**Lesson Plan on Fatma Moalla** | First Muslim women Ph.D in Math
Teacher Name: Mr. Bari
Grade Level: High School
Topic:  Pythagorean Theorem
Subject: AP Calculus BC

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**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

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**Learning Objectives**:

We know how to find the length of a line, by using the distance formula to calculate the distance between its endpoints. But how can we find the length of a curve? Well, remember that a curve - when zoomed in -- is nothing but a line! Thus, we can simply use the pythagorean theorem, but modify it using calculus!

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**Learning Goals**:

1. SWBAT learn about Fatma Moalla, the first Muslim Woman with Ph.D in mathematics.
2. SWBAT understand Pythagorean Theorem with AP Calculus BC
3. Minority students will be motivated upon finding someone who looks like them in the STEM field, while other students will benefit from a more inclusive mindset of who can be a mathematician.

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**Instructional Strategy, Wait Time:**

*Wait Time allows the student* (in this case, I am taking more time to write a response in his book) more time to respond. The short time goal of this is to allow more time to below the average students to chew on the question before they answer. And the long term goal is to encourage students to be like tortoises rather than to be like hare.

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| Lesson component | |
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| 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 |

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| 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 | |
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| Activity # 1 (5 mins) | Teacher distributes the handout for students to work with groups<br>Explain the "Do now"<br>Listening the instructions<br>Teacher is Circulating while students completing "Do Now"<br>Solving the Do Now<br>Going over the "Do Now"<br>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<br>I briefly overview what we discussed throughout the period in 5 minutes. | Ask student to summarize what they have learned |