

Cornerstone Components of 9-12 STEM Pathway

-**Rigorous Course Options** including Honors, AP, and dual credit opportunities.

-**Project-Based Learning** embedded within all course offerings, with emphasis on relevance and real-world problem solving. When applicable, the Engineering Design Process (EDP) is utilized.

-**The 4Cs** (Critical Thinking, Communication, Collaboration, and Creativity) embedded within all course offerings.

-**Choice-Driven**, allowing each student to find passion within course offerings that lead to purpose for college and/or career readiness and life goals.

-**A Well-Rounded Education**, with students accumulating credits in all areas of STEM.

-**Internship or Capstone Project**, to gain workplace skills in chosen STEM field of study or use STEM skills to solve a problem. Presentation to a panel and public forum are the final exit pieces to the pathway.

-**Electronic Portfolio** as a measurement and evidence of student learning and achievement.



Additional Requirements for STEM Pathway:

STEM Electronic Portfolio--Students will work to collect artifacts for his/her STEM Portfolio in all classes, demonstrating 21st Century Skills and STEM capacities. Selected artifacts will provide an opportunity for students to reflect on how STEM and 21st Century skills were used in the project/artifact as well as show individual growth and opportunity for redesign.

Either a STEM Internship (0.5 credit elective) or STEM Capstone Project (0.5 credit elective)—During fall of senior year, students will participate in a 60 hour internship or complete capstone project. He/she can elect to do the internship in a STEM field or choose a real-world problem to solve.

Clubs/Extra-Curricular Activities—Students will provide evidence and documentation of leadership and involvement in at least one school sponsored organization/club for at least two years in high school. The evidence and documentation will be included in his/her portfolio, reflecting on STEM/21st Century leadership competencies and growth while participating in the organizations/clubs. The purpose of this requirement is to connect the student to the school through participation in a school-sponsored activity. Examples include (but are not limited to): TSA, Science Olympiad, Bison Best Robotics, FIRST Robotics, DECA, FBLA, Speech and Debate, Student Congress, Drama, Madrigals, Chamber Orchestra, Jazz Ensemble, Math Club, Key Club, Student Council, National Honor Society, FCCLA, JROTC, Student Asset Team, leadership positions in athletics, etc. *Would consider expansion of the list based on new extracurricular offerings and approval by STEM advisor.

Final Presentations with STEM Panel:

-Students must prepare an oral presentation for an exit interview/final presentation to a panel regarding his/her STEM Internship or STEM Capstone Project and his/her STEM Portfolio.

1. Present existing STEM portfolio and plan for capstone/ internship (Fall of Senior Year). Feedback on plan will be given by district panel.
2. Upon completion of the internship/capstone project at the end of the semester, exit interview/final presentation will take place in front of selected panel.
3. A public forum to share internship experiences and capstone projects will take place for students to share learning with peers and community stakeholders.



West Fargo Public Schools

Educating today's learners for tomorrow's world.

9-12 STEM Pathway for West Fargo Public Schools



STEM

science • technology • engineering • math

Pathway Locations:

West Fargo High School
Sheyenne High School

West Fargo, ND

The West Fargo STEM Pathway



West Fargo STEM Pathway

***BOLD items are graduation requirements. Everything 1 credit, unless otherwise noted.**

*Students must accumulate 6.5 elective credits beyond the required 16.5 required units for graduation.

*1 AP or Dual Credit is required in either Math or Science for the STEM Pathway.

*Students completing the STEM Pathway will be recognized on academic record.

Science	Technology/Engineering	Mathematics	Other
<p>Select at least 4 credits, including 1 AP or Dual Credit in either Math or Science (3 Science Credits Required for Graduation—including 1 Life Science and 1 Physical Science)</p> <p><u>General Science Courses</u> *STEM Biology *Physical Science *Chemistry *Physics (prerequisite Geometry)</p> <p><u>Other Science Electives</u> *AP Biology/Dual Credit Biology (prerequisite Biology) *AP Chemistry (prerequisite Chemistry & Algebra II) *AP Physics (Algebra based—prerequisites Biology, Algebra I, Geometry) *AP Physics C: Mechanics & Electricity and Magnetism (prerequisite Physics or AP Physics) *Chemistry I & II (dual credit) *Genetics (0.5 credit) *Environmental Science (0.5 credit) *Earth Science (0.5 credit) *Anatomy & Physiology I & II (0.5 credit each) *Anatomy & Physiology I & II (dual credit—0.5 credit each) *Microbiology (dual credit) *Nanoscience (dual credit)</p> <p>*NOTE: It is required by the State of ND that if a student takes Biology as a 9th grader, that he/she also take Chemistry <u>and</u> Physics OR Physical Science to fulfill the Physical Science requirement by the state.</p> <p style="text-align: right;">_____ CREDITS</p>	<p>Select at least 3 Credits Cumulative in Technology/Engineering or Medical</p> <p><u>Technology</u> *CISCO I, II, III, IV (0.5 credits each) *Computer Programming (0.5 credit) *Exploring Computer Science (0.5 credit) *AP Computer Science *Computer Programming CSCI Visual Basic (dual credit) *Energy in Motion Innovations (0.5 credit) *Drafting Design I (0.5 credit) *Multimedia Production I & II (0.5 credits each) *Photography and Digital Media (0.5 credit) *Web Design (0.5 credit) *Advanced Web Design (0.5 credit) *Graphic Foundations of Technology (0.5 credit) *Intro to Publications *Publications-Newspaper I, II, III, IV *Publications-Broadcast *Publications-Yearbook I, II, III, IV</p> <p><u>Engineering</u> *Project Lead the Way—Intro to Engineering *Project Lead the Way—Principles of Engineering *Project Lead the Way—Civil Engineering *Computer Engineering I-II (0.5 credits each)</p> <p><u>Medical</u> *Health Science I & II *Medical Terminology (0.5 credit) *CNA Skills (0.5 credit) *Prevention/Care of Athletic Injuries (0.5 or 1 credit)</p> <p><u>Agriculture</u> Botany/Horticulture/Landscape Design (0.5 credit)</p> <p><u>Aviation</u> *Aviation Technology I *Aviation Technology II</p> <p style="text-align: right;">_____ CREDITS</p>	<p>Select at least 4 credits, including 1 AP or Dual Credit in either Math or Science (3 Credits Required for Graduation)</p> <p><u>General Math</u> *Algebra I *Algebra II *Geometry</p> <p><u>Math Electives</u> *Pre-Calculus (0.5 credit) *Calculus (0.5 credit) *AP Calculus AB *AP Calculus BC *Trigonometry (0.5 credit) *Statistics (dual credit—0.5 credit) *College Algebra (dual credit—0.5 credit)</p> <p style="text-align: right;">_____ CREDITS</p>	<p>*Health—0.5 credit *PE—2 credits</p> <p>4 Credits English Required *English I *English II <u>or</u> Soph. Honors English *English III <u>or</u> AP Junior English Language and Composition *English IV <u>or</u> AP Senior English Language and Composition</p> <p>*Other English Electives listed in the Program of Studies.</p> <p>3.5 credits Social Studies Required *Geography (0.5 credit) *STEM World History—9th grade year *US History <u>or</u> AP US History *US Government (0.5 credit) *Economics (0.5 credit)</p> <p>*Other Social Studies Electives listed in the Program of Studies.</p> <p>*It is highly recommended that 21st Century Leadership be a 1 credit elective in this pathway.</p> <p>*Consideration should be given to a well-rounded education. Other electives in a student's passion area are listed in the Program of Studies and can be included within the pathway in electives.</p> <p style="text-align: right;">_____ CREDITS</p> <p>TOTAL CREDITS for GRADUATION: _____</p>