

SCIENCE

SCIENCE - SC10F - FOUNDATION

SC10F is divided into four major units: Reproduction, Atoms and Elements, Nature of Electricity, and Exploring the Universe. The Reproduction unit involves the study of human reproduction and genetics. Atoms and Elements is an introduction to the basics of chemistry. The Nature of Electricity unit has students investigating static and current electricity. Exploring the Universe leads students through an exploration of the universe and the study of space science and technology.

SCIENCE - SC20F - FOUNDATION

The SC20F program is composed of four major units: Dynamics of Ecosystems, Chemistry in Action, In Motion, and Weather Dynamics. Dynamics of Ecosystems has students examining ecosystem relationships, population dynamics, biodiversity and how human activities affect ecosystems. The Chemistry in Action unit is a continuation from SC10F's Atoms and Elements. Students will study chemical reactions, nomenclature basics, principles of acid-base chemistry, and the effects of chemical use in the environment. Basic kinematics along with the concepts of inertia, force, impulse and momentum are looked at during the In Motion unit. The complex relationships that influence weather and climate are pursued in the Weather Dynamics unit including the impact of human activities on our global climate.

BIOLOGY - BI30S

Students in BI30S will study the Human Body with respect to homeostasis, digestion and nutrition, the respiratory system, excretion and waste management, and concluding with the immune and nervous system. Students will also look at how technology has affected the wellness of the human body and resulting social issues.

CHEMISTRY - CH30S

Using the kinetic molecular theory, students will look at phase changes including the concepts of heat capacity, specific heat, and heat of fusion and vaporization. Students will also be studying physical characteristics of gases, gas laws, stoichiometry, solutions and their physical characteristics, and organic chemistry including IUPAC nomenclature. Included in their studies will be a look at how chemistry has affected our quality of life.

PHYSICS - PH30S

The PH30S course is divided into four major areas: Waves, Nature of Light, Mechanics and Fields. Some of the concepts studied in waves are the physical characteristics of waves, superposition of waves and wave interference. The concept of waves continues into the Nature of Light where light is looked at in terms of its wave characteristics and particle characteristics. Carrying on from the SC20F program, students will continue the study of kinematics during the Mechanics unit. To complete and overview of basic physics, students will address the concept of fields with respect to gravitational, magnetic, electric and electromagnetic fields. Included in their studies will be a look at how the relationship between physics and science and technology has influenced our quality of life.

SCIENCE CURRENT TOPICS - SC30S

Multidisciplinary topics based on current issues serve as the organizing themes for this course, in which scientific knowledge and its implications are presented in a unified manner, integrating the areas of biology, chemistry, physics, the geosciences and the space sciences. The course shifts the focus from teaching concepts and facts to teaching critical thinking and problem-solving skills developed through the study of a particular topic, from which key concepts and facts will evolve naturally from the context at hand.

BIOLOGY - BI40S

In this course, students are exposed to foundation concepts regarding the Biology of the world around us. The interdependence of life is a recurring theme in the course work.

Students are expected to integrate information gained in previous units and apply that information throughout the semester. Topics of study include

- Ecology
- Biological Diversity
- Genetics
- Specific emphasis will be placed on the use of •Biotechnology including
- Genetically modified food
- Forensics
- Recombinant DNA technology
- Human Genome Project
- Gene Therapy

CHEMISTRY - CH40S

Chemistry 40S students in this very comprehensive course will study five units consisting of Kinetics, Chemical Equilibrium, Acid-Base Equilibria, Solubility Equilibria and Oxidation-Reduction. Within these units, concepts such as factors affecting reaction rates, Le Chatelier's Principle, pH, buffers and electrochemical cells are a few that will be addressed. Throughout the program, students will gain an understanding of observation and inference in this experimental science.

PHYSICS - PH40S

Physics 40S students in this very comprehensive course will study four units consisting of Mechanics, Fields, Electricity and Medical Physics. Students will have been exposed to the elementary concepts of these units in PH30S and apply them to such new concepts as projectile motion, circular motion, work and energy, low Earth orbits, electric circuits and radiation, Throughout the program, students will gain an understanding of how science, technology and the environment are related in a physical sense.

SCIENCE CURRENT TOPICS - SC40S

SC40S is the complement course to SC30S with concentration on topics in society, science and the environment. SC40S topics based on current issues, serve as the organizing themes for this course, in which scientific knowledge and its implications are presented in a unified manner, integrating the areas of biology, chemistry, physics, the geosciences and the space sciences.