Lesson Plan on Fazilatunnesa | First Muslim women Math Professor at Bethune College, India.
Teacher Name: Mr. Bari
Grade Level: High School
Topic: Application of Limit
Subject: Calculus

Flipped Classroom
Students will receive the link of the website at least 24 hours prior to the class meeting, so as to learn about the mathematician's story and come to class with any questions. Link,
www.muslimwomenmathematicians.org

Learning Objectives:
After this lesson, students will have a clear idea about one thing: how to solve a problem using different branches of mathematics.

Learning Goals:

1. SWBAT learn the contributions of Fazilatunnesa, the first Muslim Professor of mathematics at Bethune College, India.

2. SWBAT use the website to learn about the contributions of Fazilatunnesa to education in order to counter misconceptions and address stereotypes that students might carry about the abilities of Muslim women in STEM classes.

Instructional Strategies and Learning Tasks:
I will use the Backwards Design strategy to enrich my lesson plan. One of the good aspects of Backward Design is that it will enable me to apply useful tools such as Alignment to incorporate the best-fit modalities for my respective lesson plan. There are 20 ways to teach and 20 ways to learn. Hence, I will use an Alignment tool to pick the best one and incorporate it into my lesson plan. I will also use every single modality (visual, auditory, kin-esthetic and tactile.) because I believe in the prophecy of Howard Gardner: one size does not fit all. That is, multiple modalities stand a better chance of being remembered by students—especially students A, B and C— even long after the lesson is over.
Regarding lesson grouping: I usually try to categorize my students by using normal distribution: that is, 50% of my students are on the right side of the normal curve and 50% on the left. I try to use empirical rule (68-95-99)—to identify students that are near three standard divisions to the right and use them to help their counterpart by keeping Lev Vygotsky's theory, zone of proximal development, in mind, "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, P. 337).

Let's say the topic of the lesson is "Calculus", and let's say Student A, who is near two standard divisions to the left, understands only 30% of my demonstration and let's say Henry (fictional name), a student who is near three standard divisions to the right, understand 80% of it. Neither Student A nor Henry can solve the problem alone because none of them have 100% understanding of the topic. However, when I combine them, together they will be able to solve more than 80% and remaining 20% understanding can come from MKO, i.e., teacher.

Lesson component	
Activity # 1 (0- 4 minutes)	Students will complete the Do Now in 5 minutes (See Page # 1 on the worksheet) Worksheet is divided in three components: (1) DN (2) BI and (3) ES
Activity # 2 (20 minutes)	Main Task: Students will form in a group and will solve the problem. There are 4 students in a group and each one has a job assignment (Group Leader, Engineer, Scientist, Mathematician)
Activity # 3 (10 minutes)	Teacher will go over the Main Task on the whiteboard.
Activity # 4 (5 mins)	Student will complete the exit slip in 5 minutes
Activity # 5	Briefly overview discussed throughout the period

Every second matters!

Time	Teaching activities / Student activities	
Activity # 1 (5 mins)	Teacher distributes the handout for students to work with groups Explain the "Do now" Listening the instructions Teacher is Circulating while students completing "Do Now" Solving the Do Now Going over the "Do Now" Students will check their answers to make sure they have full understanding.	
Activity # 2 (20 mins)	Group activity	Students will compare their diagram with others in the group.
Activity # 3 (10 mins)	Teacher in action	Teacher will go over main task
Activity # 4 (5 mins)	Assessment	Students complete Exit Slip in 5 Minutes

Activity # 5 (2 mins)	Recap I briefly overview what we discussed throughout the period in 5 minutes.	Ask student to summarize what they have learned