



## Environmental Science and Field Research ROP

Supported by Grundfos

Students take part in several field trips in order to experience the San Joaquin Valley, San Joaquin River, Pacific Coast, and the Sierra Nevada Mountains. Students will carry out hands-on projects relating to careers in marine biology, wildlife rehabilitation, air quality, river ecology, alternative energy, and forests. Students will have the opportunity to work with environmental professionals and government agencies to complete scientific projects. Some examples are growing native plants, restoring native wildlife habitats, rehabilitating injured and orphaned wildlife species, monitoring forests, experimenting in wetlands and conducting studies of tide pools and beaches.

### Students take:

- English 11 (P) or 12 Honors (P)
- Chemistry (P) or Zoology (P)
- Environmental Research and Technology (P)
- CART Technology Applications



## Business and Finance ROP

(AM only)

In addition to learning how to manage and invest money, students also investigate what it takes to create and own a business. Students study human behaviors of producing, distributing, and consuming materials, goods, and services in a world of limited resources. They learn how the financial services industry works as they strengthen the analytical, technical and communication skills needed to succeed in any economy.

### Students take:

- English 11 (P) or 12 Honors (P)
- US History (P) or Government and Economics (P)
- Money and Banking (P)
- CART Technology Applications



## Hospitality and Event Management ROP

(PM only)

Students learn the skills needed to succeed in the world of event management and customer service. Through hands-on projects, students gain knowledge needed to begin careers in travel, restaurant management, special event planning, and recreation.

### Students take:

- English 11 (P) or 12 Honors (P)
- US History (P) or Government and Economics (P)
- Money and Banking (P)
- CART Technology Applications



## Cybersecurity ROP

Students will learn to design, build, secure, and analyze both home and smb (small to medium business) computer networks, media centers, and security systems; students will also investigate an understanding of the Iot (internet of things). Through projects and hands-on activities, students will explore the relationship between modems, routers, switches, cables, wireless access points, servers, and attached peripherals. This lab will also offer: CIW's NTA (network technology associate) & WSA (web security associate) certifications, and Comptia's A+ & Security+ certifications.

### Students take:

- English 11 (P) or 12 Honors (P)
- Cybersecurity (2 Periods)
- CART Technology Applications



## Marketing, Advertising and Entrepreneurship ROP

Students explore how companies, such as Apple, Starbucks, Roxy and Nike develop their branding through product development, pricing strategies, promotional campaigns and global product placement. Students enjoy hands-on learning as they develop their own product brands and promotional campaigns, including online advertising and social media, television, radio, mobile and print advertising. Students learn industry-standard technology for conducting market research and creating advertising products. Students experience real-world learning through internships with non-profit organizations, media companies and advertising agencies.

### Students take:

- English 11 (P) or 12 Honors (P)
- US History (P) or Government and Economics (P)
- Economics of Marketing (P)
- CART Technology Applications



## Web Application Development ROP

Students go beyond being a user of technology and become certified to design, develop, and deploy Rich Internet Applications, websites, and games using Web 2.0 developer tools such as Java, SQL, HTML5, CSS3, and JavaScript. They will learn the foundational skills of object-oriented programming, web design, database design, scripting, and graphical user-interface design to ensure that end-users have a positive experience and return again and again to the applications. Certifications through Microsoft, Adobe, and CIW are available.

### Students take:

- English 11 (P) or 12 Honors (P)
- Applications Programing (2 Periods)
- CART Technology Applications



## Psychology and Human Behavior

Students investigate the inner workings of the human mind on both physiological and chemical levels. Students explore the workings of their own minds while learning why people behave the way they do. Students consider what influences behavior, and how behavior is controlled, changed, and modified.

### Students take:

- English 11 (P) or 12 Honors (P)
- Neuroscience (P)
- Psychology of Human Behavior (P)
- CART Technology Applications



## Biotechnology

Students explore biotechnology, an exploding science field that leads to high-paying jobs in medicine, biology, chemistry, agriculture, and environmental science. Students apply DNA technology to genetically engineer bacteria, solve medical mysteries, clone tissues, diagnose genetic disease, and explore drug development and testing. Students wrestle with difficult ethical issues that arise as a result of using biotechnology to solve problems. **Recommended prerequisites: "C" or better in English, Algebra 1 and Biology.**

### Students take:

- English 11 (P) or 12 Honors (P)
- Chemistry (P) or Adv Science Topics (HP)
- Bioengineering (P)
- CART Technology Applications



## Digital Video Production and Broadcast ROP

Students develop skills in television and film production. Using industry-standard software packages (i.e. Adobe CC), students will engage in hands-on, integrated curriculum. They work on all stages of production while creating products such as short films, advertisements, journalism broadcasts, and documentaries. All multimedia students develop skills in the content and presentation of message design, the sociological impacts of media, and the stages of the production cycle.

### Students take:

- English 11 (P) or 12 Honors (P)
- Digital Video Production and Broadcasting (P) (2 Periods)
- CART Technology Applications



## Interactive Game Design ROP

\*Primarily for returning CART seniors or by special permission of the instructor

Students learn about graphic design, animation, modeling, gameplay and story design while working in teams to create original games and characters rendered in 2D and 3D. Students are introduced to industry standard software such as 3D Studio Max, Unity 3D, Construct 2, and have the opportunity to learn HTML5/CSS3/JavaScript programming skills. **Prerequisite(s): Database, Graphics, Programming, or Web Design.**

### Students take:

- English 12 Honors (P)
- Interactive Game Design (2 Periods)
- CART Technology Applications



## Law and Order and Policy

Students study the major aspects of constitutional, criminal, and civil law. Projects teach students about their individual rights, criminal procedure, how laws are made, and how to make a legal argument. Students learn how to research and discuss current and historical controversial issues relating to the law. All students have the opportunity to participate in mock trials and field trips to local and federal courthouses and law firms.

### Students take:

- English 11 (P) or 12 Honors (P)
- Government and Economics (P)
- Law and Order and Public Policy (P)
- CART Technology Applications



## Biomedicine

Students explore issues in medical science and human anatomy/physiology through their involvement in dissections, medical case studies and research projects. Students investigate how a healthy body functions and how it reacts to disease. Students collaborate with medical professionals at various hospitals and clinics in the Fresno/Clovis area as they research a variety of medical topics. **Required prerequisites: "C" or better in Biology, Chemistry, Algebra 1 and English.**

### Students take:

- English 11 (P) or 12 Honors (P)
- Anatomy/Physiology (P)
- Adv Topics in Medicine (P)
- CART Technology Applications



## Digital Media and Graphic Design ROP

Students develop skills in communication and message design including color, typography and design principles. They investigate graphic and web techniques in cooperative teams similar to corporate settings. Design students will work on all stages of production using industry-standard software (i.e. Adobe CC) to create original products such as logos, posters, newspapers, advertisements, websites and two-dimensional animation.

### Students take:

- English 11 (P) or 12 Honors (P)
- Digital Media and Graphic Design (P) (2 Periods)
- CART Technology Applications



## Engineering and Product Development ROP

(AM only) Sponsored by Grundfos

Imagination, creativity, and knowledge are used to develop solutions to real-world engineering problems. Working in small teams, students create working prototypes of their solutions using a variety of materials and tools, including 3D printers and CNC machines. Scientific research methods are introduced to provide design justifications and analysis. Students are introduced to industry-standard software such as SolidWorks and MasterCAM. **Recommended prerequisites: "C" or better in English and Algebra 2 or Geometry.**

### Students take:

- English 11 (P) or 12 Honors (P)
- Physics and Technology (P)
- Engineering and Product Development
- CART Technology Applications



## Robotics and Electronics ROP

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Students explore the fascinating world of robotics and automation. They will learn to design, build, and program a robotic device that responds to external information. Scientific research methods are introduced to provide design justifications and analysis. They will understand electronics and basic computer programming. Students are introduced to industry-standard software such as SolidWorks and MatLAB as well as various programming languages. **Recommended prerequisites: "C" or better in English and Algebra 2 or Geometry.**

### Students take:

- English 11 (P) or 12 Honors (P)
- Physics and Technology (P)
- Robotics/Electronics (P)
- CART Technology Applications



## Forensic Research and Biotechnology

Students use hands-on, investigative science techniques to solve intriguing problems connected to crime and the law. Interactive physical evidence simulations include topics such as: DNA/ biotechnology, fingerprinting, ballistics, and scene reconstruction. **Recommended prerequisites: "C" or better in Biology, Algebra I and English.**

### Students take:

- English 11 (P) or 12 Honors (P)
- Chemistry (P) or Physics (P)
- Forensic Research and Biotechnology (P)
- CART Technology Applications

