

SCIENCE

California State Standards recommend Courses in Earth Science, Biological Science, Chemistry, and Physics.

Course Title: **COORDINATED SCIENCE A/B**

Prerequisite: None

Credit: 5 or 10

Meets District Graduation Requirements: Life or Physical Science

Grade Level: 9-12

Fulfills UC/CSU Requirements: No

Can be a two-year program designed to provide students with basic science and study skills. Students will learn a variety of material from biological, geological, astronomical, and physical sciences. Students will become familiar with introductory science vocabulary and develop fundamental problem-solving skills through classroom activities.

Course Title: **COORDINATED SCIENCE C/D**

Prerequisite: None

Credit: 5 or 10

Meets District Graduation Requirement: Life or Physical Science

Grade: 9-12

Fulfills UC/CSU Requirements: No

Can be a two-year program. Students will learn a variety of material from biological, geological, astronomical, and physical sciences. Not open to students who have passed Earth/Space Science, Biology or Integrated Science.

Course Title: **SHELTERED COORDINATED SCIENCE A/B**
See Coordinated Science AB

This course will give LEP students an overview of the major areas of science similar to that offered in the introductory courses of Life Science and Human Science.

Course Title: **SHELTERED COORDINATED SCIENCE**
See Coordinated Science CD

This course will give LEP students an overview of the major areas of science similar to that offered in the introductory courses of Life Science and Human Science.

Course Title: **SHELTERED LIFE SCIENCE**

Prerequisite: English Learner Program

Credit: 10

Meets District Graduation Requirement: Life Science

Grade Level: 9 - 12

Fulfills UC/CSU Requirements: No

Life Science is a basic introductory course for limited English speaking students.

*Course title in parentheses indicates how it will appear on the transcript.
Not all courses are available at all sites each semester/year.*

Course Title: **MARINE BIOLOGY**

Prerequisite: None

Credit: 10

Meets District Graduation Requirement: Life Science

Grade Level: 9 - 12

Fulfills UC/CSU Requirements: No

This course will offer a comprehensive look at the marine environment. In Marine Invertebrates, the student will identify interrelationships between organisms and will survey major phyla and classes as they apply to the eastern Pacific. A survey of communities in our local ecosystems (tide pools, kelp forests, lagoons, and beaches) will also be included. The course will include some laboratory activities, but is not intended to meet the requirements of a laboratory science for the pre-college student. This course will utilize live or preserved animals or parts in the instructional program. Students with moral objections may be excused from participating in such activities (Board Policy 6144.5).

Course Title: **PHYSICAL SCIENCE**

Prerequisite: None

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 9 - 12

Fulfills UC/CSU Requirements: No

This is an introductory level course that covers the basic concepts of the study of matter and energy. The chemistry and physics sections will be weighted equally in terms of time spent in each area. While the course can be used to fulfill the basic physical science requirement for graduation it is intended also to stimulate an active interest in the physical sciences in students who are considering attending college. The course will develop lab skills, build a knowledge base and enhance the science literacy of our students. Emphasis will be placed on the practical aspects of matter and energy. The selection of topics is aimed at complementing those presented in physical oceanography. It is recommended that the student complete one semester in each course consecutively.

Course Title: **SHELTERED PHYSICAL SCIENCE**

See Physical Science

This course will give students in the English Learner Program an overview of the major areas of science similar to that offered in the courses of Physical Concepts and Earth and Space Science.

Course Title: **BIOLOGY**

Prerequisite: "C" or better in Algebra/Algebra I Honors

The District recommends the following sequence in Science:

Earth/Space Science, Biology, Chemistry, Physics

Biology is intended to be a 10th grade course. **Freshmen wishing to enter Biology must first consult with their counselor.**

Credit: 10

Meets District Graduation Requirement: Life Science

Grade Level: 9 - 12

Fulfills UC/CSU Requirements: Yes

Biology is a college preparatory course, which is accredited as a laboratory science. It utilizes lectures, demonstrations, textbooks and laboratory situations, and other visual aids to give students a basic background in biology. Emphasis is placed on laboratory work using scientific methodology and research. This course will utilize live or preserved animals or parts in the instructional program. Students with moral objections may be excused from participating in such activities (Board Policy 6144.5)

Course Title: **SHELTERED BIOLOGY**

See Biology

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Not all courses are available at all sites each semester/year.*

Course Title: **AP BIOLOGY**

Prerequisite: The ability and academic background to complete college-level work. The College Board states; "The AP Biology course is designed to be taken by students after the successful completion of a first course in high school Biology and one in high school Chemistry as well".

Grade Level: 11-12

Fulfills UC/CSU Requirements: Yes

Credit: 10

Meets District Graduation Requirement: Life Science

AP Biology is designed to be the equivalent of a two-semester college introductory biology course usually taken by science majors during their freshman year. AP Biology is an elective science course for students who are highly motivated and have a strong interest in science. Major topics include biochemistry, cells, cellular energetics, genetics, evolution, the diversity of life, organism structure and function and ecology. As in college biology, the AP Biology course is designed to have both a lecture and lab component. Labs conducted by students are the equivalent of those experienced by college biology students. At the completion of the course, students are expected to take the College Board's AP Biology exam. Some students may earn college credit if they earn high enough marks on the exam. In class, the format of each test is similar to the AP Biology exam in order to prepare them. Students are expected to demonstrate critical thinking skills through their answers to both multiple choice questions and essay questions.

Course Title: **CHEMISTRY**

Prerequisite: Completion of Geometry (A or B) or approval of the instructor

Grade Level: 10 - 12

Credit: 10

Fulfills UC/CSU Requirements: Yes

Meets District Graduation Requirement: Physical Science

College Preparatory Chemistry is a rigorous course that involves the study of matter and energy. Many common and current problems of the modern world are related to the course content. The central theme of the course is problem solving within chemistry. Students will explore topics through discussions, laboratory investigations, teacher demonstrations, and in-class assignments. This course is aligned with the California State Standards in Chemistry.

Course Title: **SHELTERED CHEMISTRY (Shlt Chem P)**

Course No.: R4565

See **Chemistry**

Course Title: **AP CHEMISTRY**

Prerequisite: Recommended completion of H Alg I and H Geom with A or B
Recommended completion of Chemistry with A.

Grade Level: 11-12

Fulfills UC/CSU Requirements: Yes

Credit: 10

Meets District Graduation Requirement: Physical Science

This course is a fast-paced, laboratory-intensive course that prepares students for the College Board's AP Chemistry examination. It is intended for students who have successfully completed Chemistry and who are considering a career in medicine, science, or engineering. See www.collegeboard.com for full curriculum.

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Course Title: **EARTH & SPACE SCIENCE**

Prerequisite: Concurrent enrollment in Algebra I

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 9 -12

Fulfills UC/CSU Requirements: Yes

Earth and Space introduces and brings together the studies of geology, oceanography, meteorology, and astronomy. The course will focus on the study of our solar system, the solid earth (rocks, minerals, plate tectonics, mountain building, and earthquakes), oceans, shorelines, the atmosphere (climate and weather), and the flow of energy through these systems. This course fulfills the physical science requirement for high school graduation. This course is aligned with the California State Standards in Earth Science and is a UC/CSU approved elective.

Course Title: **SHELTERED EARTH & SPACE SCIENCE**

See Earth/Space

Course Title: **AP ENVIRONMENTAL SCIENCE**

Prerequisite: The ability and academic background to complete college-level work.

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 11-12

Fulfills UC/CSU Requirements: Yes

The topics covered include Interdependence of Earth Systems, Human Population Dynamics, Renewable and Nonrenewable Resources, Scientific Analysis Energy, Environmental Quality, Global Changes and Their Consequences, Environment and Society, and Choices for the Future. See www.collegeboard.com for further explanation.

Course Title: **PHYSICS**

Prerequisite: Geometry and concurrent enrollment in Algebra II

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 11-12

Fulfills UC/CSU Requirements: Yes

Traditional Physics is a lab science course designed for the college-bound student who is not specifically planning a major in the sciences. The course surveys the fundamental concepts of physics from its historical development, through mechanics, energy, and thermodynamics, to relativity and nuclear physics. Emphasis is placed on problem solving skills and the analysis of results.

Course Title: **AP PHYSICS B**

Prerequisite: The ability and academic background to complete college-level work.

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 10-12

Fulfills UC/CSU Requirements: Yes

This course is a more in depth study of College Preparatory Physics. More difficult algebra based problems in mechanics, electricity, magnetism, light and optics, and modern Physics are studied. Laboratories are integrated into each unit. A firm grounding in algebra, trigonometry and introductory Physics is essential. This course is particularly useful for students intending to study medicine, biotechnology, earth science, or computer science at the university level. See www.collegeboard.com for further explanation.

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Course Title: **AP PHYSICS C**

Prerequisite: The ability and academic background to complete college-level work.

Credit: 10

Meets District Graduation Requirement: Physical Science

Grade Level: 11 - 12

Fulfills UC/CSU Requirements: Yes

Content: Classical Mechanics, Electromagnetism. Approach: Lectures, minimal demonstrations and labs, maximum effort on problem solving of university level physics problems. The pace of the course will be rapid with the assumption of knowledge of fundamental physics. Calculus will be used extensively. See www.collegeboard.com for further explanation.

Course Title: **SCIENCE LABORATORY ASSISTANT**

Prerequisite: Approval of instructor

Credit: 5 (May be repeated)

Meets District Graduation Requirement: Elective (May not be applied toward science requirement.)

Grade Level: 11-12

Fulfills UC/CSU Requirements: No

The laboratory assistant prepares lab experiments and demonstrations, sometimes demonstrating before the class. He/she operates and maintains audio-visual equipment, is responsible for the stockroom, and does paperwork as required. He/she issues materials to students and is responsible for the inventory and checking in of supplies. This is an excellent opportunity to do independent work under limited supervision.

PILOT COURSES

Course Title: **ANATOMY & PHYSIOLOGY**

Prerequisite: None

Credit: 10

Meets District Graduation Requirement: Life Science

Grade Level: 10-12

Fulfills UC/CSU Requirements: Yes

The purpose of this course is to expose students to the biology of the form and function of the human body and its similarities/differences with other species. It is a rigorous second year biology course for students interested in biology, medicine and its related professions. Students will be introduced to many lab exercises that will help them to understand both the human body and the importance of correct laboratory procedures.

Course Title: **INTRO TO BIOTECHNOLOGY**

Prerequisite: "B" or better in Algebra/Algebra I Honors, concurrent Biology or "B" or better in Biology

Credit: 10

Meets District Graduation Requirement: Life Science

Grade Level: 9-12

Fulfills UC/CSU Requirements: Pending

To meet the need of the fastest-growing industry in San Diego County. San Dieguito Academy is implementing a multi-tiered program in biotechnology. Introduction to Biotechnology is the first of a series of skills-based courses designed to give students an introduction to the scientific concepts and laboratory research techniques currently used in the field of biotechnology. Along with exposure to both the business and scientific sides of biotechnology, students learn responsibility, organization, self-reliance, and workplace etiquette. Students develop laboratory skills, critical thinking, and communication skills currently used in the Biotechnology industry.

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