

STEM

STEM: Applications Syllabus

Teacher: Ben Di'Chiara

Room: 16 (STEM LAB)

Room: THE CUBE

STEM: an educational concept that joins multiple disciplines into a single idea.

Course Description: STEM II: Applications is a project-based learning experience for students who wish to further explore the dynamic range of STEM fields introduced in STEM I: Foundation. Building on the content and critical thinking frameworks of STEM I, this course asks students to apply the scientific inquiry and engineering design processes to multiple projects. Upon completion of this course, proficient students will have a thorough understanding of how scientists and engineers research problems and methodically apply STEM knowledge and skills; and they will be able to present and defend a scientific explanation and/or an engineering design solution to comprehensive STEM-related scenarios.

Hybrid Schedule: Students will have two in-person days and three @-home days.

In-person days: Students will physically attend class, and students will learn via student-led project-based challenges facilitated by the instructor.

@-Home days: Students will not be in physical attendance. Students will complete a series of challenges administered by Mr. Di'Chaira. These challenges will reflect concepts mastered (or in process of mastery) during in-person days. @- Home challenges be completed by the individual students at home. This will serve much like a Lab attached to a secondary course)

Topics to be covered in STEM: Foundations

- **SAFETY** in the work setting (revisit)
- Proper use of basic tools (revisit)
- Whiteboxlearning.com projects and simulation (bridge building, prosthetics, gliders, water rockets)

-This online engineering simulator will serve as the basis for this class. Although we will be working on several projects in Whiteboxlearning, we will also explore a more complex approach to prototyping and coding.

- TinkerCAD projects (prototyping solutions)
- Coding / engineering using Lego Mindstorm

Projects will be graded with the use of project-specific rubrics

Supplies to be provided by student:

-Your mind