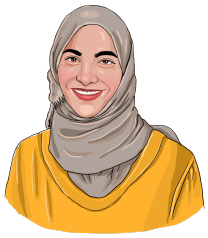
Lesson Plan on Hayat Sindi | First MW Ph.D from Suidi Arabia
Teacher Name: Mr. Bari
Grade Level: High School
Topic: Optimization
Subject: Calculus



Flipped Classroom
Students will receive this link from the flipped classroom 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.

Learning Objectives:
Students will be able to use their calculus knowledge to solve practical problem with optimization

Learning Goals:

1. SWBAT learn about Hayat Sindi, the first Muslim Woman leading voice in STEM.
2. SWBAT understand that education is the best tool to break the barriers by learning the story of Hayat Sindi
3. Minority students will be able to use their calculus knowledge to solve practical problem with optimization

Instructional Strategy, Backwards Design strategy :

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 optimization lesson plan for Hayat Sindi. I will also use every single modality (visual, auditory, kin-esthetic and tactile.) because I agree with Nikhil Goyal's philosophy that *one size does not fit all*. That is, multiple modalities stand a better chance of being remembered by students—especially bottom 10% students.

Lesson component	
Activity # 1	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

(0- 4 minutes) Activity # 2 (20 minutes) Activity # 3 (10 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) 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