All STEM Leads to Rome:

Teaching Roman Technology to Middle School Students of Color

STEM is all the rage now in pre-collegiate education - STEM (science, technology, engineering, and math) has become a buzzword for innovation and career preparation. Schools have added STEM coordinator positions to their faculty, robotics programs to their curricula, and makerspaces to their libraries. Grant money from major industries has poured into schools for classes and after-school programs that teach kids about STEM. Most elementary schools in the US have STEM or STEAM programs built into their curricula or offer after-school programs. Classics can benefit in many ways from a closer alliance with STEM education. Lucky for the field of classics, the Romans (and Greeks) were STEM geniuses.

In this paper, I'll present two full-year, elective curricula of my creation in which middle school students explore the ancient classical world through the lens of STEM. The aim of these curricula is to broaden the scope of classics instruction and draw in students who learn more deeply by doing and making. Without the constructs, and constraints, of language instruction, students learn about the classical world in physical ways.

In one course, called Roman Technology, students read ancient Roman texts (in translation) for STEM inspiration and then use experimental archaeology to reproduce the products and processes of the ancient Romans. Each class is a hands-on workshop using real tools, bringing ancient Roman technology to life. Topics covered include common Roman engineering marvels such as concrete, arches, hydraulics, and road construction, but also those which have less obvious STEM connections such as hair styling, writing, and mosaic design. The other course, called Classical Myth Makers, is a classroom interpretation of making, a cultural and educational trend which values individuals as creators rather than consumers. It

stresses the empowerment of making for the betterment of humankind. In this class, students read classical myth to inspire maker challenges. After the story of Jason and the Argonauts, the students build a cardboard boat modeled on the Argo. The tale of Daedalus' labyrinth sparks a maze build, etc. Students collaborate and communicate as they learn resiliency through the art of making.

This presentation will also detail how these classes have drawn students of all racial demographics (overall, 73% students of color). Because second language instruction is heavily tracked in my school district (and in many across the US), students with low standardized test scores in English (usually Black and Brown students, many who are Latinx and African immigrants) are scheduled in double English classes in hopes that the extra focus on the English language will raise their scores. Thus, these students are limited in their choice of elective classes for the school year. Classes that offer alternatives to language instruction get more interest among these students. Choices such as coding, robotics, typing, career exploration, animation, and home economics are heavily requested, but due to the daily hands-on nature of the classical STEM classes discussed in this presentation and their reputation as a math, science, and reading score boosters, Roman Technology and Classical Myth Makers are now the most highly requested classes at the school.

The presentation will wrap up with tips on harnessing the buzz of STEM to earn readily-available grant money to fund such programs. Because the STEM field, like classics, has an admitted equity and diversity problem, companies such as Exxon Mobil, Lowe's, and others are especially keen on funding programs that benefit students of color.