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MSUrbanSTEM
Dream It: Phase I
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Making mathematics real – connecting Algebra and Physics

I am teaching Algebra I to incoming 9th graders at Disney II Magnet High School. I mention incoming 9th graders because they will be students who are new to Disney II, as opposed to any students matriculating to the next grade level. As an expanding school, our 9th grade class is comprised of brand new students to the school. I will have my students twice per week for 105-minute blocks. Additionally, on Wednesday afternoons I will have two intervention blocks, which may be with my students – these intervention periods are for helping struggling students or pushing high achieving students further with concepts from class.

Mathematics and Sciences are often taught entirely separate from one another, yet we always hear how related they are. Our students are probably thinking one of two things, my teachers are lying to me, or mathematics and science really are not that related. Over the course of the next year I intend on focusing on the integration of Algebra and Physics topics where they overlap and are authentic experiences for the students.

From the very beginning of the year, two important areas of study which will be integrated and taught concurrently are interpreting graphs and dimensional analysis. In addition to these topics, some others which will be taught together are (but not limited to) solving equations, manipulating for given variables (solving literal equations), using linear and non-linear functions to relate to real life scenarios, and creating lines of best fit for projections and estimations.

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Some technology that will be used in both Algebra and Physics will be Vernier Lab Quests, graphing utilities, and Microsoft Excel. At this point in time, I am leaning toward incorporating and utilizing Microsoft Excel for my students because of its relative simplistic interface and ability for students to easily share and send me digital copies of their assignments. Ideally, my student will begin to see the connections and relationships between Algebra and Physics, and potentially on an even larger scale, the connections between mathematics and sciences in general.

Our school's physics teacher and I intend on aligning our curricula so that related topics are taught at relatively the same time, common language is used, and students can be working on similar concepts and labs at the same time. This deliberate alignment will help fuse the Algebra and Physics topics and help the students make connections between the two disciplines.