Physical Science (H) (Grade 9):
1 Credit
Prerequisite: TBD
This full year course is for the advanced science and math student. The Honors Physical Science curriculum runs concurrently with that of the Physical Science course but involves a more in depth integration of mathematics into topics such as motion, thermal energy, fluid dynamics, and properties of matter. Instruction is differentiated to include lecture, demonstration, small group collaboration and laboratory experimentation, as well as independent investigation. Candidates for Honors Physical Science should possess independent problem solving skills, be sound in their mathematical skills, and have a desire to follow a rigorous tract in the science and math programs offered at Gilbert.

Physical Science
1 Credit
Prerequisite: TBD
Physical Science is a full-year course that concentrates on the study of matter, energy and the environment. Units include electricity, energy resources, environmental impact, motion, thermal energy, electromagnetic waves, carbon chemistry, and the properties of matter. A variety of instructional styles are used, among them are lecture, demonstration, small group collaboration and laboratory experimentation.

Biology (H) (Grade 10) (305)
1 Credit
Prerequisite: TBD
This challenging introductory life science course runs concurrently with Biology and emphasizes a greater in-depth study of biological processes and scientific practices. Students will investigate topics including cell structure and function, infectious diseases, genetics and evolution and will be expected to work independently and collaboratively to develop an enduring understanding of biological concepts through experimentation and project-based learning.

Biology (Grade 10) (306)
1 Credit
Prerequisite: TBD
This introductory life science course is taken by all high school students in Connecticut. Emphasizing laboratory and project-based approaches, students will investigate topics including cell structure and function, infectious diseases, genetics and evolution. The course aims to provide students with a conceptual framework of important biological processes and the ability to apply their reasoning skills.
AP Biology (Grades 11-12) (310)
1 Credit
Prerequisite: TBD
The AP Biology course is designed to be equivalent of a college introductory biology course usually taken by biology majors during their first year. The course is open to those students who have successfully completed Biology I, as well as Chemistry. The course focuses on inquiry-based learning in which students engage in scientific practices and develop enduring understandings of biological concepts. Students are expected to take the AP Biology Exam. Students are responsible for half the cost of the exam. The school will pay the entire cost of the exam for students who receive a 3 or better on the exam.

AP Chemistry/Chem Lab (Grade 11) (321 & 322)
1 Credit
Prerequisite: TBD
The AP Chemistry Course is a full year college level course providing a wide range of knowledge in the field of chemistry. This course is designed with the goal of preparing students for college as well as teaching them a basic understanding of the field of chemistry. Students will be expected to take the AP exam. The exam cost will be covered by the school in the event the student receives a three or better. Otherwise the cost of the exam will be split between the student and The Gilbert School. A lab period will happen once a week in order to provide further inquiry into topics of study.

Chemistry (Grades 11-12) (314)
1 Credit
Chemistry is the study of Matter and its properties. Why does this matter you may ask. Chemistry at the Gilbert school is a college preparatory course, meaning if you want to go to college this class is for you. The curriculum includes a variety of Theories and laws that may shock and amaze you. Experimentation and discovery are encouraged all the time. In addition to learning the topics of chemistry you will be forced to think and problem solve and even create your own experiments.

AP Physics 1/Physics Lab (Grade 12) (323 & 327)
1 Credit
Physics explains the world. AP Physics is a course for college bound students who want to have their mind blown by the amazing things that are happening around them all the time. Both classical and modern physics will be explored in topics ranging from mechanics to optics and light. Aspects of the course are math based including algebra and basic trigonometry. AP Physics will also include a Lab that will take place once a week, to further explore the world as we perceive it. Students will be expected to take the AP exam. The exam cost will be covered by the school in the event the student receives a three or better. Otherwise the cost of the exam will be split between the student and The Gilbert School. A lab period will happen once a week in order to provide further inquiry into topics of study.
Conceptual Chemistry (Grades 11-12)
1 Credit
Prerequisite: TBD
This course is intended for the student interested in the study of the basic concepts of chemistry but who has a limited mathematical background. The ideas of chemistry are explained through practical application in the laboratory to answer local workplace, national or workplace questions. Students learn chemistry in the context of real world issues. The goal of this course is to present to students the need and the skills to acquire technical knowledge to make informed decisions for themselves and the communities in which they belong.

Anatomy and Physiology (Grades 11-12)
1 Credit
Prerequisite: TBD
The course concentrates on the structure and function of the human organism. It includes a comprehensive overview of each organ system and how these systems are integrated. The following topics are included in this course: an orientation to the human body, cells, tissues, integumentary system, skeletal system, muscular system, nervous system and the digestive system. Students will study the organ systems through demonstrations, audiovisual presentations, laboratory exercises, dissections and discussion. The course is designed to help prepare students for more advanced courses in health-related fields such as physical therapy, sports medicine, and physical education.

Environmental Science (Grades 9-12)
.5 Credit
Prerequisite: TBD
Environmental Science is the study of the earth and all its intricacies. Open to all students, this course will look at the world from three major viewpoints, that of the earth as a “living machine”, as a “home” to major flora and fauna, and as an “employer” focusing on the contributions of the flora and fauna that help to shape the environment. The student will delve into the realms of plate tectonics, oceanology, topography, zoology, botany, and the interactions between organisms of all types during the semester. Particular emphasis will be placed on the environment of Northwestern CT, its formation, and what makes it unique. An integral portion of this course will be fieldwork on the Gilbert property.

Robotics 1 (Grades 9-12)
.5 Credit
Prerequisite: None
Robotics 1 is an opportunity for students to experience basic programming, technology, design and
building new things. The course begins with Lego Mindstorm, which is a continuation of the middle school robotics program. It is a base programming format which is then expanded into Scratch gaming and the design of video games through class work. The course is hands on, and highly project based.

**Robotics 2 (Grades 9-12)**

*.5 Credits*

**Prerequisite: Robotics 1**

Robotics 2 is the continuation course to robotics 1. Instead of using Lego mindstorm students will dive into higher function programming and activity. Once again the course is project based and highly hands on. This course is geared to students who want to learn more about the intricacies of programming and engineering.

**Marine Biology (Grades 9-12)**

*.5 Credit*

**Prerequisite: None**

Marine Biology presents an opportunity to survey the diverse invertebrate and vertebrate phyla of the 70% of our planet that is considered the marine biome. In addition, the dynamics of the ecosystem including biotic and abiotic factors that contribute to the marine organism community are investigated. This course is aimed at students with a motivation and an interest in pursuing a deeper understanding of these biological concepts.