



STEM VISION FOR STUDENTS

Overview:

Currently, only 16% of college graduates in the United States earn a degree in a STEM field, and the percentage of Noble graduates with a STEM degree is far below the national average. Our goal at ITW David Speer Academy is that at least 50% of our ITW scholars will matriculate into STEM careers after earning a two-year or four-year college degree in a STEM program. Though this goal is lofty, we commit to meeting this goal with our first graduating class.

Mission – LOVE AND EXPOSURE

9TH GRADE

In order for 9th graders to become invested and passionate STEM scholars, students must be exposed to many different STEM fields. It is imperative that students find a passion for STEM during their first year at Speer in order to face the rigor that they will find in subsequent years in classes such as *AP Biology*, *AP Physics*, *AP Calculus*, *AP Computer Science*, and *Project Lead the Way (PLTW) Engineering classes*.

STEM FRIDAYS - Once a month, students will experience a fun, engaging day designed to introduce them to various STEM fields.

9TH GRADE CURRICULUM – STEM education must exist in every class to excite and inform students about the various opportunities available within STEM, so that student interest is piqued and goal-setting can begin to occur. The 9th grade schedule will consist of mandatory core classes: *Math*, *Science*, *Literature*, *Composition*, and *Introduction to Engineering Design (IED)*. These courses are designed to focus on foundational skills like problem-solving and critical thinking.

Mission – PATH MOLDING AND PERSEVERANCE

10TH GRADE

After being exposed to the world of STEM during 9th grade, 10th graders will choose a career path they are most interested in and learn more about it in the year to come. 10th graders will declare a STEM major at the beginning of the year in their STEM elective courses. The top 50% of the class will be enrolled in college level courses (*AP Biology*, *Honors Chemistry*, *Honors Algebra* and *Honors Geometry*) and will be pushed to overcome academic challenges they will face throughout the year. Having their career path as a destination, they must learn to persevere through academic obstacles and begin to see that their dreams can be a reality. The 50% not in college level classes will be given countless opportunities in STEM this year for improvement and will have a chance for acceptance into college level courses during their junior and senior years.

AP AND HONORS COURSES – These courses are designed to give students exposure to a college-level workload, yet they will provide soft landings for students so that they can maintain healthy GPAs for college acceptance. 10th graders have the opportunity to take *AP Biology*, *Honors Chemistry*, *Honors Algebra*, and *Honors Geometry*.

10TH GRADE STEM SUMMER EXPERIENCE – 100% of students will be enrolled in a STEM course on a college campus that is aligned to their chosen major.

STEM READING - 10th graders will be enrolled in a STEM Reading course, which will acquaint students with STEM texts, accelerate their reading levels, and prepare them for success in 11th and 12th grade college-level courses.

ENGINEERING AND COMPUTER SCIENCE – These are mandatory STEM electives designed to introduce applied engineering math skills (*Principles of Engineering*) and introduce 100% of the 10th grade class to computer programming and coding





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11TH GRADE

Mission – CHOICE AND COMMITMENT

For the first time in their high school career, students will have choice over some of their classes. Based on the identity that they have created through their major, they will choose elective classes that reflect their major. They also get a chance to change their major if it does not match their identity. Students will also continue to be challenged through difficult college level courses including *AP Chemistry* and *Pre-Calculus* and the landings begin to become less soft. Junior year is a pivotal year in learning to become responsible for their own actions; college, once looming in the distance, is now right around the corner and every grade and test score becomes a testament to the level of commitment that students have in achieving their goals and bringing their dreams to reality.

CHOICE OF ELECTIVE – Students will choose semester long electives depending on their chosen major and must commit to them for subsequent semesters. Possible examples include *Sound Engineering (music)*, *Chemical Engineering*, *Biomedical Engineering*, and *advanced Computer Science* courses. Once they commit to an elective, they need to stick with it. For example, if they take the next computer science course, then they are committing to taking *AP Computer Science* senior year.

AP AND HONORS COURSES – These courses are designed to give students maintained exposure to a college-level workload. 11th graders have the opportunity to take *AP Chemistry* and *Pre-Calculus*.

MANDARIN I – Mandarin is a growing language within the global community, and students with a basic knowledge of Mandarin may receive additional opportunities in the STEM field. In order to fulfill a two-year foreign language requirement, 11th grade students will be enrolled in *Mandarin I*.

12TH GRADE

Mission – IDENTITY IN ACTION

During the last year of their high school journey, students must learn to persist in the hardest courses offered by our country's colleges and universities. 12th graders will take a challenging course load and enroll in a major-aligned STEM internship, which will prepare them for both the rigor of college courses and the high expectations placed upon those in STEM careers.

INTERNSHIP – After living with an identity for 2 years, students actually go to work and become what they have only previously imagined. Students will go off-campus and work in the industry they are majoring in.

CHOICE OF ELECTIVE – Students continue choosing and taking elective classes that match their chosen major.

AP AND HONORS COURSES – The purpose of these courses are to give students further exposure to a college level workload. 12th graders have the opportunity to take *AP Physics*, *AP Calculus*, and if they have the pre-requisites, *AP Computer Science*.

MANDARIN II – The second year of students' foreign language requirement.



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