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Course Title	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Earth Science	X				
Physical Science		X			
Biology			X	X	X
AP Biology				X	X
Chemistry			X	X	X
AP Chemistry			X	X	X
STEAM Integrated Physics**				X	X
Physics **				X	X
AP Physics I				X	X

****STEAM Integrated Physics and Physics meet the same Physics standards. Students may choose one or the other course. If a second Physics course is desired, students should take AP Physics.**

Graduation requirements are Earth Science (8th grade), Physical Science (9th grade), Biology or AP Biology, and one additional credit of Chemistry, AP Chemistry, or Physics.

COLLEGE BOUND:
It is highly recommended that college bound students successfully complete 4 full years of science in grades 9-12. Check the requirements of your college to help select the appropriate science courses. A strong math background is recommended for all advanced science courses.

Earth Science

Course#: A-S1 (0180) B-S2 (0181) – Full Year Required Course
Grade Levels: 8
Prerequisites: None
Course Description: Earth Science will provide students with opportunities to explore all physical aspects of our earth: air, land, water, and its place in the universe. Portions of the course are devoted to astronomy, meteorology, oceanography, geology, resource development, and careers in earth science.
Instructional Methods and Assessments: Instructional methods include lectures, discussions, reading for content, group work, and individual labs. Assessments include daily work, quizzes, unit tests, semester finals, and the State of Minnesota MCA Test.

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Basis for Student Success: Student success in Earth Science depends on the willingness to adapt to the High School. Students are required to use their Schoology calendar and planner to complete their work and stay on pace. A struggling student must proactively seek help during their advisory. Students who work hard and study for tests can expect to be successful and enjoy the class.

Physical Science

Course#: A-S1 (0182) B-S2 (0183) – Full Year Required Course
Grade Levels: 9
Prerequisites: None
Course Description: Physical Science gives students a beginning knowledge of the physical world and offers insight into the means by which scientific knowledge is acquired. Physical Science includes the study of the inner workings of Earth's systems, energy, motion and forces. This course is designed to serve as a foundation for Biology, Chemistry, Physics, and Earth Science. Students will be involved in hands-on laboratory experiments, guided learning, problem solving, and classroom discussion.
Instructional Methods and Assessments: Interactive boards, virtual labs, Vernier based labs, labs, demonstrations, lectures, reading for science content, group work, math based problems, unit tests, quizzes, and semester finals.
Basis for Student Success: Students should be prepared to devote time to reading, working on homework, participating in labs and studying for tests. A calculator is needed for this course.

Biology

Course#: A-S1 (0184) B-S2 (0185) – Full Year Required Course
Grade Levels: 10 - 12
Prerequisites: None
Course Description: Biology is an in-depth study of living things and their interactions between each other and planet earth. Nowhere has the explosion of knowledge and the impact of modern technology on human lives been more apparent than in the field of biology. In general, the course includes microbiology, plants, animals, and ecology. The theory that species change over time, evolution, is discussed. Class work includes reading, discussion, laboratory and written work. Laboratory work does include experience in dissection. In this course, students are given a solid foundation they need to understand the expanding role of biology in modern society and the skills to excel in future science courses.
Instructional Methods and Assessments: Instructional methods include lectures with the aid of SMART Board technology, laboratory experience, videos, and biological presentations by the student. Assessments include chapter quizzes, unit tests and observation assignments.

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Basis for Student Success: Biology requires more extensive reading than many students have experienced in past science courses. A willingness to increase your biology vocabulary is critical to success and understanding.
Minnesota State Standards: Minnesota State Life Science Standards were used to develop the curriculum for the biology course.

Chemistry

Course#: A-S1 (0187) B-S2 (0188) – Full Year Course
Grade Levels: 10 - 12
Geometry (or concurrent registration)
Course Description Chemistry is an investigation into the nature of matter. This course introduces the big ideas of chemistry necessary to understand relevant societal topics and prepare students for continued education beyond high school. This class revolves around the scientific method, atomic structure, chemical reactions, chemical quantities, and properties of matter.
Instructional Methods and Assessments: Personalized classroom (students choose learning methods and work at their own pace), interactive boards, experiments, digital curriculum, Google Apps, lab reports, math-based problems, and essential questions.
Basis for Student Success: Ability to solve applied algebra problems; Engineer solutions to problem based scenarios. Chromebooks are used everyday in class. A 3-ring binder with loose leaf paper and dividers and a scientific calculator are needed.

AP Chemistry

Course#: A-S1 (0189) B-S2 (0190) – Full Year Course
Grade Level: 10 - 12
Prerequisites:

1. **Algebra II (or concurrent registration)**
2. **Completion with passing grade of a required summer assignment -OR- 1 year of regular Chemistry.**

Strongly Recommended: One year of regular chemistry (See "basis for student success")
Course Description: The AP Chemistry course is a fast paced and challenging year long course designed to be the equivalent of a college level introductory chemistry course taken in a student's freshman year. This course is for the scientifically driven student seeking a career in a scientific or medical field or a student who has a high interest in the sciences and is seeking a challenge! AP Chemistry will include the following areas of study: Bonding, Reactions, Stoichiometry, Solutions, Molecular Geometry, Thermochemistry, Behaviors of Gases, Kinetics, Equilibrium, Acids and Bases, Electrochemistry and a small amount of Organic Chemistry. The AP Chemistry course has a high rigor with respect to the kind of textbooks used, the range and depth of topics covered, the development of higher order thinking skills and the time and effort required of students. Success in this course will depend on your study skills, reading and writing abilities, motivation and maturity.

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This course will culminate with taking the AP Chemistry Examination. Upon passing the AP Chemistry examination a student may receive college credit for an introductory chemistry course (the standards accepted for competency differ from school to school).
Instructional Methods and Assessment: Class time will include the following components: lecture presentations, laboratory work, class projects, independent/student work and online activities. Students will be assessed on homework, tests/quizzes, lab journals and laboratory/class participation.
Basis for student success: Students accepting the challenge of an Advanced Placement course should be self motivated and will be required to actively participate in all lectures, assignments and laboratory activities that are conducted during the year. The College Board recommends AP Chemistry as a 2nd year chemistry course. In order to provide students with enough instruction time to take AP Chemistry as a 1st year chemistry course this class will be offered 1st hour and will **start at 8:05** am each day.
REQUIRED MATERIALS: A 3-ring binder with loose leaf paper and 12 dividers (page protectors recommended), 1 composition notebook, A scientific calculator, black or blue ink pens, pencils and colored pencils.

Physics

Course#: A-S1 (0192) B-S2 (0193) – Full Year Course
Grade Levels: 11 - 12
Prerequisites: Must have completed FST or be currently enrolled
Course Description: This is a year-long course where students study the fundamental concepts of the universe. Topics include: Newton's laws of motion, energy, waves, sound, light, and electricity. This course takes a problem solving approach to learning. An understanding of geometry, algebra, and trigonometry is essential. Labs, demonstrations, and research add to the interest and excitement of Physics. Homework is a weekly expectation. **STEAM Integrated Physics and Physics meet the same Physics standards. Students may choose one or the other course. If a second Physics course is desired, students should take AP Physics.**
Instructional
Methods and Assessments: Labs, Vernier demonstrations, lectures, reading for science content, group work, math based problems, unit tests, quizzes, and semester finals.
Basis for Student Success: Students should be prepared to devote time to reading, working on homework, participating in labs and studying for tests. **Must have a scientific calculator**.

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STEAM Integrated Physics

Course#: A-S1 (0405) B-S2 (0406) – Full Year Course
Grade Levels: 11 - 12
Prerequisite: FST (or concurrent registration)
Course Description: STEAM is the integrated study of science, technology, engineering, art & math. This co-taught course will be instructed by a Science & Art Teacher and will be rooted in real-life learning experiences and projects that incorporate concepts in physics and art. This self-paced class will take students through major units in Physics through innovative investigations involving idea generation, creativity, critical thinking, collaboration and process based analysis. Students will demonstrate an understanding of properties of matter and energy through the production and creation of artifacts and/or functional/interactive artworks.
STEAM Integrated Physics will satisfy both Art & Physics graduation requirements.
STEAM Integrated Physics and Physics meet the same Physics standards. Students may choose one or the other course. If a second Physics course is desired, students should take AP Physics. ****There is a $10.00 fee to assist with the cost of supplies*.**
Instructional Methods and Assessments: Personalized classroom (students choose learning methods and work at their own pace), labs, demonstrations, studio work, math-based problems, class discussions, art appreciation & research, and exhibition of projects. Assessment is based on project criteria, written and performance assessments, participation in critiques, visual & conceptual problem solving, essential questions, developing artistic voice, completion of work, craftsmanship and responsible and proficient use of materials, time and equipment.
Basis for Student Success: Engineer solutions to problem based scenarios. Chromebooks are used daily. A visual journal (sketchbook) and calculator are needed.

AP Physics I

Course#: A-S1 (0198) B-S2 (0199) – Full Elective Course
Grade Levels: 11 - 12
Prerequisites: Algebra 2X (or concurrent registration)
AP Physics I is a year-long course, commitment is for the full year.
Course Description: Students will discover the explanations of our physical environment. Students will use trigonometry-based mathematics to learn Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. Students will also be introduced to electric circuits. AP Physics is designed for motivated students wishing to study science, math, or engineering in post-secondary education. Students may earn college or university credit (the standards for competency vary for each college/university) upon completion of the AP exam.

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Instructional Methods and Assessments: Interactive boards, virtual labs, Vernier based labs, personal-response systems, lab reports, math based problems, practice AP test sections, tests, and reading quizzes.
Basis for Student Success: Students should be prepared to devote time to reading, working problem sets, and writing lab reports. Students will be expected to sit for the AP exam in the spring. Students must have a scientific calculator.

AP Biology

Course # A-S1 (0196) B-S2 (0197) – Full Year Elective Course
Grade Level: 11 - 12
Prerequisite: Chemistry and completion of required summer assignment.
Strongly Recommended: 10th grade Biology.
Course Description: The AP Biology course is a fast paced and challenging year long biology course designed to be the equivalent of a college introductory course usually taken by biology majors in their first year at colleges and universities across the nation. The two main goals of AP Biology are to help students develop a conceptual framework for modern biology and to help students gain an appreciation of science as a process. The AP Biology course has a high rigor in respect to the kind of textbooks used, the range and depth of topics covered, the development of higher order thinking skills and the time and effort required of students. Success in this course will depend on your study skills, reading and writing abilities, motivation and maturity. This course will culminate in the taking of the Advanced Placement Biology Examination. Upon passing the AP Biology examination a student may receive college credit for an introductory biology course (the standards accepted for competency differ from school to school).
Instructional Methods and Assessment: Class time will include the following components: Lecture presentations, laboratory work, class projects, independent/student work, online activities and laboratory work. Students will be assessed on homework, tests/quizzes, lab journals, and laboratory/class participation.
Basis for student success: Students accepting the challenge of an Advanced Placement course will be required to actively participate in all lectures, assignments and laboratory activities that are conducted during the year. Students who do well in AP Biology are self-motivated and mature enough to handle the rigor of the course throughout the school year. **REQUIRED: 2-inch 3-ring binder with loose leaf paper and 8 dividers**