Technology

Keyboarding

This one-semester course is designed to develop "touch keyboarding" skills. Applications will be confined mainly to simple problems in vertical and horizontal centering, one or two business letter formats, brief memorandums, form fill-ins, simple tables, basic word processing and term papers with footnotes. A student will earn .5 credits upon successful completion of this course.

Computer Applications

This class goes beyond the fundamentals and offers an in-depth presentation to Microsoft Office Word, Microsoft Office Power Point, and Microsoft Office Excel. To expose students to practical examples of the computer as a useful tool. Acquaint students with procedures to create and enhance document, worksheets, data bases, and presentations suitable for coursework, professional purposes, and personal use. To develop an exercise-oriented approach that allows learning by doing. Keyboarding should be taken prior. A student will earn .5 credits upon successful completion of this course.

Mathematics

Foundations of Math

Foundations of Math develops skills and processes that can be applied to a variety of problems in different areas of study. Students will be able to solve all types of linear equations and inequalities in one variable and quadratic functions. Coordinate Geometry will be utilized to make connections between their analytical and geometrical representations using one and two variables. Students will calculate rates using appropriate units. Data analysis will be used to determine appropriate measures of central tendency and data will be displayed using histograms and box-and-whisker plots. Factoring techniques will be utilized to perform operations on rational expressions and equations. Students will be able to perform the four basic operations on polynomials and radicals. Completion of this course prepares a student for further work in Algebra. Students will take a Local Examination at the end of this course. A student will earn 1.0 credit upon successful completion of this course.

Integrated Algebra

Integrated Algebra develops skills and processes that can be applied to a variety of problems in different areas of study. Students will be able to solve all types of linear equations and inequalities in one variable, quadratic functions, absolute value, and exponential functions. Coordinate Geometry will be utilized to make connections between their analytical and geometrical representations using one and two variables. Students will calculate rates using appropriate units and converting within measurement systems. Data analysis will be used to determine appropriate measures of central tendency, and data will be displayed using histograms, box-and-whisker plots, and scatter plots.

The data will be analyzed to construct reasonable lines of best fit and make predictions. Properties of the right triangle will be used in applying the Pythagorean Theorem and Trigonometry. Factoring techniques will be utilized to perform operations on rational expressions and equations. Students will be able to perform the four basic operations on polynomials and radicals. Theoretical Probability will be calculated to find the outcomes of independent, dependent and mutually exclusive events. Completion of this course prepares a student for further work in Geometry. Students will take a New York State Regents Examination at the end of this course. A student will earn 1.0 credit upon successful completion of this course.

Geometry

There is no other school mathematics course that offers students the opportunity to act as mathematicians. Within this course, students will have the opportunity to make conjectures about geometric situations and prove in a variety of ways, both formal and informal, that their conclusions follow logically from their hypothesis. This course is meant to employ an integrated approach to the study of geometric relationships. Integrating synthetic, transformational, and coordinate approaches to geometry, students will justify geometric relationships and properties of geometric figures. Congruence and similarity of triangles will be established using appropriate theorems. Transformations including rotations, reflections, translations, and glide reflections and coordinate geometry will be used to establish and verify geometric relationships. A major emphasis of this course is to allow students to investigate geometric situations. Properties of triangles, quadrilaterals, and circles should receive particular attention. It is intended that students will use the traditional tools of compass and straightedge as well as dynamic geometry software that models these tools more efficiently and accurately, to assist in these investigations. Geometry is meant to lead students to an understanding that reasoning and proof are fundamental aspects of mathematics and something that sets it apart from other sciences. Completion of this course prepares a student for further work in Advanced Algebra/ Trigonometry. The student will take a New York State Regents exam and the end of this course. A student will earn 1.0 credit upon successful completion of this course.

Advanced Algebra/Trigonometry

Advanced Algebra and Trigonometry is a continuation and extension of the two courses that preceded it. While developing the algebraic techniques that will be required of those students that continue their study of mathematics, this course is also intended to continue developing alternative solution strategies and algorithms. For example, technology can provide to many students the means to address a problem situation to which they might not otherwise have access. Within this course, the number system will be extended to include imaginary and complex numbers. The families of functions to be studied will include polynomial, absolute value, radical, trigonometric, exponential, and logarithmic functions. Problem situations involving direct and indirect variation will be solved. Problems resulting in the systems of equations will be solved graphically and algebraically. Algebraic techniques will be developed to facilitate rewriting mathematical expressions into multiple equivalent forms. Data analysis will be extended to include measures of dispersion and the analysis of regression that model functions studied throughout this course. Associated correlation coefficients will be determined, using technology tools and interpreted as a measure of strength of the relationship. Arithmetic and geometric sequences will be expressed in multiple forms, and arithmetic and geometric series will be evaluated. Binomial experiments will provide the basis for the study of probability theory and the normal probability distribution will be analyzed and used as an approximation for these binomial experiments. Right triangle trigonometry will be expanded to include the investigation of circular functions. Problem situations requiring the use of trigonometric equations and identities will also be investigated. The student will take a New York State Regents exam at the end of this course. A student will earn 1.0 credit upon successful completion of this course.

Pre-Calculus

Pre-calculus is a non-regents course and is the equivalent of a college level algebra class. In this course, students have the opportunity to extend their mathematical knowledge, to integrate and synthesize what was learned in

Integrated Algebra, Integrated Geometry, and Advanced Algebra 2 & Trigonometry in a way that will prepare them for the study of calculus. The course integrates statistical and algebraic concepts such as rational functions, logarithms, trigonometry, and matrices. The course also previews calculus while working with functions, limits, and derivatives. Students will also be provided the opportunity to develop their analytical and problem solving skills as well as solve problems in mathematical and real-world settings. Graphing calculators are required for students' use in plotting functions and analyzing data.

At the completion of the year students will be required to take a local exam. Fulfillment of this course prepares a student for further work in calculus and also prepares them any college math course. A student will earn 1.0 credit upon successful completion of this course.

Calculus

This course is designed for students who have successfully completed Pre-Calculus. It is strongly recommended that college-bound students study mathematics every year that they are in high school. Calculus is a non regents course, and is the equivalent of a first semester college calculus course introducing basic concepts of differential and integral calculus, but students will not receive college credit. Topics covered will include: Functions, graphs, limits and continuity, derivatives, integrals, applications of derivatives, and applications of integrals. Students should have a strong understanding of algebra, geometry, trigonometry and elementary functions. Students will be required to take a local exam and the conclusion of the year. A student will earn 1.0 credit upon successful completion of this course.

Business Math

In Business Math students will cover all the skills students need to manage their personal finances and excel at their first jobs and in everyday life. To hold their interest, a course in mathematics will address their concerns, spark their curiosity and engage their entrepreneurial spirit. The material is presented in a personal, practical style that students instantly recognize as relevant to their lives. Basic Math skills review fundamental math operations that the class builds on. From there, students go on to personal finance, where they learn money management skills. Business Math provides a thorough primer on launching and running a business. This class teaches workplace essentials such as reading and language arts, as well as foundation skills such as critical thinking and problem solving. The stock market game also serves as a key component and grade for the class as well. A student will earn 1.0 credit upon successful completion of this course.

Money Skills

Money Skills a personal finance course, is highly interactive, reality-based Internet curriculum. Its purpose is to educate students to make informed financial decisions. The course consists of "How to" modules covering income, expenses, savings, credit and insurance. Money Skills includes two real-life simulations which allow creation of a personal, financial plan from the time a student is financially independent of parents to the intended age of retirement. A student will earn .5 credits upon successful completion of this course.

Financial Literacy

This elective course will focus on making a smooth transition into the post graduate financial decision making process. Selected topics will include budgeting, investing, Retirement and financial planning and being a savvy shopper. Life insurance wil be covered in great detail. Costs will also be covered and will include; check writing, debt/income ratio, taxes (types and percentages), and use of credit cards. A student will earn .5 credits upon successful completion of this course.

Applied Statistics

This elective course will teach students that numbers are everywhere. Students will learn topics ranging from Mean, Median, and Mode, Linear Regression, Normal Distribution, as well as "funner" applications to math such as Fantasy Sports and Probability through the NBA Draft.

Science

GENERAL SCIENCE

General Science is a foundation class for 9th graders which bridges middle school science concepts to the required skills and content necessary to succeed in any high school regents science course. Topics covered include lab skills, lab safety, lab equipment, Metric System measurement and conversions, Scientific Method, and graphing skills. Content also covers chemistry ideas used in biology, earth science, and living environment. Cadets will earn one year of science credit.

Living Environment

This course presents current knowledge in biology using the latest New York State Syllabus. The material covered will help students to better understand themselves and the world around them. The major topics will be human biology, including anatomy and physiology, reproduction and development, genetics, change of organisms over time, and ecology. Satisfactory completion of laboratory requirement, passing of the Regents exam will result in Regents credit. Cadets will earn one year of science credit upon successful completion of the class.

General Earth Science

This class will be a full year class that will count as a science credit. It will be broken up into the study of Astronomy and Natural Disasters. These topics will study the following:

Astronomy: In Astronomy, students study the following topics: astronomy in civilization, patterns and objects in the sky, our place in space, the moon, and reasons for the seasons, planets, the sun, stars, galaxies, cosmology, and space exploration.

Natural Disasters: In Natural Disasters students will learn about tornadoes, volcanoes, earthquakes, hurricanes, floods, blizzards, landslides, wildfires, and tsunami. This class will help students to understand how these disasters occur and why. The students will also take a look at how humans are affected by these disasters and technology that has been developed to assist in prevention or advanced warning systems.

Earth Science

Earth Science is basically the scientific study of the Earth. In this class students will study topics ranging from the beginning of the universe to the human impact on Earth's future climate. The branches of Earth Science include Geology, Oceanography, Meteorology and Astronomy. During the year students will begin to think about earth in terms of systems, cycles, and continual processes. Students will study the rock cycle, the water cycle and process like erosion and hurricane formation. Earth Science is very broad and with topics like volcanoes and other planets everyone is sure to find something interesting along the way. Some questions that will be explored in this course are: Why don't hurricanes hit New York City? Why do the continents fit together like puzzle pieces? Why does the moon just keep spinning around the earth? At the end of this course the student will take a New York State Regents exam. A student who completes this course will receive 1.0 credit.

Chemistry

Chemistry is the study of the atom and the chemical reactions that result from the interaction of atoms. The Regents Chemistry course includes chemical concepts encompassing lab safety, development of Atomic Theory, periodicity and the development of the Periodic Table, Moles & Stoichiometry, Chemical Equations/Reactions with Formula Math, Chemical Bonding and Intermolecular Forces, Physical Behavior of Matter, Energy, Kinetics & Equilibrium, Organic Chemistry, Oxidation & Reduction (REDOX), Solution, Acids, Bases, & Salts, and Nuclear Chemistry. The student will learn how to better visualize the structure of an atom through the use of diagrams, models, and molecular kits. Mastery in Regents Chemistry will provide an excellent foundation for any college chemistry course. The curriculum follows the NYS Education Department Regents Chemistry Standards. Each student must earn at least 1200 minutes in the laboratory setting in order to be eligible to sit and take the NYS Regents Chemistry Examination. The cadet earns one full science credit for one full year of classes. Classes meet every day for one period and every other day for lab.

Medical Terminology

Ø 20 weeks/1 semester long course

Ø What is medical terminology? Medical terminology is the study of words used in the health related fields such as medicine, nursing, physical therapy, pharmacy, etc.

Ø How do the cadets learn medical terminology? It is like a game. First, you learn the rules, than you play the game to win. Learning the rules (prefixes, root words, and suffixes and their meaning), playing the game

(Separating the medical term into pieces) leads to winning (understanding what the term now means)!

Ø Why? SATs, Regents Exams, and other standardized tests use

Advanced terminology (college level) vocabulary.

Introduction to Health Related Professions (Careers)

Ø 20 weeks/ 1 semester long course

Ø What is a health related profession? A health related profession is a career involving the care of people during an illness. Some health related fields could be medicine, nursing, physical therapy, pharmacy, occupational therapy, nurse's aide, medical secretary, medical records administrator, and gerontology.

Ø How do the cadets learn about health related professions? Cadets will research professions, educational requirements, and accompanying salaries. Guest speakers will be invited to share stories about their careers.

Ø Why? The baby boomers are growing old and health care professions now

And in the future are going to be in high demand. Currently, our nation is suffering from a nursing shortage.

Forensics

Forensic science is the application of basic biological, chemical and physical science principles and technological practices to the purposes of justice in the study of criminal and civil issues. Major themes of study in this course are pathology, anthropology, ballistics, trace evidence, biological fluids, DNA, fingerprints, impression evidence, questioned documents and forensic psychiatry/psychology. A student will earn 1.0 credit upon successful completion of both these courses.

Physics

Physics is an introductory course in high school physics. Students should be familiar with basic algebra, geometry, and trigonometry in preparation for this course. Students will be required to take a mid-term and comprehensive final exam. Physics involves a significant amount of lab work, hands-on activities, and exploration. Key topics include Kinematics (1- and 2-D motion); Dynamics (Forces); Circular Motion and Gravity; Momentum and Impulse; Work, Energy, and Power; Electrostatics; Circuits; Magnetism; Waves; Modern Physics. A student will earn 1.0 credit upon successful completion of both these courses.