The Grand Challenges
Sustaining Our World

Agenda

- Grand Challenges
- Academics
- Foundation Years
- Application Years
- Levels of Challenge
- Support Systems
- The Finer Details
- Tour
## High School Graduation and College/University Admissions Planning: The Numbers and the Requirements

### Required Courses/LWSD

<table>
<thead>
<tr>
<th>Required Courses/LWSD</th>
<th>HS Graduation/LWSD Class of 2021</th>
<th>Tesla STEM Typical</th>
<th>Typical Public Universities</th>
<th>Selective Colleges</th>
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<tbody>
<tr>
<td>English/Language Arts</td>
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<td>Sciences</td>
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<td>6.0 to 7.0</td>
<td>2.0 to 3.0</td>
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<td>Mathematics</td>
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<td>Social Studies</td>
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<tr>
<td>Fine/Performing Arts</td>
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<td>.5 to 1.0</td>
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<td>World Language</td>
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<td>2.0</td>
<td>3.0 to 4.0</td>
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<td>P.E.</td>
<td>1.5</td>
<td>test</td>
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<td>Health</td>
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<td>.5</td>
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<td>Occ Ed</td>
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<td>1.0 to 3.0</td>
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<tr>
<td>Electives</td>
<td>4.0</td>
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</table>
**FRESHMEN**

**CORE COURSE WORK**
- Honors Physics
- Graphic Design/Visual Arts
- Honors English Language Arts
- Mathematics
- Honors Spanish
- AP Comp Science Principles or Computer Programming
  - Imbedded “PBL” Project

**Electives**
- *Engineering I
- *AP Comp Science Principles or Computer Programming
- *Music (after school offering)

**SOPHOMORES**

**CORE COURSE WORK**
- AP Environmental Science
- Honors or AP Biology
- Honors English Language Arts
- Mathematics
- Honors Spanish
- Elective

**Electives**
- *Engineering I or II
- *Computer Programming
- *AP Computer Science A
- *Chemistry (Honors)
- *Music
<table>
<thead>
<tr>
<th>Application Years</th>
<th>Juniors and Seniors</th>
</tr>
</thead>
</table>

### JUNIORS

**CORE COURSE WORK**
- Honors or AP English Language
- Mathematics
- AP US History and Foreign Relations
- STEM Lab Concentration:
  - Environmental Engineering/Sustainable Design - or -
  - Forensics and AP Psychology

- *AP Statistics
- *Engineering I, II or III
- *Computer Programming
- *AP Computer Science A
- *Advanced Projects in CS
- *Chemistry (Honors)

### SENIORS

**CORE COURSE WORK**
- English Language Arts
- Mathematics
- Contemporary World Problems and Civics
- STEM Lab Concentration:
  - Advanced Physics & Global Engineering - or -
  - Anatomy and Physiology & Biomedical Engineering

- *AP Statistics
- *Engineering I, II or III
- *Computer Programming
- *AP Computer Science A
- *Advanced Projects in CS
- *Chemistry (Honors)
Problem-Based Learning (PBL) Internships

- Students work with a specific STEM industry in parallel with the industry professionals to bring a viable solution to a STEM-related problem or issue.

Current PBL Work:
- Solar Powered Mobile Light System for Construction Sites
- Portable ECG Units
- Recyclable Plastic Composite Coffee Cup
- Sustainable Green Buildings
- Cyber Security
Contest-Based Mentorship (CBM)

- Student teams work to bring a viable solution to a current STEM-related world problem.
- Current CBM Work:
  - Forest Fire Particulates’ Effects on Human and Environmental Health
  - Environmentally Sustainable Desalinization
  - Methods of Tertiary Treatment Functioning Also as Biofuel Sources
STEM High School Challenge
Definition, Goals, What is Key, The Levels of Challenge

- **STEM Education:** The application of science, technology, engineering, and math in the context of inquiry and problem-based learning (PBL)

- **Main Goals:** Educate students to be problem solvers, innovators, inventors, self-reliant, logical thinkers, technologically literate (21st Century Skills)

- **Key:** Enhance students’ interests in STEM; fuse STEM education with social sciences, humanities, law, business needed to address complex societal/global issues

- **Challenge Levels:**
  - Inquiry and Problem-Based Learning Projects
  - Honors and Advanced Placement – The Standard for all Students
  - Early College in the High School (Dual Credit)
  - Internships and the Experts
Support Systems

- Faculty Office Hours
- Peer Tutors
- Study Groups
- Tutorials
- Guided Resources
- Club 121
- Blogs
- Academic and College Counseling
ASB and Student Activities

- FBLA
- Physics Club
- Maker Club
- Chess Club
- TSA
- Math Club
- Girls Who Code
- Programming Club
- Key Club
- National Art Honor Society
- Model UN
- Robotics
- HOSA Club
- many others
The Finer Details

Tesla STEM High School Information Folders

- FAQ Document
- Information for the Class of 2021
  - Counselor Letter
  - Student Schedule Pathways
  - Student Clubs and Activities
- STEM Lab Coat Information
- Grand Challenges For Engineering

Summer Communication

- District 2017-2018 Academic Year Calendar
- Traditional Annual District Forms
- Curriculum Night Date – Wednesday, September 13, 2017
- Freshmen Registration and Link Crew – August 29, 2017
  - Distribution of Student Schedules, Laptops, and ASB Photos and Cards
  - Link Crew for Freshmen only