SCIENCE

To meet the Michigan high school graduation requirements, students must complete 3 credits of Science.

Course Sequencing - Science

		9	10	11	12
Science	.2	BIOLOGY	BIOLOGY PHYSICS CHEMISTRY	CHEMISTRY PHYSICS GEOSCIENCE AGRISCIENCE 3HR Coleman High CHEMICAL PROCESS TECH 3HR Delta	GEOSCIENCE CHEMISTRY PHYSICS AGRISCIENCE 3HR Coleman High CHEMICAL PROCESS TECH 3HR Delta
	.3	BIOLOGY	BIOLOGY CHEMISTRY GEOSCIENCE	CHEMISTRY PHYSICS GEOSCIENCE IB ENVIRONMENTALSCIENCE SL AGRISCIENCE 3HR Coleman High CHEMICAL PROCESS TECH 3HR Delta HUMAN BODY SYSTEMS A	BIOLOGY CHEMISTRY PHYSICS GEOSCIENCE IB ENVIRONMENTALSCIENCE SL AGRISCIENCE 3HR Coleman High CHEMICAL PROCESS TECH 3HR Delta HUMAN BODY SYSTEMS A
	.4			IB/AP ADVANCED BIOLOGY 1 1HR AP ADVANCED CHEMISTRY	IB/AP ADVANCED PHYSICS IB/AP ADVANCED BIOLOGY 2 1HR AP ADVANCED CHEMISTRY

SCIENCE COURSES

COURSE TITLE	PREREQUISITE	GRADE LEVEL	SEMESTER OR FULL YEAR	CONTENT
Biology SC3200	None	9-12	Full Year	This year-long course will provide students with an introduction to Biology concepts and is aligned with the State of Michigan High School Content Expectations. Successful completion of this course will satisfy the Biology component of the Michigan Merit Curriculum graduation requirement.
Biology A SC3300 *Accelerated*	None	9-12	Full Year	This course includes content and laboratory experiences relating to cellular biology, structural and chemical organization of living things, genetics, classification, ecology and other key biological concepts. Successful completion of this course will satisfy the Biology component of the Michigan Merit Curriculum graduation requirement.
Chemistry SC4210	Algebra completed or taken concurrently	10-12	Full Year	This course is designed to acquaint the student with concepts in the field of chemistry. Chemical principles are reviewed and applied in the laboratory throughout the year, and quantitative mathematical relationships are developed throughout the course. Successful completion of this course will satisfy the Physics/Chemistry component of the Michigan Merit Curriculum graduation requirement.
Geoscience SC4220	Biology	11, 12	Full Year	This course will provide students with an introduction to Earth Science concepts including the study of geology, weather and climate, astronomy, oceanography and other key topics. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
Physics SC4230		10-12	Full Year	This course includes the study of physical laws and their applications in the areas of mechanics, heat, sound, light, magnetism and electricity, as well as the use of data and formulas in mathematical equations. Successful completion of this course will satisfy the Physics/Chemistry component of the Michigan Merit Curriculum graduation requirement.

COURSE TITLE	PREREQUISITE	GRADE LEVEL	SEMESTER OR FULL YEAR	CONTENT
Chemistry A SC4310 *Accelerated*	.3 Algebra completed or taken concurrently and Biology A SC3300 w/a gr. of B+ or better	10-12	Full Year	This course will cover the same general principles and topics as Chemistry SC4210. The differences will relate to the depth of detail, mathematical analysis, and reasoning that students will be expected to perform. Laboratory reports are more detailed and comprehensive. Successful completion of this course will satisfy the Physics/Chemistry component or the third-year science requirement of the Michigan Merit Curriculum graduation requirements.
Geoscience A SC4320 *Accelerated*		10-12	Full Year	This course will cover the same general principles and topics as Geoscience SC4220, but in much greater depth. The relationships between the principles of earth science, physical laws and mathematics are developed through laboratory investigations and project work. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
IB Physics 1 A SC4330 *Accelerated*	Algebra 2 A completed or taken concurrently	10-12	Full Year	This course will cover many of the topics covered in Physics SC4230 but will include a more in-depth and mathematical approach to the laws of Physics. This course may be taken as a stand-alone Physics course or it can be taken as the first year of a two-year International Baccalaureate Physics course. Students pursuing an IB SL certificate may take the two-year program in grades 10-11 or 11-12. Students pursuing an IB HL certificate must take the two-year program in grades 11-12 as only seniors may take any IB HL test. Successful completion of this course will satisfy the Physics/Chemistry component of the Michigan Merit Curriculum graduation requirements.
Human Body Systems A SC3310		11,12	Full Year	This interactive course provides students with an overview of human anatomy and physiology, biological processes, medicine, and basic research techniques. Students will examine the interactions of body systems as they design experiments, investigate structures and functions, use data acquisition software to monitor body functions, work through real world cases, and explore science in action! Students participating in the Health Care & Technology program during 11th grade must take this course concurrently with Health Care and Technology I. This course is open to students that are not enrolled in the Health Care program. It is recommended that students successfully complete a biology and chemistry course before enrolling in this course; this course is not a replacement for Advanced Biology. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
IB Environmental Science SL A SC5310 *Accelerated*		11, 12	Full Year	This course provides students with a coherent perspective of the interrelationships between environmental systems and societies; one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face. Students will develop a sound understanding of the interrelationships between environmental systems and societies, rather than a purely journalistic appreciation of environmental issues. The teaching approach strives to be conducive to students evaluating the scientific, ethical, and socio-political aspects of issues. Successful completion of this course will allow students to earn an IB SL certificate in IB Environmental Systems and Societies. This course will have an emphasis on the earth and space science standards. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
AP Advanced Chemistry H SC5420 *Honors*	Algebra 2 A completed or taken concurrently and Chemistry SC4310 preferred or Chemistry SC4210 w grade of B or better	11, 12	Full Year	This course emphasizes an advanced treatment of the principles and concepts of inorganic chemistry introduced previously at the first-year level. The development of these concepts will involve, where possible, a rigorous mathematical approach. Laboratory work is conducted in inorganic, organic, and analytical chemistry and written laboratory reports are required for each student. Classwork will involve lecture, discussion, and the development of problem-solving techniques. This class will prepare students for the AP Chemistry exam. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
IB/AP Adv Biology 1 HL H SC5430 *Honors*	Biology A SC3300 and Chemistry SC4310 preferred or Chemistry SC4210 with a grade of B or better	11,12	Full Year	This course will meet one hour daily and is the first course of a two-year program that will prepare students to meet the International Baccalaureate Group 4 HL requirement, and the Advanced Placement exam in Biology. The course emphasizes human physiology, microbiology, genetics, anatomy with dissection, laboratory techniques, scientific research and writing, and individual and/or group project work. This course may be taken as a stand-alone one-year Advanced Biology course, but the intent is to provide students with the necessary preparation, over the course of two years, to meet IB requirements or to take the AP test. The second course in this sequence is **SC 6430**. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.

COURSE TITLE	PREREQUISITE	GRADE LEVEL	SEMESTER OR FULL YEAR	CONTENT
IB AP Advanced Physics 2 H SC6400 *Honors*	IB Physics 1	11, 12	Full Year	This course includes a more in-depth coverage of topics introduced in Physics SC4330 both in terms of content and mathematical analysis. A strong mathematical background is essential for student success in this course. This course may be taken as a stand-alone Physics course, or students may take this as the second year of a two-year International Baccalaureate Physics course. Students who successfully complete this course will be prepared to take the Physics AP exam and/or the IB Physics SL or HL exam if desired. Students may take the SL test when in 11th or 12th grade but may only take the HL test when in the 12th grade. Successful completion of this course will satisfy the Michigan Merit Curriculum requirement for a third year of science.
IB/AP Adv Biology 2 HL H SC6430 *Honors*	IB/AP Adv. Biology 1 SC 5430	12	Full Year	This course will meet one hour daily and is the second course of a two-year program that will prepare students to meet the International Baccalaureate Group 4 HL requirement, and the Advanced Placement exam in Biology. The course emphasizes cellular biochemistry, evolution, taxonomy, plants, ecology, laboratory techniques, scientific research and writing, and individual and/or group project work. Students must successfully complete **SC 5430** in their junior year to enroll in this course.
Agriscience AN4200 3 hour Coleman High School	With permission from counselor	9-12	Full year	This 3-hour course meets at Coleman High School. Students will explore and prepare for careers and college programs in animal science, plant science, greenhouse management, environmental and energy systems, natural resources management, pest management, soil science, scientific and social implications of agriscience, and agribusiness. Through technology-rich, business-connected projects and assignments, students will also gain the 21st century skills that are critical for college and career success such as: work ethic, flexibility, leadership, collaboration, creative problem solving, project management, self-reliance, and communication. Students will conduct experiments, grow plants in the greenhouse, care for animals in the agriscience barn, and complete projects in the classroom laboratory area. Membership in the National FFA Organization is strongly encouraged so that students can further develop leadership, entrepreneurship, and technical skills. Community service and outreach programs will also be a critical component of the program. Completion of this full program meets the requirements for 4th year senior related math and 3rd year of science.
Chemical Technology IE5230 3 hour Dual Enrollment Delta College	The successful completion of algebra and concurrent or successful completion of physics is required. Must complete science graduation requirements.	12	Full Year	This 3-hour course meets at Delta College and consists of an overview of chemical processing and manufacturing operations. Students will learn vital processing components, including typical chemical processes, operator roles and responsibilities, reactor operations, distillation operations, heat exchangers, pumps and fluid flow, valve types and applications and process instrumentation. The course also includes an introduction to process flow sheets and piping instrumentation diagrams, filtration operations, safety and quality assurance issues. Students have the potential to earn 23 Delta College credits in this course. This course meets the requirements for the 4th year senior related math. Students are responsible for their own transportation.