizers ☐ PBL ☐ Discussion/Debate ☐ Modeling	☑ Large group activity ☐ Independent activity ☑ Pairing/collaboration ☐ Simulations/Scenarios ☐ Other (list) Explain: We will mostly work as a large group to try a few examples of factoring. Then, at the end of class, students may break into groups to try a few problems without my help.	☐ Hands-on ☐ Technology integration ☑ Imitation/Repeat/Mimic

Standard(s)	Differentiation
HS.A.SSE.2: Use the structure of an equation to identify ways to rewrite it. **Objective(s)** Students will use what we learned about GCFs to factor different expression. "I can factor the polynomial expression." **Bloom's Taxonomy Cognitive Level:** Applying, Analyzing	**Below Proficiency:** These students may still struggle to find the GCF, but my hope is that trying a few problems as a class will remind them how to do this. Then, when they are learning factoring, my hope is that these students will at least understand how to factor out the coefficients. Then, I will encourage other students to help them as they are learning how to simplify the problem even further. **Above Proficiency:** Students who are above proficiency should already be comfortable finding the GCF of two terms. They may already have an understand of basic factoring to begin the lesson, and these students should be growing very comfortable with factoring by the end of the lesson. My challenge to these students will be to try to help at least one other student to learn something about factoring by the end of class. **Approaching/Emerging Proficiency:** Students who are approaching proficiency should be able to at least find the GCF of two terms. They may still be working to understand factoring, but since this is the second time that they have seen factoring, my hope is that they will be growing more comfortable. I think that they may also benefit from working with another student at the end of class. **Modalities/Learning Preferences:** large group activity, reviewing material from previous sections, applying material from previous sections to factor, working with a partner

Classroom Management- (grouping(s), movement/transitions, etc.)	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules, and expectations, etc.)
• Students are expected to work quietly during the quiz • Students are expected to listen respectfully to other students and the teacher • Students are expected to work cooperatively with their partner	• Students are expected to work quietly and avoid cheating on the quiz • Students must listen respectfully to the contributions of other students and remain attentive to the teacher • Students are expected to cooperate with their partner and work productively

Minutes	Procedures
3 min	**Set-up/Prep:** I will hand out the quiz that students will be taking. Then, I will write three problems on the board where students must find the Greatest Common Factor. Those who are doing well with these problems may also try to factor them.
20-25 min	**Engage:** (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) First, students will take a quiz covering finding the GCF and division of polynomials. Once they have finished the quiz, they can begin the opening activity.

	The opening activity will consist of three problems that students will begin working on when they sit down at their desk. Find the GCF of the following expressions: 1) $4x^2 + 2x$ 2) $12x^3 + 6$ 3) $24x^4 + 14x^2$ Solutions: 1) GCF: $2x$ Factoring: $2x(2x + 1)$ 2) GCF: 6 Factoring: $6(2x^3 + 1)$ 3) GCF: $2x^2$ Factoring: $2x^2(12x^2 + 7)$ Once all students have had about 3-5 minutes to work on these problems, I will collect their work. Then, we will go over each solution to help students who may have struggled to find the GCF. I will remind them of the process of finding the GCF of the coefficient and variable separately, then multiplying them together.
15 min	**Explain: (concepts, procedures, vocabulary, etc.)** Once we have gone over the opening activity, I will introduce the lesson for the day, which will be about factoring. Students will learn how to factor basic binomial expressions. To do this, they must first find the GCF of the two terms that they are trying to factor. Once they have found the GCF, they must "factor this out" of both terms by dividing them both by the GCF. Finally, they will place parentheses around the two new terms while writing the GCF on the outside of the parentheses because it is being multiplied by each term. We will use the examples from the opening activity because we have already found the GCF. Each of the proper factorings is also listed above. If students struggle here, I will try to show them that if we are to distribute again, we will end up with our original expression. For example, distributing $2x(2x + 1) = 4x^2 + 2x$.
15 min	**Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)** If there is enough time, I will have students work with someone who sits close to them on a few more problems that I will write on the board. These problems are: 1) $x^2 + 5x$ 2) $3x^2 + 21x$ 3) $15x + 25x^3$ 4) $12x^3 + 14x$ 5) $18x^2 + 9x^3$ Solutions: 1) $x(x + 5)$ 2) $3x(x + 7)$ 3) $5x(3 + 5x^2)$ 4) $2x(6x^2 + 7)$ 5) $9x^2(2 + x)$
3-5 min	**Review (wrap up and transition to next activity):** To wrap up the lesson, I will ask students if they have any questions about anything that we were working on. If they do, I will try to use an example to answer their question. If not, I will allow them to work quietly until the bell rings.

Formative Assessment: (linked to objectives)	Summative Assessment (linked back to objectives)
Progress monitoring throughout lesson- clarifying questions, check- **in strategies, etc.** In class, I will mostly monitor progress based on student contributions. I will also view the submissions to the opening activity to see how students are doing with finding the GCF. If there is enough time, I will also try to walk around to observe students as they work. **Consideration for Back-up Plan:**	**End of lesson:** At the end of the lesson, I will have students turn in their work for credit. I will use this to evaluate how well students are beginning to do with factoring. **If applicable- overall unit, chapter, concept, etc.:** Students will need to be able to factor polynomials on the test.

If students are struggling with factoring, we will continue to work through examples as a big group.

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